## Model Number

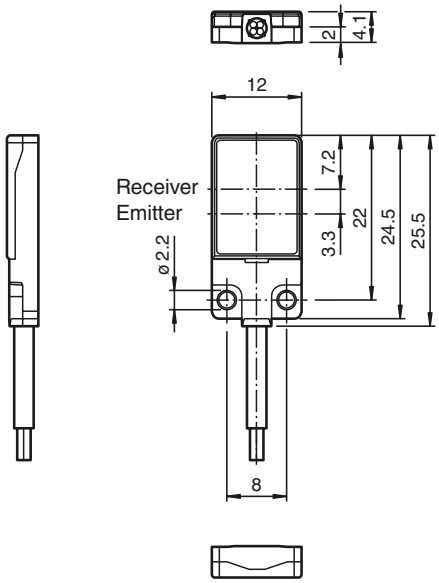
**OBR1500-R2F-E2-L**

Laser retroreflective sensor
with 2 m fixed cable

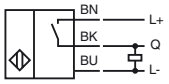
## Features

- Very flat design for direct mounting without mounting bracket
- DuraBeam Laser Sensors - durable and employable like an LED
- Glare protected with polarization filter
- Very bright, highly visible light spot

## Dimensions




## Electrical connection

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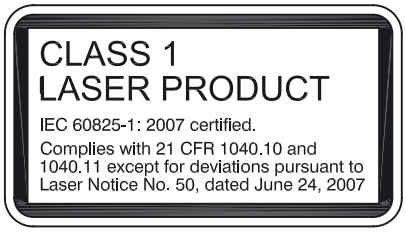
## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Effective detection range | | 0 ... 1500 mm |
| Reflector distance | | 60 ... 1500 mm |
| Threshold detection range | | 1800 mm |
| Reference target | | H40 reflector |
| Light source | | LASER LIGHT |
| Light type | | modulated visible red light , 680 nm |
| 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 |
| Pulse length | | approx. 3 µs |
| Repetition rate | | approx. 16.6 kHz |
| max. pulse energy | | 8 nJ |
| Angle deviation | | approx. 0.5 ° |
| Object size | | typ. starts from 1.5 mm |
| Diameter of the light spot | | approx. 35 mm at a distance of 2000 mm |
| Angle of divergence | | approx. 1 ° |
| Optical face | | frontal |
| Ambient light limit | | EN 60947-5-2 : 30000 Lux |
| **Functional safety related parameters** | | |
| $MTTF_d$ | | 800 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |
| **Indicators/operating means** | | |
| Operation indicator | | LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz) |
| Function indicator | | Receiver: LED yellow, lights up when light beam is free, flashes when falling short of the stability control ; OFF when light beam is interrupted |
| **Electrical specifications** | | |
| Operating voltage | $U_B$ | 12 ... 24 V |
| No-load supply current | $I_0$ | < 10 mA |
| Protection class | | III |
| **Output** | | |
| Switching type | | NO contact / dark on |
| Signal output | | 1 PNP output, short-circuit protected, reverse polarity protected, open collector |
| Switching voltage | | max. 30 V DC |
| Switching current | | max. 50 mA , resistive load |
| Voltage drop | $U_d$ | ≤ 1.5 V DC |
| Switching frequency | f | approx. 2 kHz |
| Response time | | 250 µs |
| **Directive conformity** | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | | EN 60947-5-2:2007 EN 60947-5-2/A1:2012 |
| **Standard conformity** | | |
| Standards | | EN 60947-5-2:2007 EN 60947-5-2/A1:2012 EN 60825-1:2007 UL 60947-5-2: 2014 |
| **Ambient conditions** | | |
| Ambient temperature | | -10 ... 60 °C (14 ... 140 °F) |
| Storage temperature | | -20 ... 70 °C (-4 ... 158 °F) |
| **Mechanical specifications** | | |
| Degree of protection | | IP67 |
| Connection | | 2 m fixed cable |
| Material | | |
| Housing | | PC (Polycarbonate) and Stainless steel |
| Optical face | | PMMA |
| Cable | | PUR |
| Mass | | approx. 20 g |
| Tightening torque, fastening screws | | 0.25 Nm |
| Cable length | | 2 m |

| | |
|---|---|
| **Approvals and certificates** | |
| UL approval | E87056 , cULus Recognized, Class 2 Power Source |
| 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 |

## Laserlabel






## Accessories

**REF-H40**
Reflector, rectangular 47.5 mm x 23.5 mm, mounting holes, fixing strap

**REF-H23**
Reflector with mounting holes

**REF-MH20**
Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes

**REF-MH23**
Reflector with Micro-structure, rectangular 23 mm x 13.8 mm, diagonal mounting hole

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

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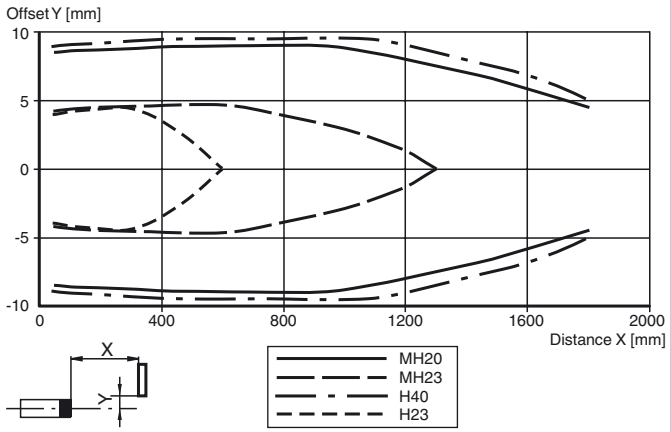
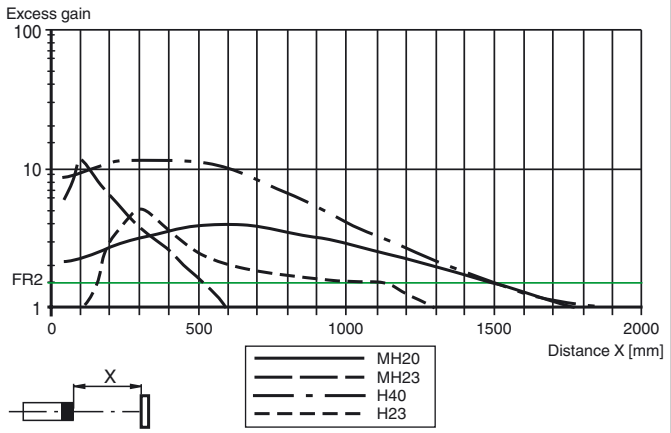
## Curves/Diagrams

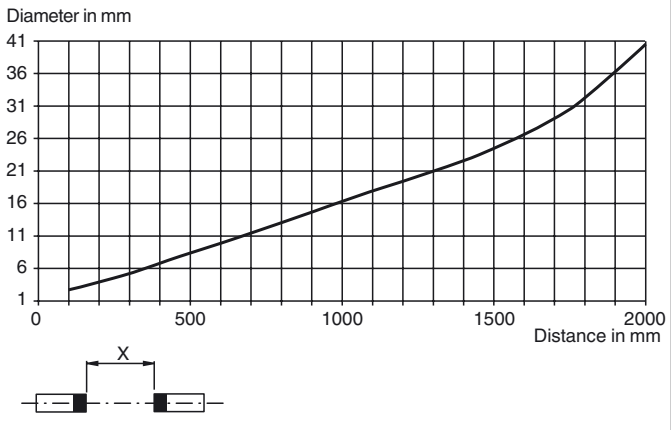
### Characteristic response curve




### Relative received light strength




### Light spot diameter




## Laser notice laser class 1

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- The warning accompanies the device and should be attached in immediate proximity to the device.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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