



Model Number

OBT80-R3-E2-L

**Laser triangulation sensor with
background suppression
with 2 m fixed cable**

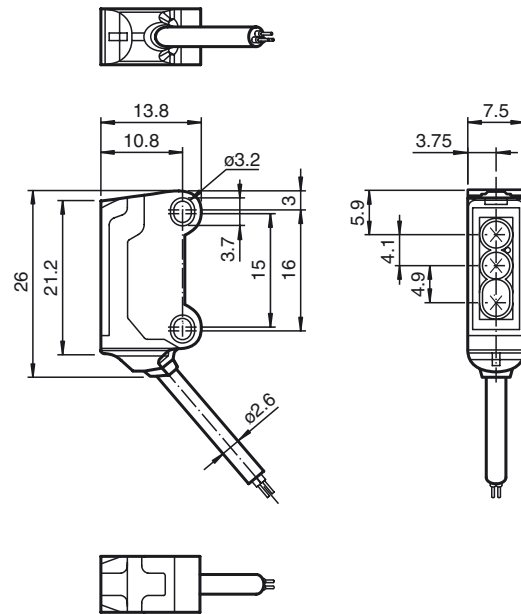
Features

- High-performance miniature photoelectric sensors
- DuraBeam Laser Sensors - durable and employable like an LED
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Improvement in machine availability with abrasion-resistant, antistatic glass front
- Precision object detection, almost irrespective of the color

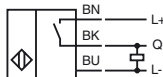
Product information

The R3 series nano sensor has been developed for a broad range of applications. It offers excellent durability and is exceptionally easy to install. The housing is compact and, with its 45° cable outlet, can be installed in the smallest spaces. New functional principles and functionality open up a range of new options. The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor. The abrasion-resistant lens allows long operating times close to the moving object.

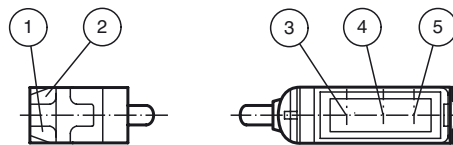
Dimensions



Electrical connection



Indicators/operating means



| | | |
|---|-------------------|--------|
| 1 | Operating display | green |
| 2 | Signal display | yellow |
| 3 | Emitter | |
| 4 | Receiver 1 | |
| 5 | Receiver 2 | |

Technical data**General specifications**

| | |
|-----------------------------------|--------------------------------------|
| Detection range | 20 ... 80 mm |
| Reference target | standard black, 100 mm x 100 mm |
| Light source | laser diode |
| Light type | modulated visible red light , 680 nm |
| 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 | 9.5 nJ |
| Black/White difference (6 %/90 %) | < 15 % at 80 mm |
| Diameter of the light spot | approx. 2 mm at a distance of 80 mm |
| Angle of divergence | approx. 2 ° |
| 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 | LED yellow: lights when object is detected |

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 | |
| Signal output | 1 PNP output, short-circuit protected, reverse polarity protected, open collector | |
| Switching voltage | max. 30 V DC | |
| Switching current | max. 50 mA | |
| Voltage drop | U _d | ≤ 1.5 V DC |
| Switching frequency | f | approx. 2 kHz |
| Response time | 250 μs | |

Conformity

| | |
|------------------|-----------------|
| Product standard | EN 60947-5-2 |
| Laser safety | EN 60825-1:2007 |

Ambient conditions

| | |
|---------------------|--------------------------------|
| Ambient temperature | -20 ... 60 °C (-4 ... 140 °F) |
| Storage temperature | -30 ... 70 °C (-22 ... 158 °F) |

Mechanical specifications

| | |
|----------------------|-----------------|
| Housing width | 7.5 mm |
| Housing height | 26 mm |
| Housing depth | 13.8 mm |
| Degree of protection | IP67 |
| Connection | 2 m fixed cable |
| Material | |
| Housing | PC/ABS and TPU |
| Optical face | glass |
| Cable | PUR |
| Mass | approx. 20 g |
| 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****MH-R3-01**

Mounting aid for sensors from the R3 series, mounting bracket

MH-R3-02

Mounting aid for sensors from the R3 series, mounting bracket

MH-R3-03

Mounting aid for sensors from the R3 series, mounting bracket

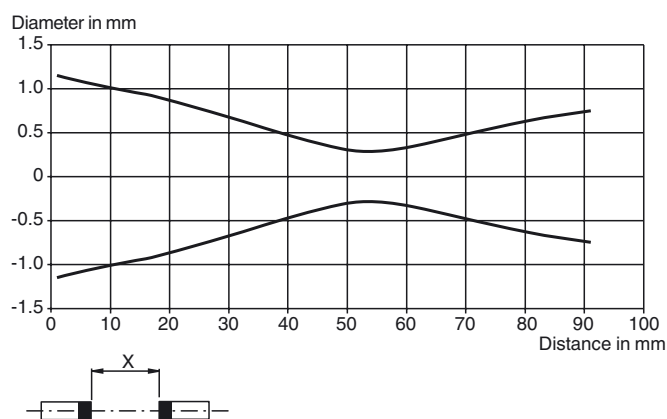
MH-R3-04

Mounting aid for sensors from the R3 series, mounting bracket

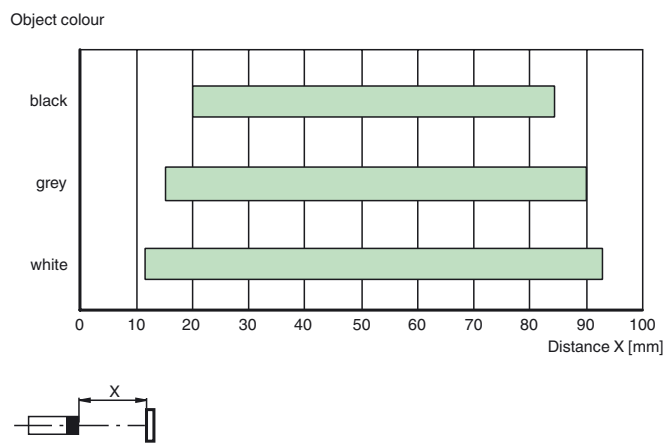
Other suitable accessories can be found at www.pepperl-fuchs.com

Curves/Diagrams

Light spot diameter



Detection ranges



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.