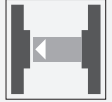




## Thru-beam sensor (pair)

OBE25M-R200-S2EP-IO-0,3M-V31



- Medium design with versatile mounting options
- IO-Link interface for service and process data
- Various frequencies for avoiding mutual interference (cross-talk immunity)
- Extended temperature range  
-40 °C ... 60 °C
- High degree of protection IP69K



### Function

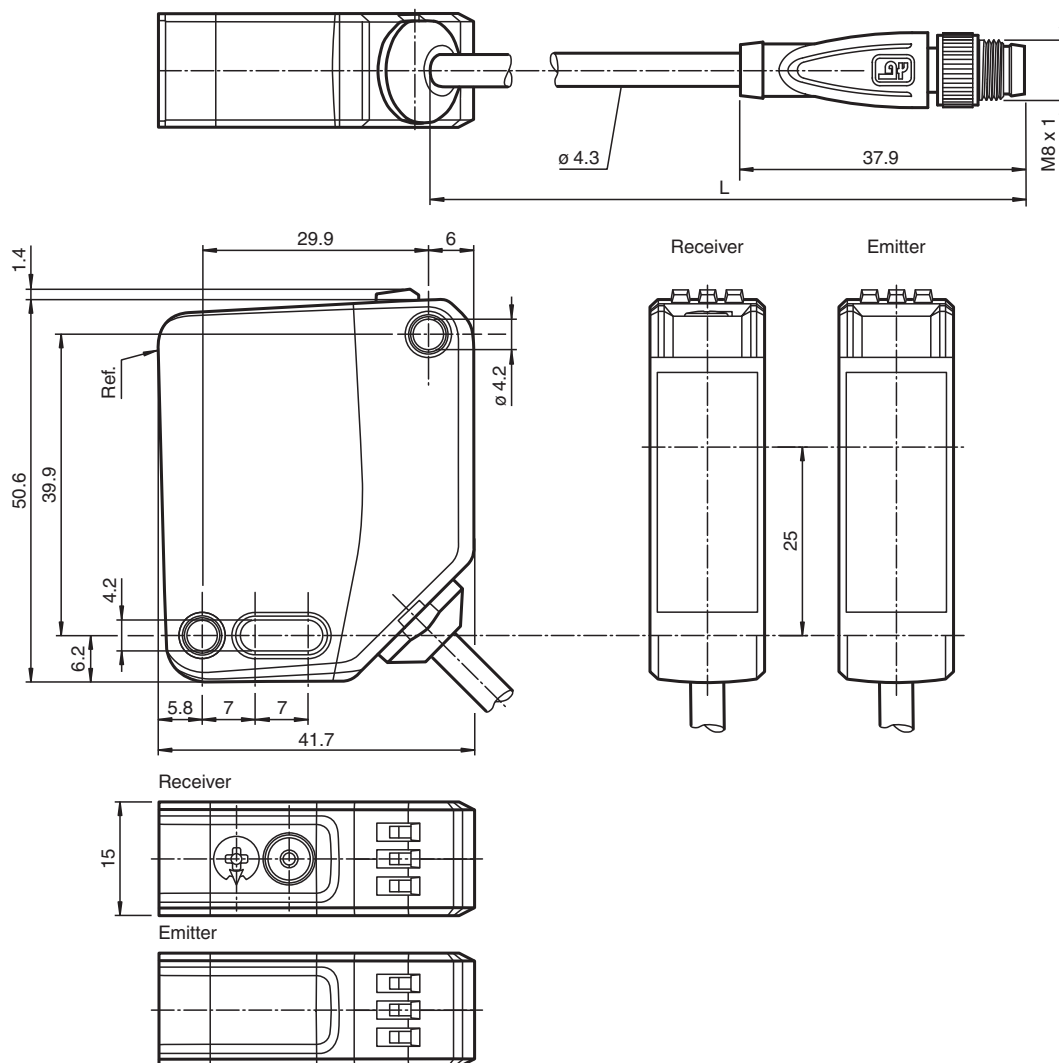
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

### System components

|          |                             |
|----------|-----------------------------|
| Emitter  | OBE25M-R200-S-IO-0,3M-V31   |
| Receiver | OBE25M-R200-2EP-IO-0,3M-V31 |

### General specifications

|                            |                                                                                                                                                       |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effective detection range  | 0 ... 25 m                                                                                                                                            |
| Threshold detection range  | 33 m                                                                                                                                                  |
| Light source               | LED                                                                                                                                                   |
| Light type                 | modulated visible red light                                                                                                                           |
| LED risk group labelling   | exempt group                                                                                                                                          |
| Alignment aid              | LED red (in receiver lens)<br>illuminated constantly: beam is interrupted,<br>flashes: reaching switching point,<br>off: sufficient stability control |
| Diameter of the light spot | approx. 850 mm at a distance of 25 m                                                                                                                  |
| Opening angle              | approx. 2 °                                                                                                                                           |
| Ambient light limit        | EN 60947-5-2 : 40000 Lux                                                                                                                              |

### Functional safety related parameters

|                                |       |
|--------------------------------|-------|
| MTTF <sub>d</sub>              | 462 a |
| Mission Time (T <sub>M</sub> ) | 20 a  |
| Diagnostic Coverage (DC)       | 60 %  |

### Indicators/operating means

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## Technical Data

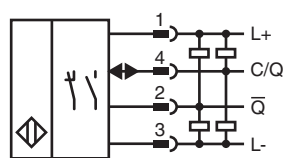
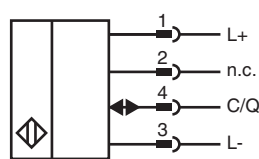
|                                   |       |                                                                                                                                                                                                                                       |
|-----------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                |       | Yellow LED:<br>Permanently lit - light path clear<br>Permanently off - object detected<br>Flashing (4 Hz) - insufficient operating reserve                                                                                            |
| Control elements                  |       | Receiver: light/dark switch                                                                                                                                                                                                           |
| Control elements                  |       | Receiver: sensitivity adjustment                                                                                                                                                                                                      |
| <b>Electrical specifications</b>  |       |                                                                                                                                                                                                                                       |
| Operating voltage                 | $U_B$ | 10 ... 30 V DC                                                                                                                                                                                                                        |
| Ripple                            |       | max. 10 %                                                                                                                                                                                                                             |
| No-load supply current            | $I_0$ | Emitter: ≤ 15 mA<br>Receiver: ≤ 15 mA at 24 V Operating voltage                                                                                                                                                                       |
| Protection class                  |       | III                                                                                                                                                                                                                                   |
| <b>Interface</b>                  |       |                                                                                                                                                                                                                                       |
| Interface type                    |       | IO-Link ( via C/Q = pin 4 )                                                                                                                                                                                                           |
| IO-Link revision                  |       | 1.1                                                                                                                                                                                                                                   |
| Device profile                    |       | Identification and diagnosis<br>Smart Sensor:<br>Receiver: type 2.4<br>Emitter: -                                                                                                                                                     |
| Device ID                         |       | Emitter: 0x111401 (1119233)<br>Receiver: 0x111301 (1118977)                                                                                                                                                                           |
| Transfer rate                     |       | COM2 (38.4 kBit/s)                                                                                                                                                                                                                    |
| Min. cycle time                   |       | 2.3 ms                                                                                                                                                                                                                                |
| Process data width                |       | Emitter:<br>Process data input: 0 bit<br>Process data output: 1 bit<br>Receiver:<br>Process data input: 2 bit<br>Process data output: 2 bit                                                                                           |
| SIO mode support                  |       | yes                                                                                                                                                                                                                                   |
| Compatible master port type       |       | A                                                                                                                                                                                                                                     |
| <b>Input</b>                      |       |                                                                                                                                                                                                                                       |
| Test input                        |       | emitter deactivation at + $U_B$                                                                                                                                                                                                       |
| <b>Output</b>                     |       |                                                                                                                                                                                                                                       |
| 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                      | $U_d$ | ≤ 1.5 V DC                                                                                                                                                                                                                            |
| Switching frequency               | $f$   | 1000 Hz                                                                                                                                                                                                                               |
| Response time                     |       | 0.5 ms                                                                                                                                                                                                                                |
| <b>Conformity</b>                 |       |                                                                                                                                                                                                                                       |
| Communication interface           |       | IEC 61131-9                                                                                                                                                                                                                           |
| 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) , fixed cable<br>-20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains                                                                                                     |
| Storage temperature               |       | -40 ... 70 °C (-40 ... 158 °F)                                                                                                                                                                                                        |
| <b>Mechanical specifications</b>  |       |                                                                                                                                                                                                                                       |
| Housing width                     |       | 15 mm                                                                                                                                                                                                                                 |

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Technical Data

|                      |                                                      |
|----------------------|------------------------------------------------------|
| Housing height       | 50.6 mm                                              |
| Housing depth        | 41.7 mm                                              |
| Degree of protection | IP67 / IP69 / IP69K                                  |
| Connection           | fixed cable 300 mm with M8 x 1 male connector; 4-pin |
| Material             |                                                      |
| Housing              | PC (Polycarbonate)                                   |
| Optical face         | PMMA                                                 |
| Mass                 | Emitter: approx. 41 g receiver: approx. 41 g         |
| Cable length         | 0.3 m                                                |

Connection



Connection Assignment



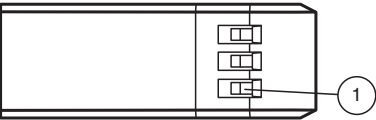
Wire colors in accordance with EN 60947-5-2

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

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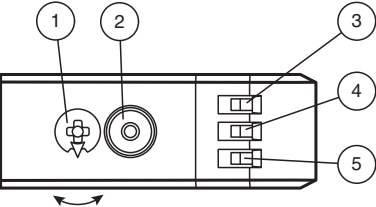
Assembly

Emitter



|   |                     |
|---|---------------------|
| 1 | Operating indicator |
|---|---------------------|

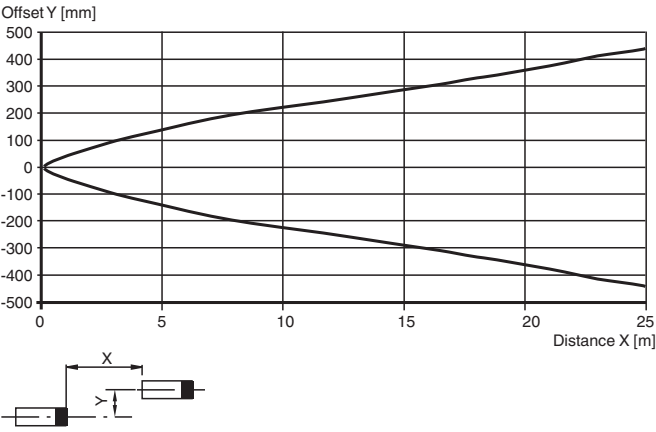
Receiver



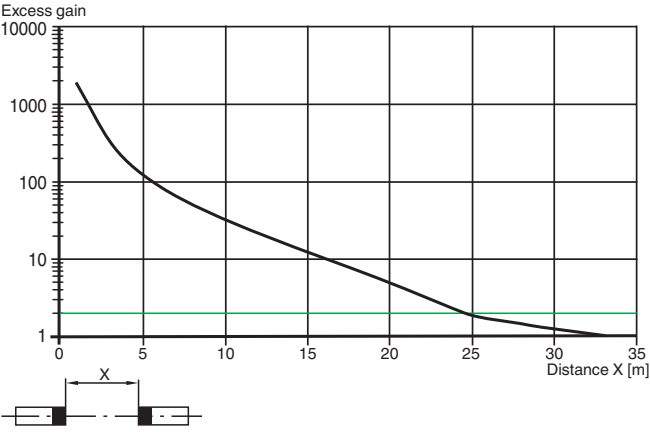
|   |                                      |    |
|---|--------------------------------------|----|
| 1 | Sensitivity adjustment               |    |
| 2 | Light-on / dark-on changeover switch |    |
| 3 | Operating indicator / dark on        | GN |
| 4 | Signal indicator                     | YE |
|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

Characteristic Curve

Characteristic response curve



Relative received light strength



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.

## Commissioning

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>V31-GM-2M-PUR</b>        | Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey                                       |
|  | <b>V31-WM-2M-PUR</b>        | Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey                                         |