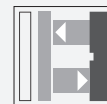




# Laser triangulation sensor with background suppression

## OBT15-R2F-E0-L

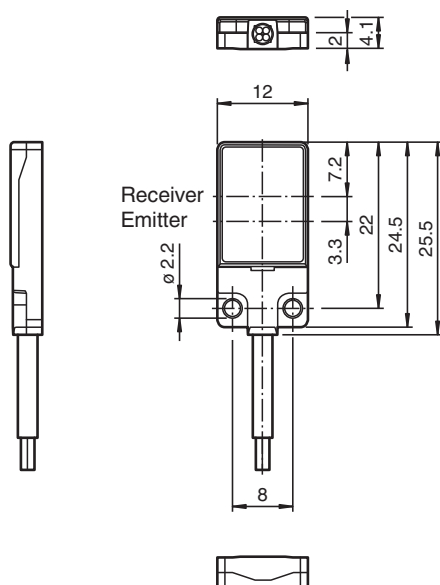


- Very flat design for direct mounting without mounting bracket
- DuraBeam Laser Sensors - durable and employable like an LED
- Small parts detection from 0.05 mm
- Highly visible light spot, even on dark materials
- Extremely small light spot for very high switching point accuracy
- Precision object detection, almost irrespective of the color

Triangulation sensor with background suppression for standard applications, flat design, space-saving M2 mounting, 15 mm sensing range, red light, light on, NPN output, fixed cable



## Dimensions



## Technical Data

| General specifications |                                      |
|------------------------|--------------------------------------|
| Detection range        | 2 ... 15 mm                          |
| Reference target       | standard white, 100 mm x 100 mm      |
| Light source           | LASER LIGHT                          |
| 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                               |

Release date: 2023-04-25 Date of issue: 2023-04-25 Filename: 253571\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

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## Technical Data

|                                             |                |                                                                                                                                      |
|---------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Beam divergence                             |                | > 5 mrad                                                                                                                             |
| Pulse length                                |                | approx. 3 µs                                                                                                                         |
| Repetition rate                             |                | approx. 16.6 kHz                                                                                                                     |
| max. pulse energy                           |                | 8 nJ                                                                                                                                 |
| Black-white difference (6 %/90 %)           |                | < 15 % at 15 mm                                                                                                                      |
| Angle deviation                             |                | approx. 0.5 °                                                                                                                        |
| Object size                                 |                | typ. starts from 0.05 mm @ 14 mm                                                                                                     |
| Diameter of the light spot                  |                | 1.4 mm +/- 1 mm at a distance of 15 mm                                                                                               |
| Opening angle                               |                | approx. 1 °                                                                                                                          |
| Optical face                                |                | frontal                                                                                                                              |
| Ambient light limit                         |                | EN 60947-5-2 : 25000 Lux                                                                                                             |
| <b>Functional safety related parameters</b> |                |                                                                                                                                      |
| MTTF <sub>d</sub>                           |                | 800 a                                                                                                                                |
| Mission Time (T <sub>M</sub> )              |                | 20 a                                                                                                                                 |
| Diagnostic Coverage (DC)                    |                | 0 %                                                                                                                                  |
| <b>Indicators/operating means</b>           |                |                                                                                                                                      |
| Operation indicator                         |                | LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz)                                               |
| Function indicator                          |                | LED yellow ON: lights when object is detected                                                                                        |
| <b>Electrical specifications</b>            |                |                                                                                                                                      |
| Operating voltage                           | U <sub>B</sub> | 12 ... 24 V                                                                                                                          |
| No-load supply current                      | I <sub>0</sub> | < 10 mA                                                                                                                              |
| Protection class                            |                | III                                                                                                                                  |
| <b>Output</b>                               |                |                                                                                                                                      |
| Switching type                              |                | NO contact / light-on                                                                                                                |
| Signal output                               |                | 1 NPN 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 <sub>d</sub> | ≤ 1.5 V DC                                                                                                                           |
| Switching frequency                         | f              | approx. 2 kHz                                                                                                                        |
| Response time                               |                | 250 µs                                                                                                                               |
| <b>Conformity</b>                           |                |                                                                                                                                      |
| Product standard                            |                | EN 60947-5-2                                                                                                                         |
| Laser safety                                |                | EN 60825-1:2007                                                                                                                      |
| <b>Approvals and certificates</b>           |                |                                                                                                                                      |
| 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 |
| <b>Ambient conditions</b>                   |                |                                                                                                                                      |
| Ambient temperature                         |                | -10 ... 60 °C (14 ... 140 °F)                                                                                                        |
| Storage temperature                         |                | -20 ... 70 °C (-4 ... 158 °F)                                                                                                        |
| <b>Mechanical specifications</b>            |                |                                                                                                                                      |
| Housing width                               |                | 12 mm                                                                                                                                |
| Housing height                              |                | 25.5 mm                                                                                                                              |
| Housing depth                               |                | 4.1 mm                                                                                                                               |
| Degree of protection                        |                | IP67                                                                                                                                 |
| Connection                                  |                | 2 m fixed cable                                                                                                                      |
| <b>Material</b>                             |                |                                                                                                                                      |
| Housing                                     |                | PC (Polycarbonate) and Stainless steel                                                                                               |
| Optical face                                |                | PMMA                                                                                                                                 |
| Cable                                       |                | PUR                                                                                                                                  |
| Mass                                        |                | approx. 20 g                                                                                                                         |
| Tightening torque, fastening screws         |                | 0.25 Nm                                                                                                                              |

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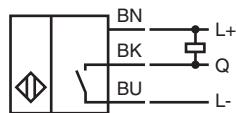
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Pepperl+Fuchs Group  
www.pepperl-fuchs.comUSA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.comGermany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com
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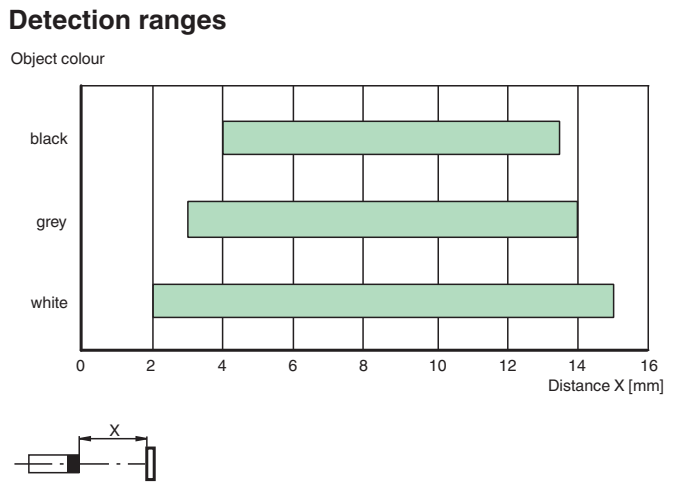
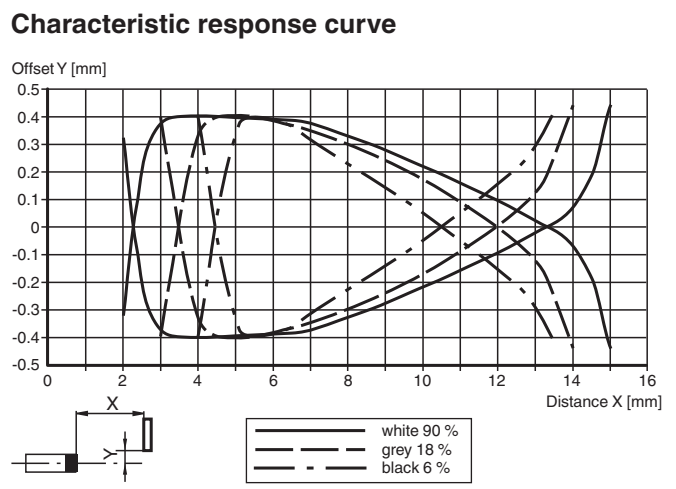
Technical Data

|              |     |
|--------------|-----|
| Cable length | 2 m |
|--------------|-----|

Connection

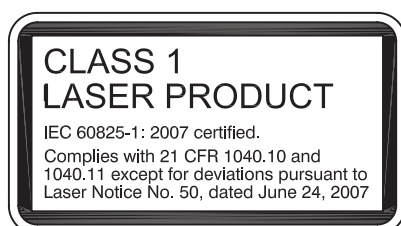


Characteristic Curve



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## Safety Information



## Safety Information

### Laser Class 1 Information

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.