



Model Number

OBT650-R200-2EP-IO-0,3M-V1-1T

Triangulation sensor (BGE)
with fixed cable and M12 connector, 4-pin

Features

- Medium design with versatile mounting options
- Precision object detection, almost irrespective of the color
- Secure and gapless detection, even near the surface through background evaluation
- Extended temperature range
-40°C ... 60°C
- High degree of protection IP69K
- IO-link interface for service and process data

Product information

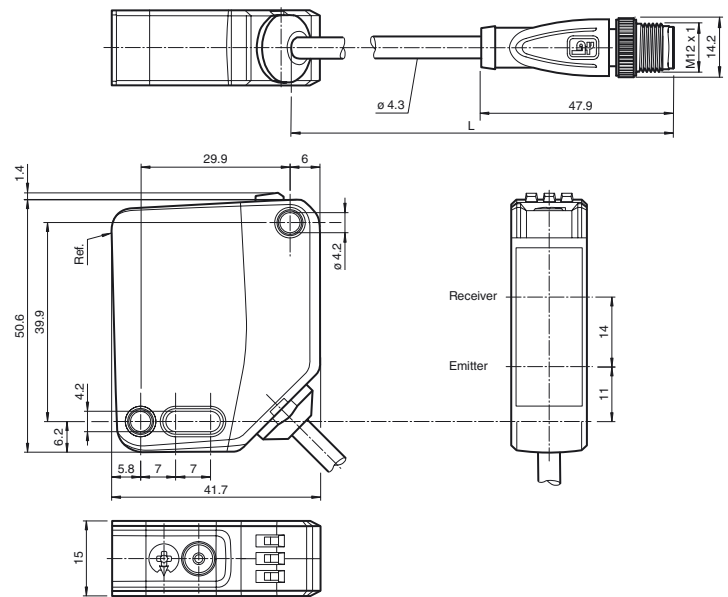
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

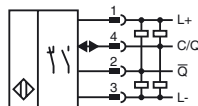
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

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

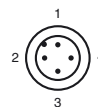
Dimensions



Electrical connection



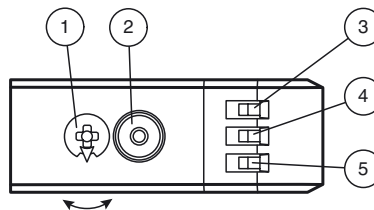
Pinout



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 |

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

| | |
|-----------------------------------|---|
| Detection range | 10 ... 650 mm |
| Detection range min. | 10 ... 100 mm |
| Detection range max. | 10 ... 650 mm |
| Adjustment range | 100 ... 650 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 %) | < 6 % at 650 mm |
| Diameter of the light spot | approx. 20 mm x 20 mm at a distance of 650 mm |
| Angle of divergence | approx. 2 ° |
| Ambient light limit | EN 60947-5-2 : 70000 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: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode |
| Function indicator | LED yellow: constantly on - background detected (object not detected) constantly off - object 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) |
| Device profile | Identification and diagnosis 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 Process data output 2 Bit |
| SIO mode support | yes |
| Device ID | 0x111701 (1120001) |
| Compatible master port type | A |

Output

| | | |
|---------------------|---|------------|
| Switching type | The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link /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 _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 |

Ambient conditions

| | |
|---------------------|---|
| Ambient temperature | -40 ... 60 °C (-40 ... 140 °F) , fixed cable -20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains |
| 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 | 300 mm fixed cable with M12 x 1, 4-pin connector |
| Material | |
| Housing | PC (Polycarbonate) |
| Optical face | PMMA |

Accessories**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, M12, 4-pin, PUR cable

V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

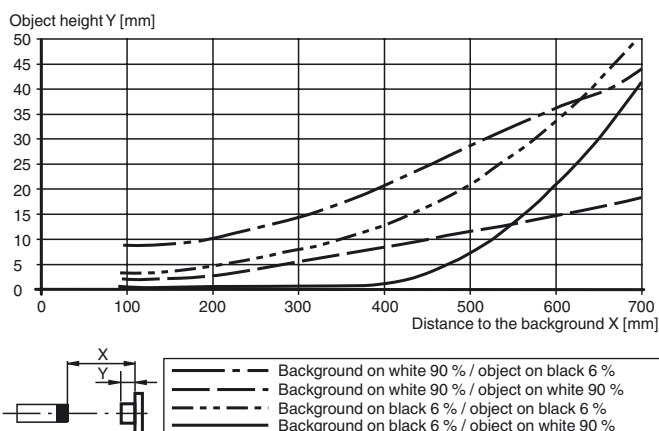
Other suitable accessories can be found at www.pepperl-fuchs.com

| | |
|--------------|--------------|
| Mass | approx. 45 g |
| Cable length | 0.3 m |

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



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°.