



**Model Number**

**OBT300-R200-2EP-IO-V31-1T**

Triangulation sensor (BGE)  
with fixed cable and 4-pin, M8 connector

**Features**

- Medium design with versatile mounting options
- Secure and gapless detection, even near the surface through background evaluation
- 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

**Product information**

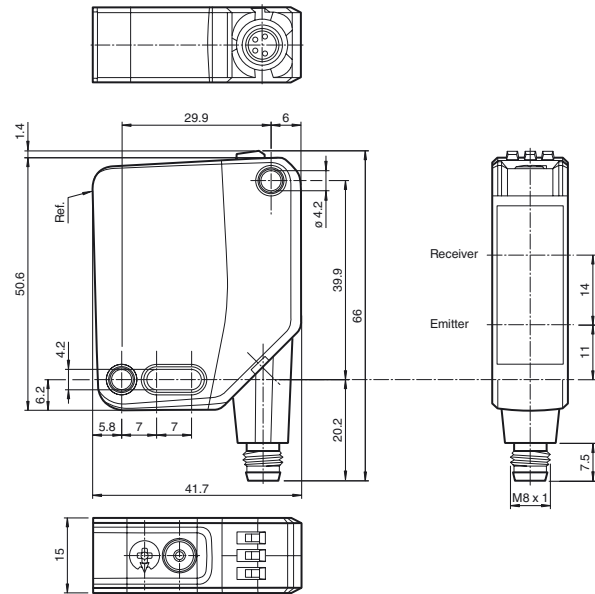
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

The entire series enables sensors to communicate via IO-Link.

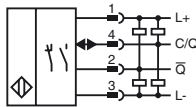
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

Multi Pixel Technology (MPT) ensures that the standard sensors are flexible and can be adapted to the application environment.

**Dimensions**



**Electrical connection**



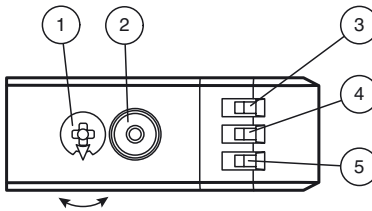
**Pinout**

Wire colors in accordance with EN 60947-5-2



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

**Indicators/operating means**



|   |                                      |    |
|---|--------------------------------------|----|
| 1 | Sensitivity adjustment               |    |
| 2 | Light-on / dark-on changeover switch |    |
| 3 | Operating indicator / dark on        | GN |
| 4 | Signal indicator                     | YE |
| 5 | Operating indicator / light on       | GN |

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

**Technical data****General specifications**

|                                 |   |
|---------------------------------|---|
| Detection range                 | 30 ... 300 mm                               |
| Detection range min.            | 30 ... 80 mm                                |
| Detection range max.            | 30 ... 300 mm                               |
| Adjustment range                | 80 ... 300 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%) | < 5 % at 300 mm                             |
| Diameter of the light spot      | approx. 8 mm x 8 mm at a distance of 300 mm |
| Angle of divergence             | approx. 1.5 °                               |
| Ambient light limit             | EN 60947-5-2 : 70000 Lux                    |

**Functional safety related parameters**

|                                |       |
|--------------------------------|-------|
| MTTF <sub>d</sub>              | 600 a |
| Mission Time (T <sub>M</sub> ) | 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 |
| Function indicator  | LED yellow:<br>constantly on - background detected (object not detected)<br>constantly off - object detected                |
| Control elements    | Light-on/dark-on changeover switch  |
| Control elements    | Sensing range adjuster  |

**Electrical specifications**

|                        |                |                                |
|------------------------|----------------|--------------------------------|
| Operating voltage      | U <sub>B</sub> | 10 ... 30 V DC                 |
| Ripple                 |                | max. 10 %                      |
| No-load supply current | I <sub>0</sub> | < 26 mA at 24 V supply voltage |
| Protection class       |                | III                            |

**Interface**

|                             |   |
|-----------------------------|---|
| Interface type              | IO-Link ( via C/Q = pin 4 )                           |
| Device profile              | Identification and diagnosis<br>Smart Sensor type 2.4 |
| Transfer rate               | COM 2 (38.4 kBaud)                                    |
| IO-Link Revision            | 1.1   |
| Min. cycle time             | 2.3 ms  |
| Process data width          | Process data input 1 Bit<br>Process data output 2 Bit |
| SIO mode support            | yes   |
| Device ID                   | 0x111702 (1120002)                                    |
| 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 / dark-on, PNP normally closed / light-on, IO-Link<br>/Q - Pin2: NPN normally closed / light-on, PNP normally open / dark-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 <sub>d</sub>  | ≤ 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 |

**Ambient conditions**

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

**Mechanical specifications**

|                      |  |
|----------------------|--|
| Housing width        | 15 mm                                  |
| Housing height       | 50.6 mm                                |
| Housing depth        | 41.7 mm                                |
| Degree of protection | IP67 / IP69 / IP69K                    |
| Connection           | 4-pin, M8 x 1 connector, 90° rotatable |
| Material             |  |
| Housing              | PC (Polycarbonate)                     |
| Optical face         | PMMA                                   |
| Mass                 | approx. 35 g                           |

**Accessories****IO-Link-Master02-USB**

IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

**V31-GM-2M-PUR**

Female cordset single-ended, M8, 4-pin, PUR cable

**V31-WM-2M-PUR**

Female cordset single-ended, M8, 4-pin, PUR cable

**OMH-MLV12-HWK**

Mounting bracket for series MLV12 sensors

**OMH-R200-01**

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-R20x-Quick-Mount**

Quick mounting accessory

**OMH-MLV12-HWG**

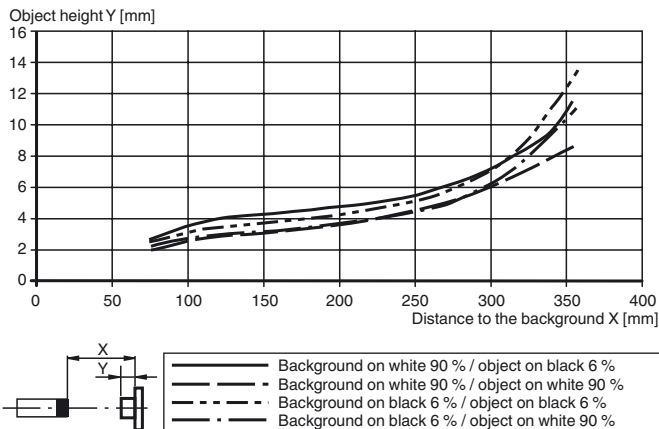
Mounting bracket for series MLV12 sensors

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

**Approvals and certificates**

|              |  |
|--------------|--|
| UL approval  | E87056 , cULus Listed , class 2 power supply , type rating 1 |
| CCC approval | CCC approval / marking not required for products rated ≤36 V |

**Minimum object height (typical)**



To unlock the adjustment functions, rotate the sensing range/sensitivity adjuster by more than 180°.

**Sensing Range/Sensitivity**

To increase the sensing range/sensitivity, rotate the sensing range/sensitivity adjuster clockwise.

To reduce the sensing range/sensitivity, rotate the sensing range/sensitivity adjuster counter-clockwise.

As soon as the end of the adjustment range is reached, the signal indicator flashes at 8 Hz.

**Configuring Light On/Dark On**

Press the light-on/dark-on changeover switch for more than 1 second (but less than 4 seconds). "Light on/dark on" mode changes and the relevant operating indicator lights up.

If you press the light-on/dark-on changeover switch for longer than 4 seconds, the "light on/dark on" mode will switch back to the original setting. The current status is activated when the light-on/dark-on changeover switch is released.

**Restoring Factory Settings**

Press the light-on/dark-on changeover switch for more than 10 seconds (but less than 30 seconds) until all LEDs go out. When the light-on/dark-on changeover switch is released, the signal indicator lights up. After 5 seconds, the sensor resumes operation with the factory settings.

The adjustment functions are locked after 5 minutes of inactivity. To unlock the adjustment functions, rotate the sensing range/sensitivity adjuster again by more than 180°.

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