



Triangulation sensor (BGS) OBT150-R101-2EP1-IO-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



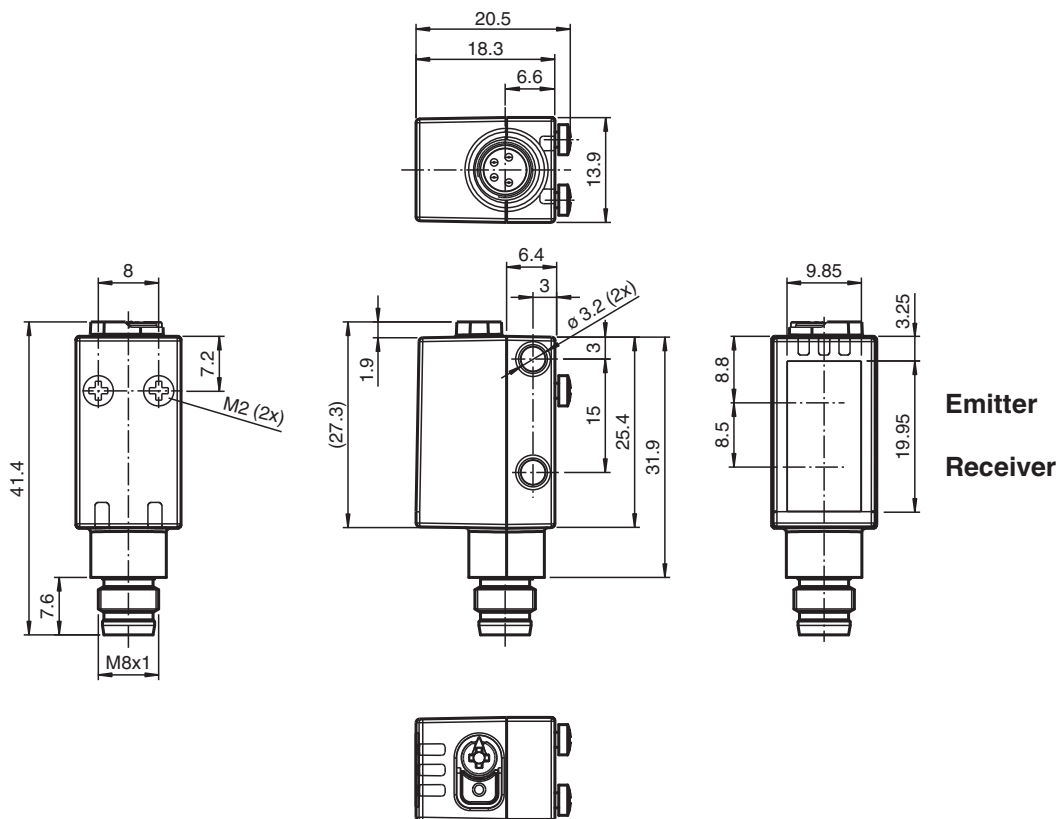
Function

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



Emitter
Receiver

Technical Data

General specifications

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

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Technical Data

| | | |
|---|---|--------------------------------|
| Detection range | 5 ... 150 mm | |
| Detection range min. | 5 ... 25 mm | |
| Detection range max. | 5 ... 150 mm | |
| Adjustment range | 25 ... 150 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 150 mm | |
| Diameter of the light spot | approx. 10 mm at a distance of 150 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: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode | |
| Function indicator | LED yellow: constantly on - object detected 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 | 0x11060F (1115663) | |
| Transfer rate | COM2 (38.4 kBit/s) | |
| Min. cycle time | 2.3 ms | |
| Process data width | Process data input 1 Bit 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: C/Q - Pin4: NPN normally closed / dark-on, PNP normally open / light-on, IO-Link /Q - Pin2: NPN normally open / light-on, PNP normally closed / 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 | |

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Technical Data

| | |
|-----------------------------------|--|
| 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 | 33.8 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 | PMMA |
| Mass | approx. 10 g |

Connection



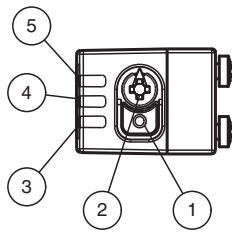
Connection Assignment



Wire colors in accordance with EN 60947-5-2

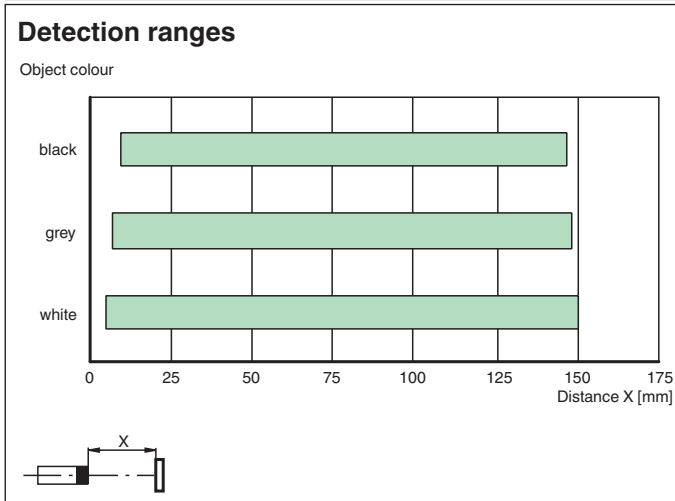
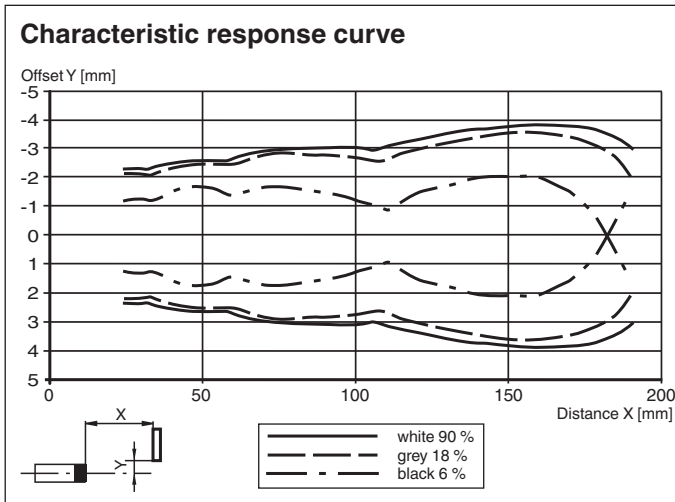
| | | |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

Assembly



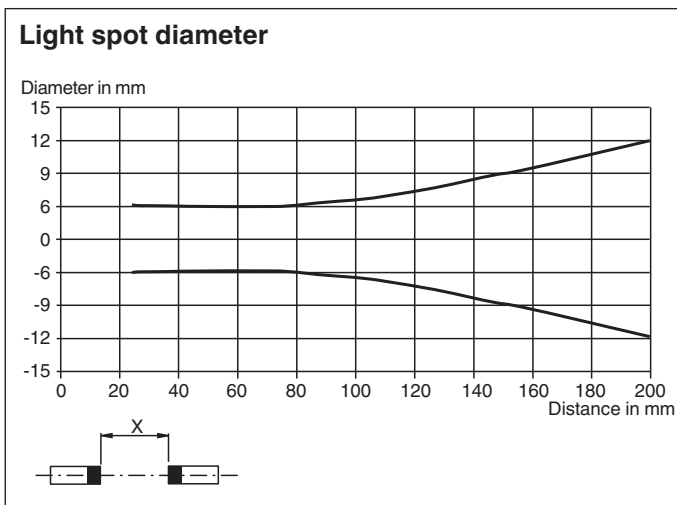
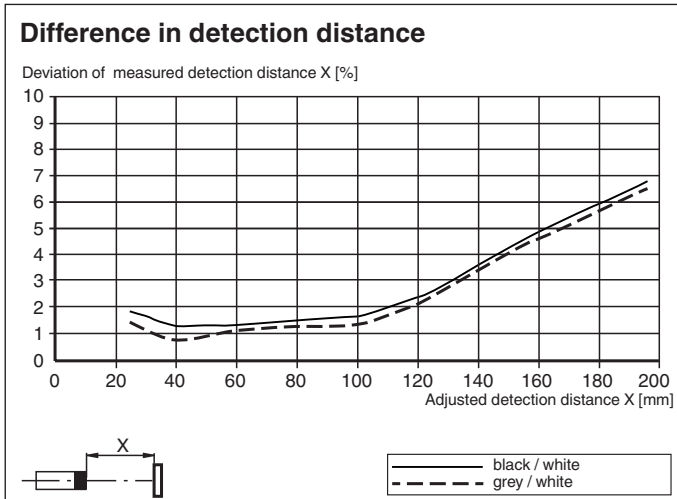
| | |
|---|------------------------------------|
| 1 | Light-on/dark-on changeover switch |
| 2 | Sensing range adjuster |
| 3 | Operating indicator / dark on |
| 4 | Signal indicator |
| 5 | Operating indicator / light on |

Characteristic Curve



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Characteristic Curve






Accessories

| | | |
|--|----------------------------|--|
| | 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 |

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Accessories

| | | |
|---|------------------------------------|---|
|  | <p>IO-Link-Master02-USB</p> | <p>IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection</p> |
|  | <p>V31-GM-2M-PUR</p> | <p>Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey</p> |
|  | <p>V31-WM-2M-PUR</p> | <p>Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey</p> |

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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 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 counterclockwise 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 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.