

# Triangulation sensor (BGS)

## OBT350-R100-2EP-IO-0,3M-V1



- 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

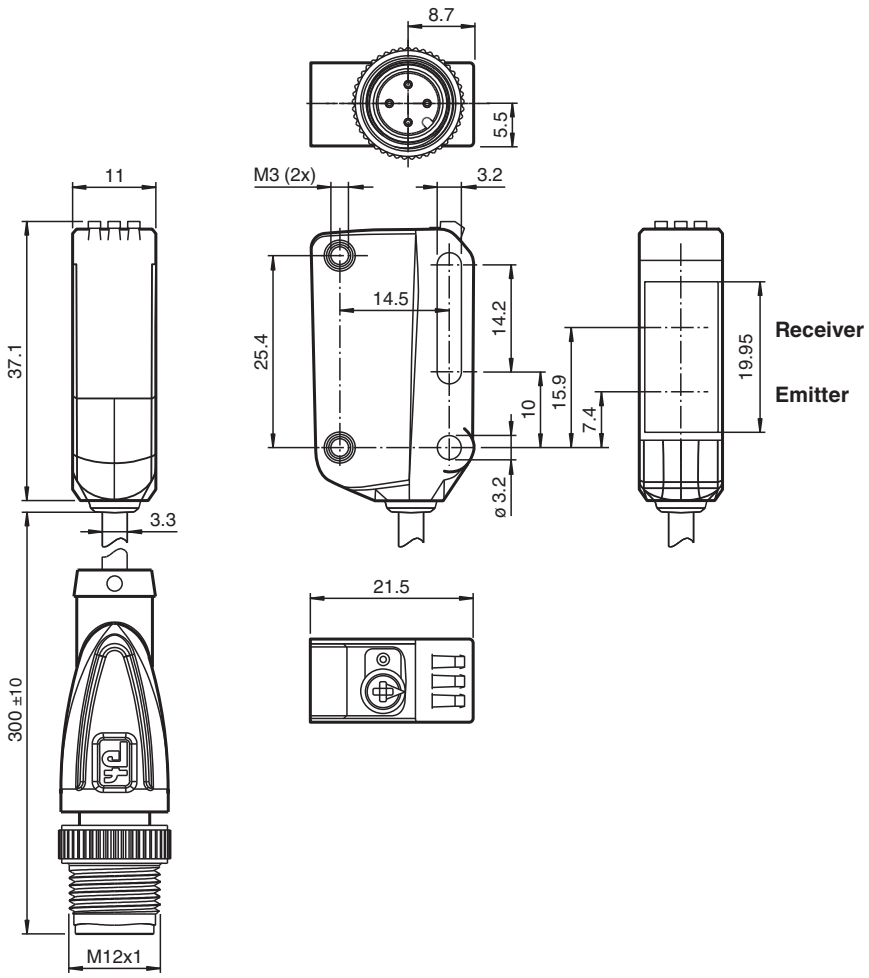
Triangulation sensor with background suppression

## Function

The R100 series miniature optical sensors are the first devices of their kind to offer an endto- 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 entire series enables sensors to communicate via IO-Link.
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.

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Dimensions




## Technical Data

| | | |
|---|---|---|
| **General specifications** | | |
| Detection range | | 5 ... 350 mm |
| Detection range min. | | 5 ... 25 mm |
| Detection range max. | | 5 ... 350 mm |
| Adjustment range | | 25 ... 350 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 %) | | < 15 % at 350 mm |
| Diameter of the light spot | | approx. 20 mm at a distance of 350 mm |
| Opening angle | | approx. 3 ° |
| 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 | | LED green:<br>constantly on - power on<br>flashing (4Hz) - short circuit<br>flashing with short break (1 Hz) - IO-Link mode |

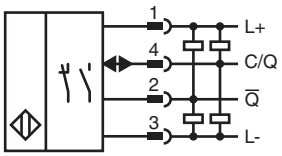
Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Technical Data

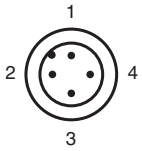
| | | |
|---|---|---|
| Function indicator | | LED yellow:<br>constantly on - object detected<br>constantly off - object not detected |
| Control elements | | Light-on/dark-on changeover switch |
| Control elements | | Sensing range adjuster |
| **Electrical specifications** | | |
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| Ripple | | max. 10 % |
| No-load supply current | $I_0$ | < 25 mA at 24 V supply voltage |
| Protection class | | III |
| **Interface** | | |
| Interface type | | IO-Link ( via C/Q = pin 4 ) |
| IO-Link revision | | 1.1 |
| Device profile | | Smart Sensor |
| Device ID | | 0x110601 (1115649) |
| Transfer rate | | COM2 (38.4 kBit/s) |
| Min. cycle time | | 2.3 ms |
| Process data width | | Process data input 1 Bit<br>Process data output 2 Bit |
| SIO mode support | | yes |
| Compatible master port type | | A |
| **Output** | | |
| Switching type | | The switching type of the sensor is adjustable. The default setting is:<br>C/Q - Pin4: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link<br>/Q - Pin2: NPN normally closed / dark-on, PNP normally open / light-on |
| Signal output | | 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage protected |
| 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** | | |
| Communication interface | | IEC 61131-9 |
| 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) , fixed cable<br>-25 ... 60 °C (-13 ... 140 °F) , movable cable not appropriate for conveyor chains |
| Storage temperature | | -40 ... 70 °C (-40 ... 158 °F) |
| **Mechanical specifications** | | |
| Housing width | | 11 mm |
| Housing height | | 37.1 mm |
| Housing depth | | 21.5 mm |
| Degree of protection | | IP67 / IP69 / IP69K |
| Connection | | 300 mm fixed cable with M12 x 1, 4-pin connector |
| Material | | |
| Housing | | PC (Polycarbonate) |
| Optical face | | PMMA |
| Mass | | approx. 17 g |
| Cable length | | 0.3 m |

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Connection



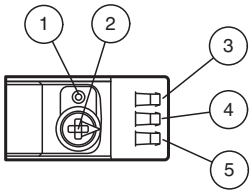

## Connection Assignment




Wire colors in accordance with EN 60947-5-2

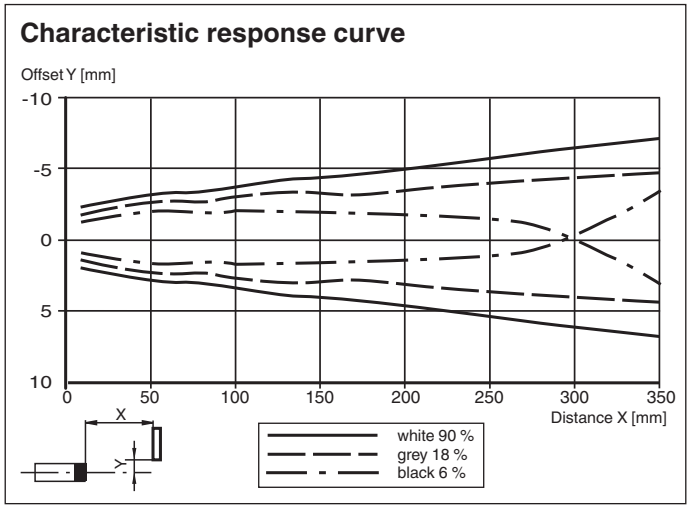
| | | |
|---|---|---|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

## Assembly




| | |
|---|---|
| 1 | Light-on / dark-on changeover switch |
| 2 | Sensing range adjuster |
| 3 | Operating indicator / dark on |
| 4 | Signal indicator |
| 5 | Operating indicator / light on |

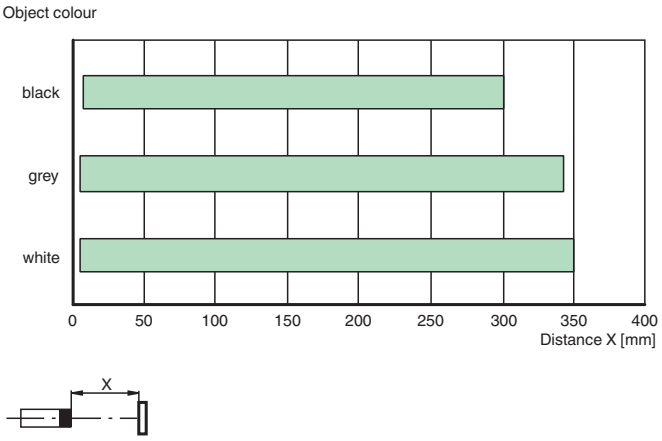
## Characteristic Curve



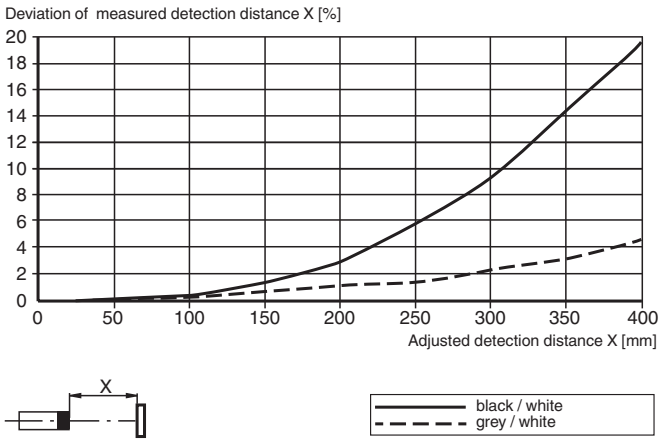

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Characteristic Curve

### Detection ranges




### Difference in detection distance




## Accessories

| | | |
|---|---|---|
|  | **OMH-ML100-09** | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|  | **OMH-R10X-01** | Mounting bracket |
|  | **OMH-R10X-02** | Mounting bracket |
|  | **OMH-R10X-04** | Mounting bracket |
|  | **OMH-R10X-10** | Mounting bracket |
|  | **OMH-ML100-03** | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|  | **OMH-ML100-031** | Mounting aid for round steel ø 10 ... 14 mm or sheet 1 mm ... 5 mm |
|  | **V31-GM-2M-PUR** | Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey |

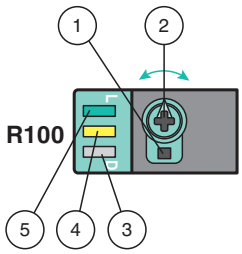
Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Accessories

| | | |
|---|---|---|
|  | **V31-WM-2M-PUR** | Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey |
|  | **ICE2-8IOL-G65L-V1D** | EtherNet/IP IO-Link master with 8 inputs/outputs |
|  | **ICE3-8IOL-G65L-V1D** | PROFINET IO IO-Link master with 8 inputs/outputs |
|  | **ICE1-8IOL-G30L-V1D** | Ethernet IO-Link module with 8 inputs/outputs |
|  | **ICE1-8IOL-G60L-V1D** | Ethernet IO-Link module with 8 inputs/outputs |
|  | **ICE2-8IOL-K45P-RJ45** | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors |
|  | **ICE2-8IOL-K45S-RJ45** | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal |
|  | **ICE3-8IOL-K45P-RJ45** | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals |
|  | **ICE3-8IOL-K45S-RJ45** | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal |
|  | **IO-Link-Master02-USB** | IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection |
|  | **V1-G-2M-PUR** | Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey |
|  | **V1-W-2M-PUR** | Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey |

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

## Configuration




1 - Light-on / dark-on changeover switch

2 - Sensing range / sensitivity adjuster

3 - Operating indicator / dark on

4 - Signal indicator

5 - Operating indicator / light on

To unlock the adjustment functions turn the sensing range /sensitivity adjuster for more than 180 degrees.

### 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.

If the end of the adjustment range is reached, the signal indicator starts flashing with 8 Hz.

### Light-on / Dark-on Configuration

Press the light-on / dark-on changeover switch for more than 1 second (less than 4 seconds). The light-on / dark-on mode changes and the operating indicators are activated accordingly.

If you press the light-on / dark-on changeover switch for more than 4 seconds, the light-on /dark-on mode changes back to the original setting. On release of the light-on / dark-on changeover switch the current state is activated.

### Restore Factory Settings

Press the light-on / dark-on changeover switch for more than 10 seconds (less than 30 seconds) until all LEDs turn off. On release of the light-on / dark-on changeover switch the signal indicator turns on. After 5 seconds the sensor resumes operation with factory default settings.

After 5 minutes of inactivity the sensing range / sensitivity adjustment is locked. In order to reactivate the sensing range / sensitivity adjustment, turn the sensing range /sensitivity adjuster for more than 180 degrees.

Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-0069_eng.pdf

# Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

## PEPPERL+FUCHS:

UBE800-F77-SE2-V31 MLV41-8-H-350-RT/59/92/136 NBN40-U1-E3 V15-W-10M-PUR 134130
GLV30-8-2500/47/73C NBB5-18GM50-A0 OQT150-R101-2EP-IO-V31 UB4000-F42-E6-V15 Z954 134143
NBB2-12GM50-A2-V1 NBB3-V3-Z4 RL28-8-H-2000-IR/105/110 SJ10-E2 UB2000-F42-E6-V15 114642
NBB0.8-5GM25-E2 NBB2-8GM40-E0-V1 NBB4-12GM50-A2-V1 NBB5-18GM50-E2 NCB40-FP-A2-P1
OBR2500-12GM40-E5 214916 CCN15-30GS60-E2-V1 OBD450-18GK40A-E2 S1SD-1AI-1U.1
NBB1-4GM22-E2 OQT150-R100-2EP-IO-V31-L UB400-F77-E2-V31