



# BAS3502-E

Backup Assistance System

**OBJECT DETECTION SYSTEMS**

**SICK**  
Sensor Intelligence.



### Ordering information

| Vehicle            | Monitored area                               | Machine reverse signal voltage       | Machine operating voltage            | Number of sensors | Type      | Part no. |
|--------------------|----------------------------------------------|--------------------------------------|--------------------------------------|-------------------|-----------|----------|
| Electric forklifts | Vehicle rear end<br>Blind spot or side cover | 24 V<br>36 V<br>48 V<br>60 V<br>72 V | 24 V<br>36 V<br>48 V<br>60 V<br>72 V | 2                 | BAS3502-E | 1117896  |

**Included in delivery:** 6" socket arm (1" Ball) (2), BAS3500-E Control unit (1), Mounting kit (2), Sensor mount (1" Ball) (2), Signal Light bar (2), TIM351-2134001 (2), YF2A28-050UA6M2A28 (2), DSL-1212-G05MAS02 (2)

Interactive 3D tool

Scalable monitored area for need-based environment perception with the Backup Assistance System

The system is not a safety device in the sense of the applicable safety standards for machines.

Other models and accessories → [www.sick.com/Backup\\_Assistance\\_System](http://www.sick.com/Backup_Assistance_System)



### Detailed technical data

#### Features

|                             |                                |
|-----------------------------|--------------------------------|
| <b>Areas of application</b> | Indoor and outdoor areas (8 m) |
| <b>Number of sensors</b>    | 2                              |
| <b>Vehicles</b>             | Electric forklifts             |

#### Mechanics/electronics

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| <b>Weight</b>                         | 2,320 g, without connecting cables    |
| <b>Power consumption</b>              | 10 W (≤ 13 W)                         |
| <b>Machine reverse signal voltage</b> | 24 V<br>36 V<br>48 V<br>60 V<br>72 V  |
| <b>Machine operating voltage</b>      | 24 V<br>36 V<br>48 V<br>60 V<br>72 V  |
| <b>Enclosure rating</b>               | IP65 / IP67                           |
| <b>Laser class</b>                    | 1 (IEC 60825-1:2014, EN 60825-1:2014) |

#### Performance

|                                |                                              |
|--------------------------------|----------------------------------------------|
| <b>Functions</b>               | Visual and acoustic collision warning        |
| <b>Number of laserscanners</b> | 2                                            |
| <b>Monitored area</b>          | Vehicle rear end<br>Blind spot or side cover |

|                      |   |
|----------------------|---|
| <b>Warning zones</b> | 2 |
| <b>GPS</b>           | - |
| <b>WebInterface</b>  | - |

Interfaces

|            |          |                                                            |
|------------|----------|------------------------------------------------------------|
| <b>USB</b> | Function | ✓, micro USB<br>Parameterization<br>Machine reverse        |
| <b>HMI</b> | Function | ✓, For signal light bar<br>For visual and acoustic warning |

Ambient data

|                                      |                   |
|--------------------------------------|-------------------|
| <b>Ambient operating temperature</b> | -20 °C ... +50 °C |
| <b>Ambient temperature, storage</b>  | -25 °C ... +55 °C |

General notes

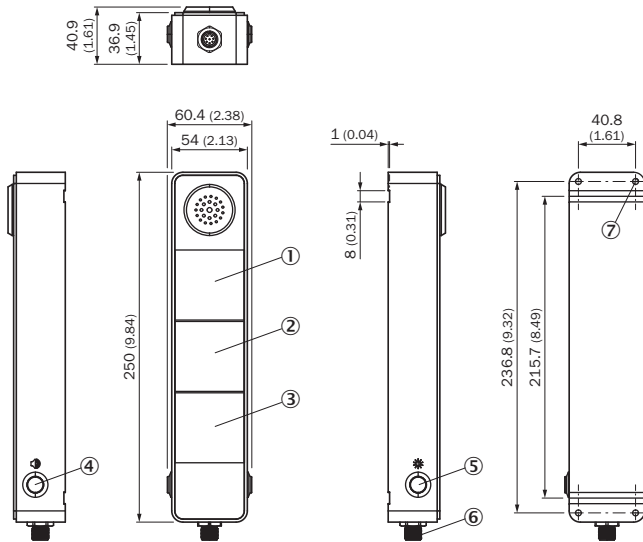
|                       |                                                                                                                                                                                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Items supplied</b> | 2D LiDAR sensor TiM351 (2 x)<br>Control module assembly with power and reverse cable, 3m<br>Signal light bar with tri-color visual and configurable audible alarm levels up to 98 dB (2 x)<br>Mounting kit for sensor and light stack (2 x)<br>Connection cables for sensor and light stack, 5m (2 x) |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27339090 |
| <b>ECLASS 5.1.4</b>   | 27339090 |
| <b>ECLASS 6.0</b>     | 27339090 |
| <b>ECLASS 6.2</b>     | 27339090 |
| <b>ECLASS 7.0</b>     | 27339090 |
| <b>ECLASS 8.0</b>     | 27339090 |
| <b>ECLASS 8.1</b>     | 27339090 |
| <b>ECLASS 9.0</b>     | 27330190 |
| <b>ECLASS 10.0</b>    | 27330190 |
| <b>ECLASS 11.0</b>    | 27330190 |
| <b>UNSPSC 16.0901</b> | 25172105 |

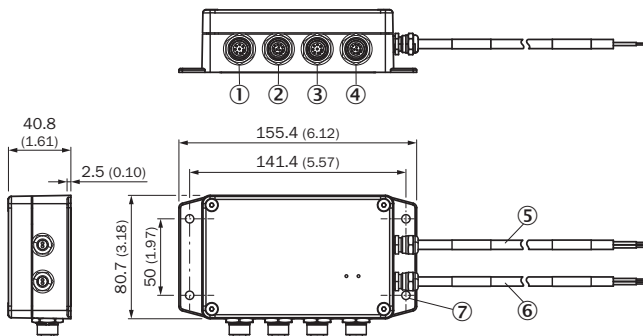
### Dimensional drawing (Dimensions in mm (inch))

Signal light bar with buzzer



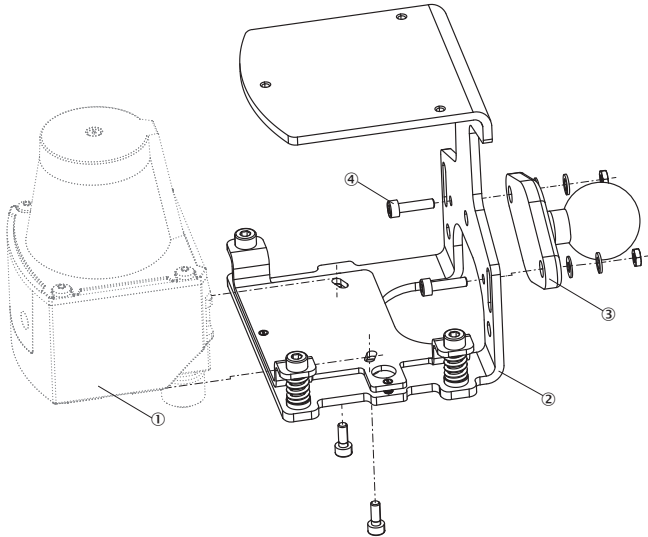
- ① Red LED segment (visual signal display)
- ② Yellow LED segment
- ③ Green LED segment
- ④ Function button for volume control
- ⑤ Function button for light intensity levels
- ⑥ “Power & I/O signal” connection, 8-pin, M12 male connector
- ⑦ 4 x mounting holes, M5

BAS control unit



- ① Signal light bar 1 connection, 8-pin M12 male connector
- ② Sensor 1 connection, 12-pin M12 male connector
- ③ Signal light bar 2 connection, 8-pin M12 male connector
- ④ Sensor 2 connection, 12-pin M12 male connector
- ⑤ “voltage supply” connection, 2-pin cable with open ends
- ⑥ “Reverse from vehicle” connection, 2-pin cable with open ends
- ⑦ Mounting plate with 4x holes, M5




Mounting kit notes



- ① TiM3xx 2D LiDAR sensor (included with delivery)
- ② TiM3xx mounting kit, part no. 2061776 (included with delivery)
- ③ RAM mount bracket, part no. 5333533 (included with delivery)
- ④ 2x screws each, nuts, washers (included with delivery)

Recommended accessories

Other models and accessories → [www.sick.com/Backup\\_Assistance\\_System](http://www.sick.com/Backup_Assistance_System)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                 | Type                               | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------|
| <b>Universal bar clamp systems</b>                                                  |                                                                                                                                                                                                                                                                                                   |                                    |          |
|  | 1/2" to 2" circular post clamp to connect socket arm and overhead guard                                                                                                                                                                                                                           | 1/2" to 2" circular post clamp     | 5333545  |
|  | 2" post clamp, 3" bolt (1" Ball) to connect socket arm and overhead guard                                                                                                                                                                                                                         | 2" post clamp, 3" bolt (1" Ball)   | 5333542  |
|                                                                                     | 2.5" post clamp, 3" bolt (1" Ball) to connect socket arm and overhead guard                                                                                                                                                                                                                       | 2.5" post clamp, 3" bolt (1" Ball) | 5333541  |
|                                                                                     | 3" post clamp, 3" bolt (1" Ball) to connect socket arm and overhead guard                                                                                                                                                                                                                         | 3" post clamp, 3" bolt (1" Ball)   | 5333540  |
|                                                                                     | 4" post clamp, 3" bolt (1" Ball) to connect socket arm and overhead guard                                                                                                                                                                                                                         | 4" post clamp, 3" bolt (1" Ball)   | 5333539  |
| <b>Others</b>                                                                       |                                                                                                                                                                                                                                                                                                   |                                    |          |
|  | <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  |

## 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)