



## Diffuse mode sensor OBD1400-R200-EP-IO-V3



- Medium design with versatile mounting options
- Extended temperature range  
-40 °C ... 60 °C
- High degree of protection IP69K
- IO-Link interface for service and process data

Diffuse mode sensor



### Function

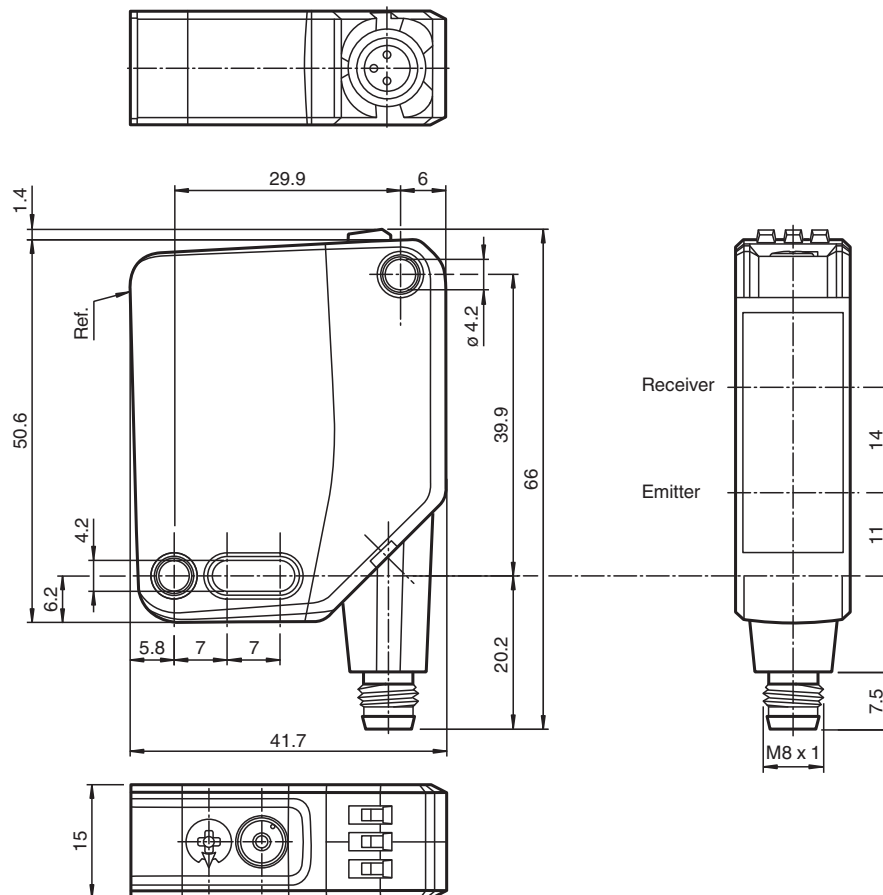
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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



## Technical Data

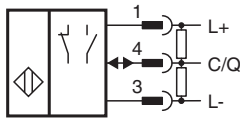
| General specifications               |                |  |   |
|--------------------------------------|----------------|--|---|
| Detection range                      |                |  | 2 ... 1400 mm   |
| Detection range min.                 |                |  | 100 ... 200 mm  |
| Detection range max.                 |                |  | 2 ... 1400 mm   |
| Adjustment range                     |                |  | 200 ... 1400 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  |
| Diameter of the light spot           |                |  | approx. 50 mm at a distance of 1400 mm  |
| Opening angle                        |                |  | 2 °   |
| Ambient light limit                  |                |  | EN 60947-5-2 : 60000 Lux  |
| Functional safety related parameters |                |  |   |
| MTTF <sub>d</sub>                    |                |  | 724 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 - 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 <sub>B</sub> |  | 10 ... 30 V DC  |
| Ripple                               |                |  | max. 10 %   |
| No-load supply current               | I <sub>0</sub> |  | < 18 mA at 24 V Operating voltage   |
| Protection class                     |                |  | III   |
| Interface                            |                |  |   |
| Interface type                       |                |  | IO-Link ( via C/Q = pin 4 )   |
| IO-Link revision                     |                |  | 1.1   |
| Device profile                       |                |  | Identification and diagnosis<br>Smart Sensor type 2.4   |
| Device ID                            |                |  | 0x111101 (1118465)  |
| 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 |
| Signal output                        |                |  | 1 push-pull (4 in 1) output, 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              |  | 1000 Hz   |
| Response time                        |                |  | 0.5 ms  |
| Conformity                           |                |  |   |
| Communication interface              |                |  | IEC 61131-9   |

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## Technical Data

|                                   |  |
|-----------------------------------|--|
| Product standard                  | EN 60947-5-2   |
| <b>Approvals and certificates</b> |  |
| UL approval                       | E87056 , cULus Listed , class 2 power supply , type rating 1 |
| CCC approval                      | CCC approval / marking not required for products rated ≤36 V |
| <b>Ambient conditions</b>         |  |
| Ambient temperature               | -40 ... 60 °C (-40 ... 140 °F)                               |
| Storage temperature               | -40 ... 70 °C (-40 ... 158 °F)                               |
| <b>Mechanical specifications</b>  |  |
| Housing width                     | 15 mm  |
| Housing height                    | 50.6 mm  |
| Housing depth                     | 41.7 mm  |
| Degree of protection              | IP67 / IP69 / IP69K  |
| Connection                        | Connector plug, M8 x 1, 3 pin, rotatable by 90°              |
| Material                          |  |
| Housing                           | PC (Polycarbonate)   |
| Optical face                      | PMMA   |
| Mass                              | approx. 35 g   |

## Connection



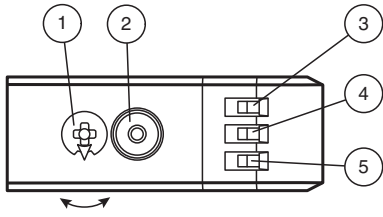
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

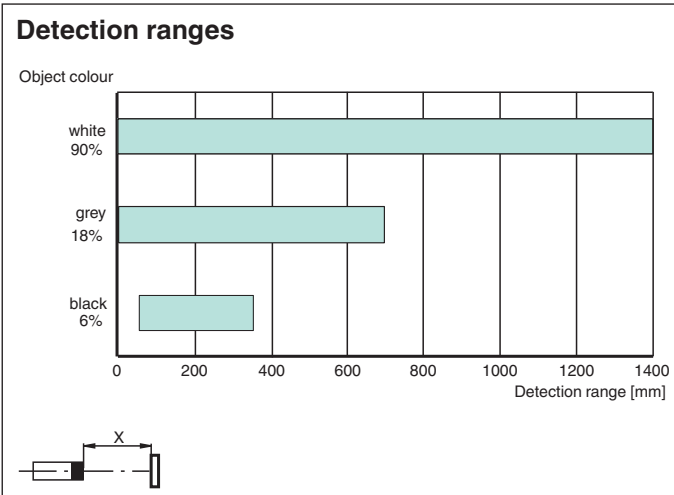
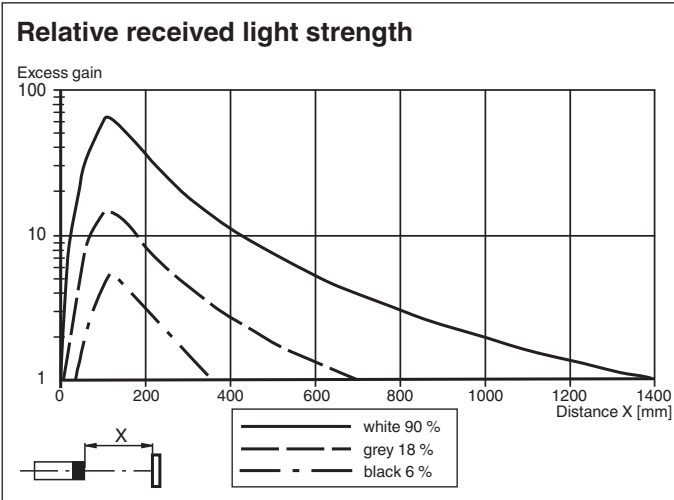
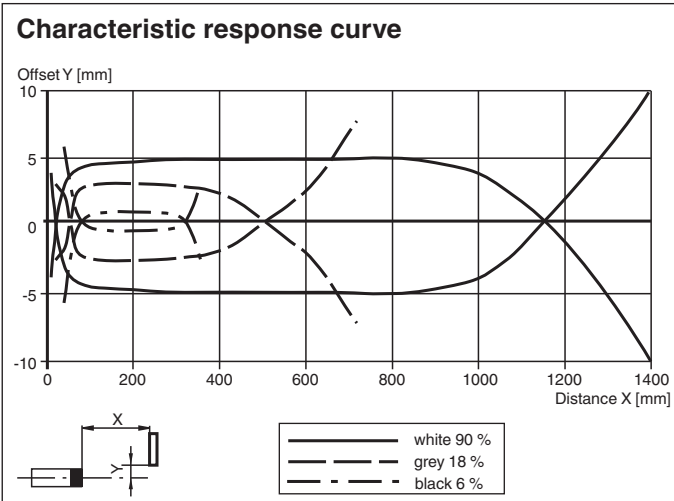
|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

**Assembly**



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

**Characteristic Curve**



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

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## Commissioning

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.

## Accessories

|   |                             |  |
|---|-----------------------------|--|
|    | <b>OMH-MLV12-HWG</b>        | Mounting bracket for series MLV12 sensors  |
|    | <b>OMH-R200-01</b>          | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm  |
|    | <b>OMH-MLV12-HWK</b>        | Mounting bracket for series MLV12 sensors  |
|    | <b>OMH-R20x-Quick-Mount</b> | Quick mounting accessory   |
|  | <b>ICE2-8IOL-G65L-V1D</b>   | EtherNet/IP IO-Link master with 8 inputs/outputs   |
|  | <b>ICE3-8IOL-G65L-V1D</b>   | PROFINET IO IO-Link master with 8 inputs/outputs   |
|  | <b>ICE2-8IOL-K45S-RJ45</b>  | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal                                   |
|  | <b>ICE3-8IOL-K45P-RJ45</b>  | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals                                |
|  | <b>ICE3-8IOL-K45S-RJ45</b>  | PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal                                   |
|  | <b>IO-Link-Master02-USB</b> | IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection |
|  | <b>ICE1-8IOL-G30L-V1D</b>   | Ethernet IO-Link module with 8 inputs/outputs  |
|  | <b>ICE1-8IOL-G60L-V1D</b>   | Ethernet IO-Link module with 8 inputs/outputs  |
|  | <b>ICE2-8IOL-K45P-RJ45</b>  | EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors                               |
|  | <b>V3-GM-2M-PUR</b>         | Female cordset single-ended M8 straight A-coded, 3-pin, PUR cable grey                                       |
|  | <b>V3-WM-2M-PUR</b>         | Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey   |

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