



Model Number

OBR25M-R200-2EP-IO-V1-L

Laser retroreflective sensor with 4-pin, M12 x 1 connector

Features

- Medium design with versatile mounting options
- DuraBeam Laser Sensors - durable and employable like an LED
- Extended temperature range -40°C ... 60°C
- High degree of protection IP69K
- IO-link interface for service and process data

Product information

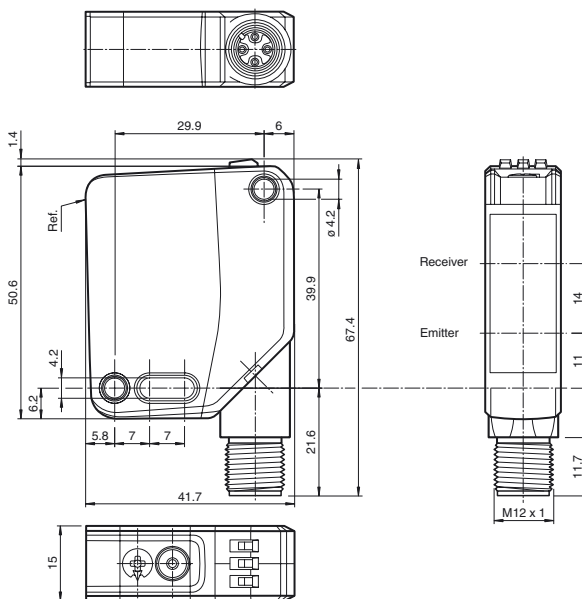
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

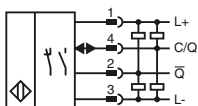
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

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

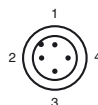
Dimensions



Electrical connection



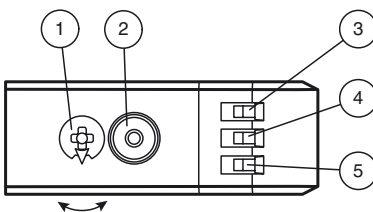
Pinout



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**

| | |
|------------------------------|---|
| Effective detection range | 0 ... 25 m |
| Reflector distance | 0.5 ... 25 m |
| Threshold detection range | 33 m |
| Reference target | H85-2 reflector |
| Light source | laser diode |
| Light type | modulated visible red light |
| Polarization filter | yes |
| Laser nominal ratings | |
| Note | LASER LIGHT , DO NOT STARE INTO BEAM |
| Laser class | 1 |
| Wave length | 680 nm |
| Beam divergence | > 5 mrad d63 < 2 mm in the range of 250 mm ... 750 mm |
| Pulse length | 1.6 µs |
| Repetition rate | max. 17.6 kHz |
| max. pulse energy | 9.6 nJ |
| Diameter of the light spot | approx. 50 mm at a distance of 25 m |
| Angle of divergence | approx. 0.1 ° |
| Ambient light limit | EN 60947-5-2 : 60000 Lux |

Functional safety related parameters

| | |
|--------------------------------|-------|
| MTTF _d | 672 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 | Yellow LED: Permanently lit - light path clear Permanently off - object detected Flashing (4 Hz) - insufficient operating reserve |
| Control elements | Light-on/dark-on changeover switch |
| Control elements | sensitivity adjustment |

Electrical specifications

| | | |
|------------------------|----------------|-----------------------------------|
| Operating voltage | U _B | 10 ... 30 V DC |
| Ripple | | max. 10 % |
| No-load supply current | I ₀ | < 15 mA at 24 V Operating 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 2 Bit Process data output 2 Bit |
| SIO mode support | yes |
| Device ID | 0x111202 (1118722) |
| 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 | 2000 Hz |
| Response time | | 250 µs |

Conformity

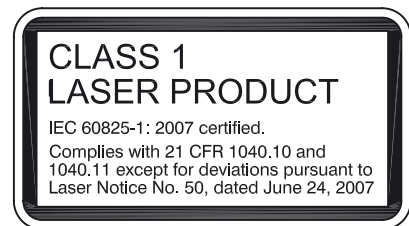
| | |
|-------------------------|-----------------|
| Communication interface | IEC 61131-9 |
| Product standard | EN 60947-5-2 |
| Laser safety | EN 60825-1:2014 |

Ambient conditions

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

Mechanical specifications

| | |
|---------------|-------|
| Housing width | 15 mm |
|---------------|-------|

Laserlabel**Accessories****REF-MH82**

Reflector with Micro-structure, rectangular 82 mm x 60 mm, mounting holes

REF-MH50

Reflector with Micro-structure, rectangular 50.9 mm x 50.9 mm, mounting holes, fixing strap

REF-MVR10

Reflector with Micro-structure, rectangular 60 mm x 19 mm, mounting holes

REF-MH20

Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes

IO-Link-Master02-USB

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

REF-H85-2

Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

REF-MH78

Reflector with Micro-structure, hexagonal 78 mm x 61 mm, mounting holes

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

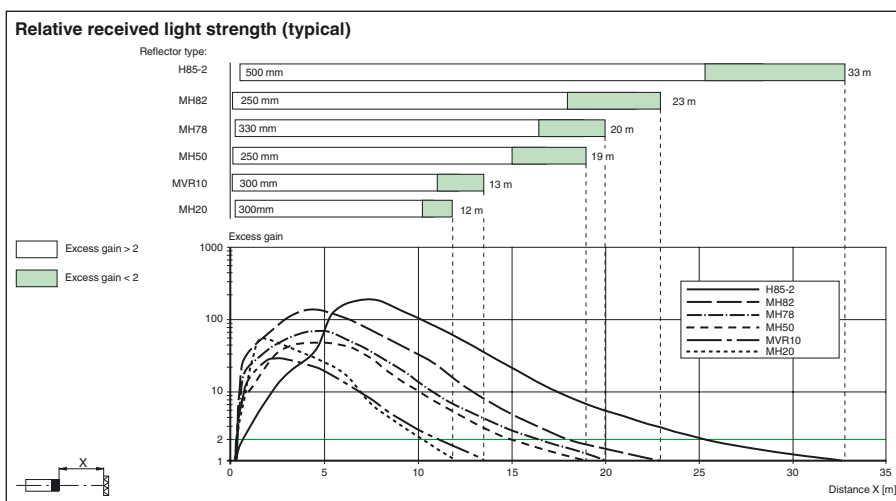
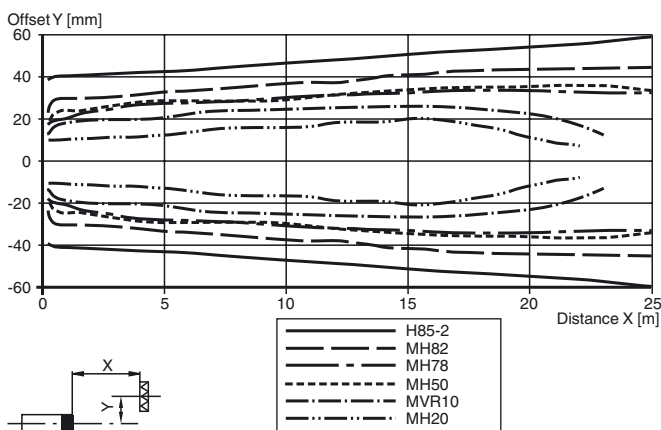
| | |
|----------------------|---|
| Housing height | 50.6 mm |
| Housing depth | 41.7 mm |
| Degree of protection | IP67 / IP69 / IP69K |
| Connection | 4-pin, M12 x 1 connector, 90° rotatable |
| Material | |
| Housing | PC (Polycarbonate) |
| Optical face | PMMA |
| Mass | approx. 37 g |

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 |
| FDA approval | IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007 |

Curves/Diagrams

Characteristic response curve



Functions and Operation

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.

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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.