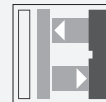




## Triangulation sensor (BGS)

### OBT1250-R202-E5-V1



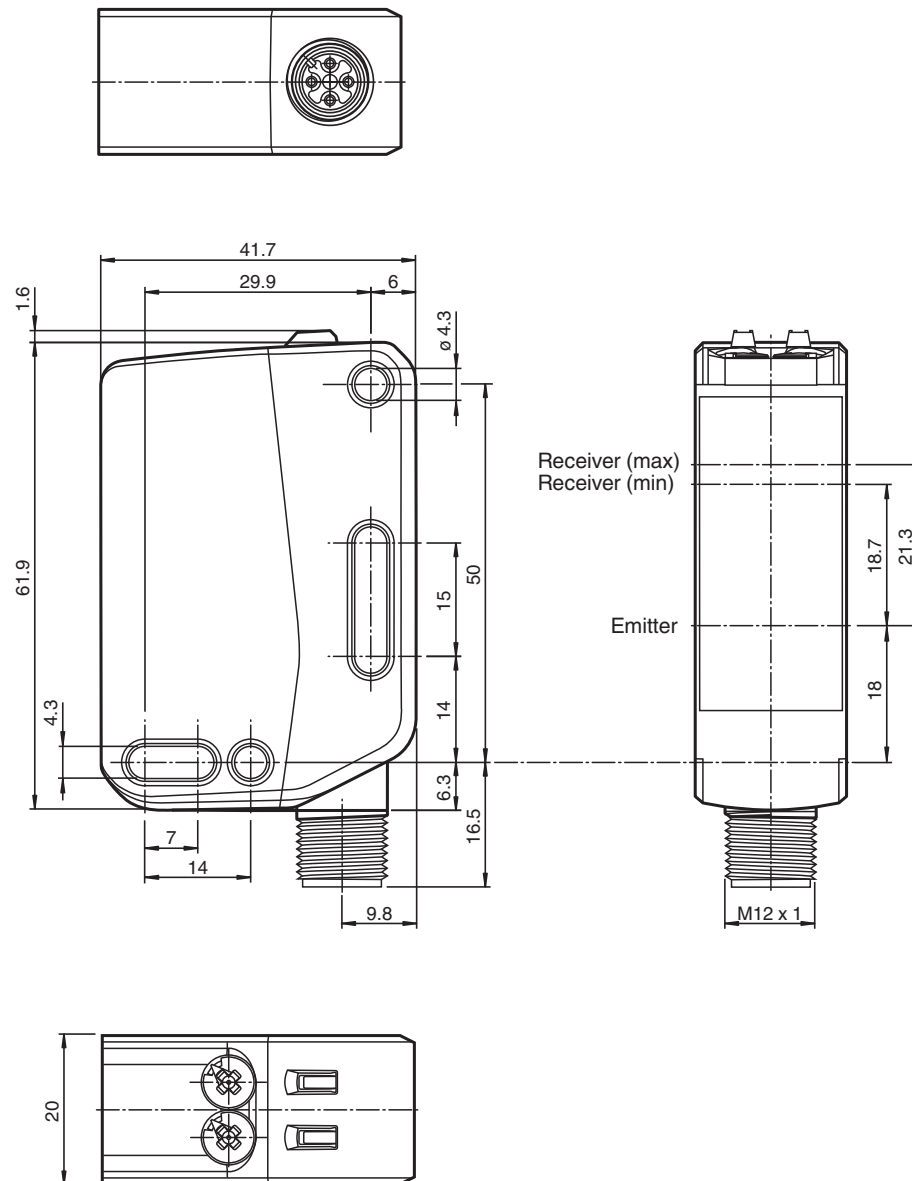
- Medium design with versatile mounting options
- Degree of protection IP67
- Mounting on full metal sockets
- Very bright, highly visible light spot
- Highly visible LEDs for Power ON and switching state
- Easy to use
- Image is generic for this device type and may deviate from the specific variant



## Function

The optical sensors of this series for applications in standard automation have a modern housing design. The sensors are characterized by the many mounting options, easy handling and highly visible LED status indicators. The integrated full metal bushings ensure long-term secure and dimensionally stable mounting.

## Dimensions



## Technical Data

### General specifications

|                      |                                 |
|----------------------|---------------------------------|
| Detection range      | 0 ... 1250 mm                   |
| Detection range min. | 0 ... 200 mm                    |
| Detection range max. | 0 ... 1250 mm                   |
| Adjustment range     | 200 ... 1250 mm                 |
| Reference target     | standard white, 100 mm x 100 mm |
| Light source         | LED                             |
| Light type           | modulated visible red light     |

Release date: 2023-07-11 Date of issue: 2023-07-11 Filename: 70128080-100022\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

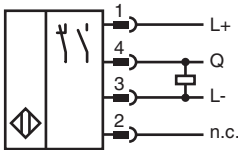
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

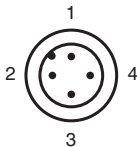
## Technical Data

|                                             |                |                                                                                                                                                             |
|---------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED risk group labelling                    |                | exempt group                                                                                                                                                |
| Black-white difference (6 %/90 %)           |                | < 40 % at 1250 mm                                                                                                                                           |
| Diameter of the light spot                  |                | approx. 50 mm at a distance of 1250 mm                                                                                                                      |
| Opening angle                               |                | 3 °                                                                                                                                                         |
| Ambient light limit                         |                | EN 60947-5-2 : 30000 Lux                                                                                                                                    |
| <b>Functional safety related parameters</b> |                |                                                                                                                                                             |
| MTTF <sub>d</sub>                           |                | 876 a                                                                                                                                                       |
| Mission Time (T <sub>M</sub> )              |                | 20 a                                                                                                                                                        |
| Diagnostic Coverage (DC)                    |                | 0 %                                                                                                                                                         |
| <b>Indicators/operating means</b>           |                |                                                                                                                                                             |
| Operation indicator                         |                | LED green:<br>on - power on<br>flashing (4 Hz) - short circuit                                                                                              |
| Function indicator                          |                | LED yellow:<br>constantly on - object detected<br>constantly off - object not detected<br>Flashing (8 Hz) - fault detected, the outputs maintain the status |
| Control elements                            |                | Light-on/dark-on changeover switch                                                                                                                          |
| Control elements                            |                | Sensing range adjuster                                                                                                                                      |
| <b>Electrical specifications</b>            |                |                                                                                                                                                             |
| Operating voltage                           | U <sub>B</sub> | 10 ... 30 V DC                                                                                                                                              |
| Ripple                                      |                | max. 10 %                                                                                                                                                   |
| No-load supply current                      | I <sub>0</sub> | < 35 mA at 24 V Operating voltage                                                                                                                           |
| Protection class                            |                | III                                                                                                                                                         |
| <b>Output</b>                               |                |                                                                                                                                                             |
| Switching type                              |                | The switching type of the sensor is adjustable. The default setting is:<br>Q - Pin4: PNP normally open / light-on                                           |
| Signal output                               |                | 1 PNP, short-circuit protected, reverse polarity protected                                                                                                  |
| Switching voltage                           |                | max. 30 V DC                                                                                                                                                |
| Switching current                           |                | max. 100 mA , resistive load                                                                                                                                |
| Usage category                              |                | DC-12 and DC-13                                                                                                                                             |
| Voltage drop                                | U <sub>d</sub> | ≤ 1.5 V DC                                                                                                                                                  |
| Switching frequency                         | f              | 1000 Hz                                                                                                                                                     |
| Response time                               |                | 0.5 ms                                                                                                                                                      |
| <b>Conformity</b>                           |                |                                                                                                                                                             |
| Product standard                            |                | EN 60947-5-2                                                                                                                                                |
| <b>Approvals and certificates</b>           |                |                                                                                                                                                             |
| UL approval                                 |                | E87056 , cULus Listed , class 2 power supply , type rating 1                                                                                                |
| CCC approval                                |                | CCC approval / marking not required for products rated ≤36 V                                                                                                |
| <b>Ambient conditions</b>                   |                |                                                                                                                                                             |
| Ambient temperature                         |                | -30 ... 60 °C (-22 ... 140 °F)                                                                                                                              |
| Storage temperature                         |                | -40 ... 70 °C (-40 ... 158 °F)                                                                                                                              |
| <b>Mechanical specifications</b>            |                |                                                                                                                                                             |
| Housing width                               |                | 20 mm                                                                                                                                                       |
| Housing height                              |                | 62 mm                                                                                                                                                       |
| Housing depth                               |                | 42 mm                                                                                                                                                       |
| Degree of protection                        |                | IP67                                                                                                                                                        |
| Connection                                  |                | 4-pin, M12 x 1 connector                                                                                                                                    |
| Material                                    |                |                                                                                                                                                             |
| Housing                                     |                | PC (Polycarbonate)                                                                                                                                          |
| Optical face                                |                | PMMA                                                                                                                                                        |
| Mass                                        |                | approx. 55 g                                                                                                                                                |

Connection



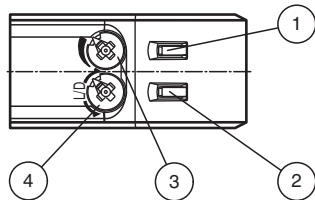
Connection Assignment



Wire colors in accordance with EN 60947-5-2

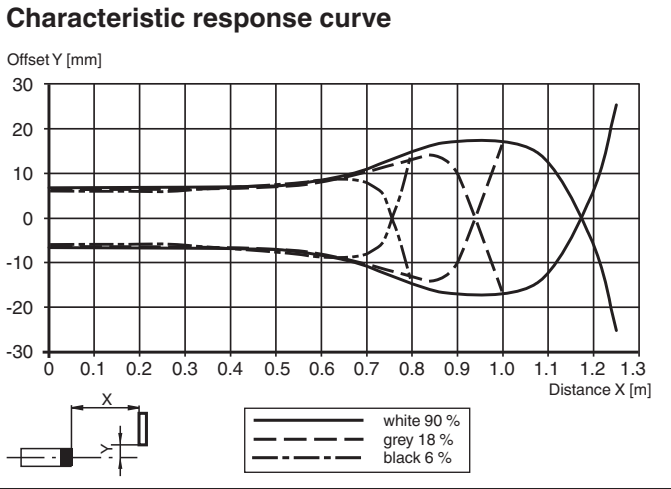
- |   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

Assembly



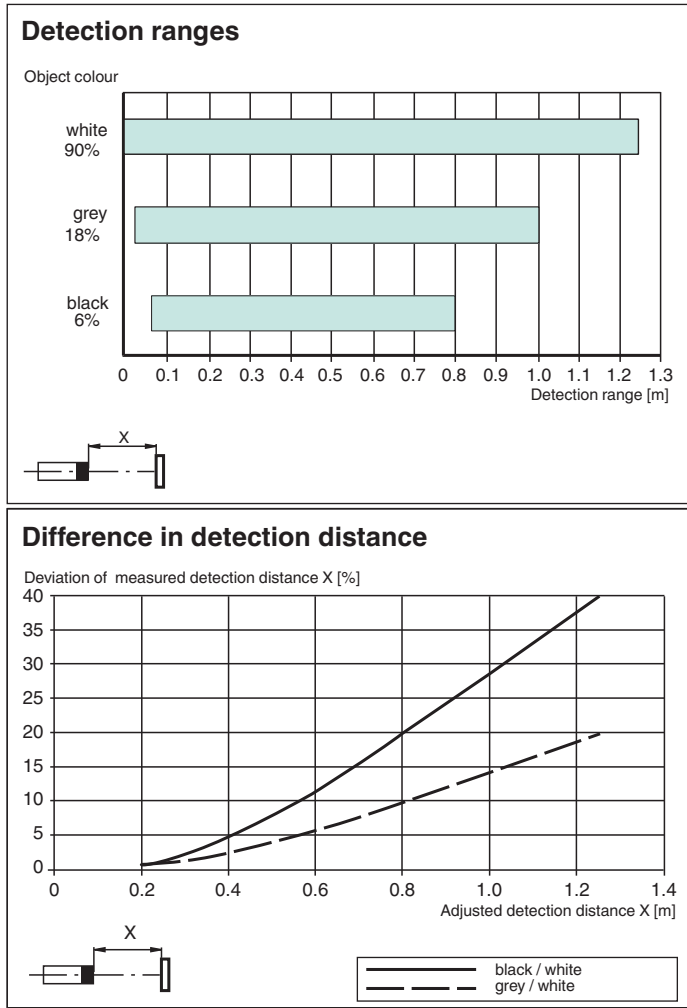
|   |                                      |    |
|---|--------------------------------------|----|
| 1 | Function indicator                   | YE |
| 2 | Operation indicator                  | GN |
| 3 | Sensitivity adjuster                 |    |
| 4 | Light-on / dark-on changeover switch |    |

Characteristic Curve



Release date: 2023-07-11 Date of issue: 2023-07-11 Filename: 70128080-100022\_eng.pdf

Characteristic Curve



Commissioning

**Sensing Range / Sensitivity**  
Turn sensing range / sensitivity adjuster clockwise to increase sensing range / sensitivity.  
Turn sensing range / sensitivity adjuster counter clockwise to decrease sensing range / sensitivity.  
The internal end stop signals the end of the adjustment range.

**Light-on / Dark-on Configuration**  
To set light switching or dark switching, turn the light/dark changeover switch to the end stop:

- clockwise: dark switching
- counterclockwise: light switching

Accessories

|  |             |                                                               |
|--|-------------|---------------------------------------------------------------|
|  | OMH-RL31-02 | Mounting bracket narrow                                       |
|  | OMH-R202-02 | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|  | OMH-R202-01 | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |

Release date: 2023-07-11 Date of issue: 2023-07-11 Filename: 70128080-100022\_eng.pdf