# Triangulation sensor (BGS)
# OBT40-R102-A0-V31

- Miniature design with versatile mounting options
- Best background suppressor in its class
- Precision object detection, almost irrespective of the color
- Extended temperature range
  -40 °C ... 60 °C
- High degree of protection IP69K
- IO-Link interface for service and process data

Triangulation sensor with background suppression

CE  c(UL)us LISTED  UKCA

## Function

The miniature optical sensors are the first devices of their kind to offer an end-to- end solution in a small single standard design — from thru-beam sensor through to a distance measurement device. As a result of this design, the sensors are able to perform practically all standard automation tasks.
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.
The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.

## Dimensions

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

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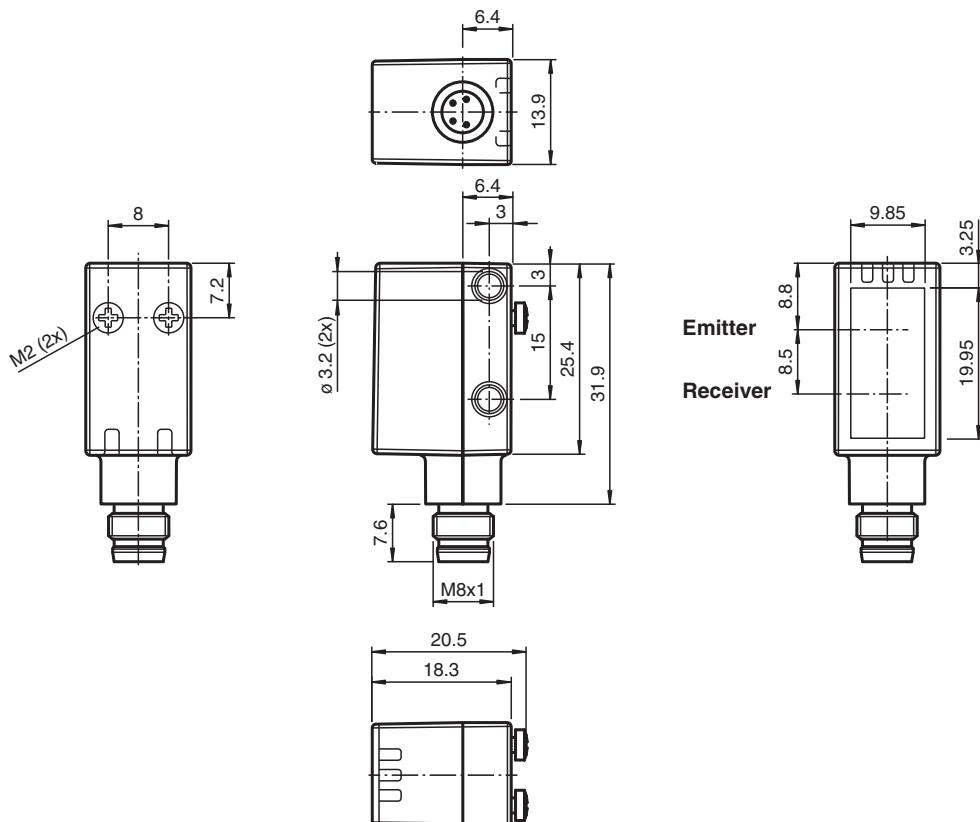
## Technical Data

**General specifications**

| | | |
|---|---|---|
| Detection range | | 10 ... 40 mm |
| Detection range max. | | 10 ... 50 mm |
| Background suppression | | starts from 50 mm |
| Reference target | | standard white, 100 mm x 100 mm |
| Light source | | LED |
| Light type | | modulated visible red light |
| LED risk group labelling | | exempt group |
| Black-white difference (6 %/90 %) | | approx. 1 mm |
| Diameter of the light spot | | approx. 3 mm at 40 mm |
| Opening angle | | approx. 5 ° |
| Ambient light limit | | EN 60947-5-2 : 40000 Lux |

**Functional safety related parameters**

| | | |
|---|---|---|
| $MTTF_d$ | | 600 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |

**Indicators/operating means**

| | | |
|---|---|---|
| Operation indicator | | Green LED:<br>Permanently lit - power on<br>Flashing (4 Hz) - short circuit |
| Function indicator | | LED yellow:<br>constantly on - object detected<br>constantly off - object not detected |

**Electrical specifications**

| | | |
|---|---|---|
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| Ripple | | max. 10 % |
| No-load supply current | $I_0$ | < 25 mA at 24 V supply voltage |
| Protection class | | III |

**Output**

| | | |
|---|---|---|
| Switching type | | Q - Pin4: NPN normally open / light-on<br>/Q - Pin2: NPN normally closed / dark-on |
| Signal output | | 2 NPN short-circuit protected, protected against reverse polarity, open collector |
| Switching voltage | | max. 30 V DC |
| Switching current | | max. 100 mA , resistive load |
| Usage category | | DC-12 and DC-13 |
| Voltage drop | $U_d$ | ≤ 1.5 V DC |
| Switching frequency | f | 500 Hz |
| Response time | | 1 ms |

**Conformity**

| | | |
|---|---|---|
| Product standard | | EN 60947-5-2 |

**Approvals and certificates**

| | | |
|---|---|---|
| UL approval | | E87056 , cULus Listed , class 2 power supply , type rating 1 |

**Ambient conditions**

| | | |
|---|---|---|
| Ambient temperature | | -40 ... 60 °C (-40 ... 140 °F) |
| Storage temperature | | -40 ... 70 °C (-40 ... 158 °F) |

**Mechanical specifications**

| | | |
|---|---|---|
| Housing width | | 13.9 mm |
| Housing height | | 31.9 mm |
| Housing depth | | 18.3 mm |
| Degree of protection | | IP67 / IP69 / IP69K |
| Connection | | M8 x 1 connector, 4-pin |
| Material | | |
|     Housing | | PC (Polycarbonate) |
|     Optical face | | Float glass |

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## Technical Data

| | |
|---|---|
| Mass | approx. 10 g |

## Connection
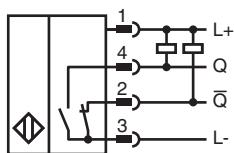


## Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

## Assembly
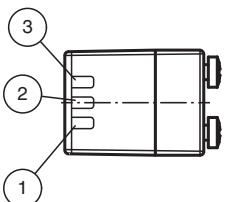


| 1 | Operating indicator / dark on |
|---|---|
| 2 | Signal indicator |
| 3 | Operating indicator / light on |

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## Characteristic Curve

### Characteristic response curve

Offset Y [mm]



| | |
|---|---|
| white 90 % | |
| grey 18 % | |
| black 6 % | |

### Detection ranges

Object colour
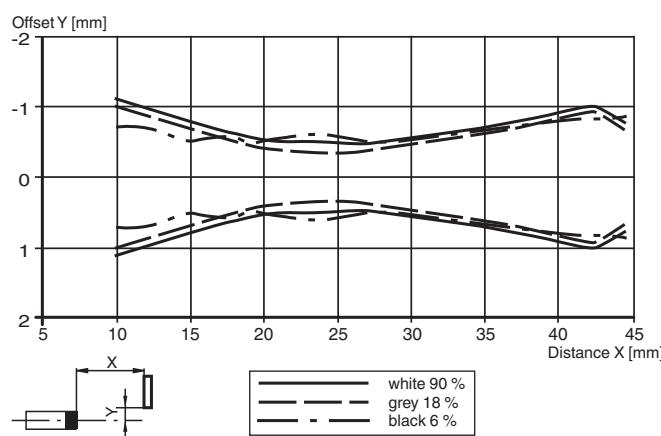


Detection range [mm]
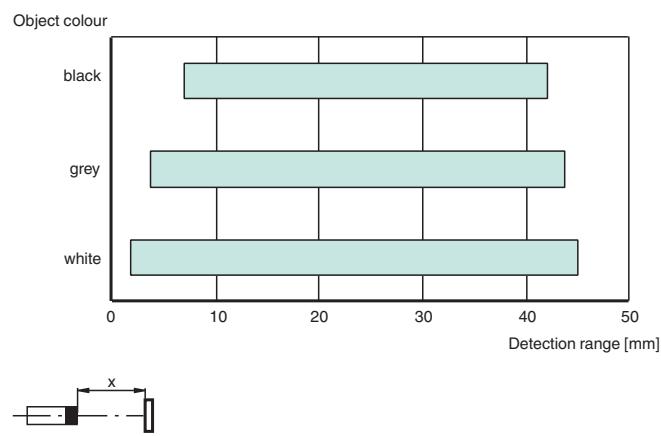
## Accessories

| | | |
|---|---|---|
| | **V31-GM-2M-PUR** | Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey |
| | **V31-WM-2M-PUR** | Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey |

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