



## Model Number

**RL31-54/25/73c/136**

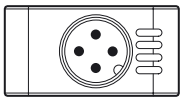
Retroreflective sensor
with 4-pin, M12 x 1 connector

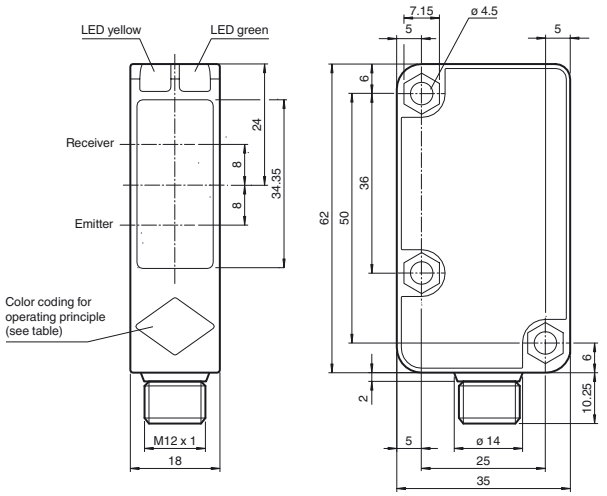
## Features

- Compact and stable housing
- Glare protected with polarization filter
- Highly visible LED
- Powerful push-pull output
- Protection class II

## Dimensions

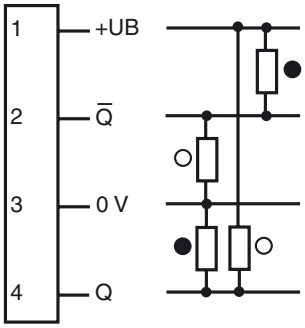
| Operating principle | color |
|---|---|
| Retroreflective sensor with polarisation filter | green |
| Retroreflective sensor | blue |
| Diffusive mode sensor | white |
| Thru-beam sensor | grey |
| Diffusive mode sensor with background suppression | red |





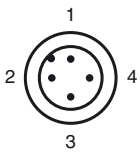

## Electrical connection

Option:

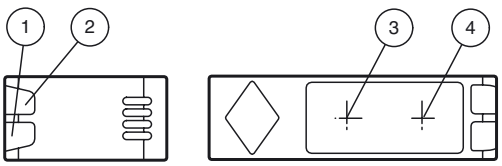



○ = Light on
● = Dark on

## Pinout




## Indicators/operating means




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

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Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Effective detection range | | 0 ... 9000 mm |
| Reflector distance | | 20 ... 9000 mm |
| Threshold detection range | | 12 m |
| Reference target | | reflector C110-2 |
| Light source | | LED |
| Light type | | modulated visible red light , 630 nm |
| Diameter of the light spot | | approx. 200 mm at a distance of 6 m |
| Angle of divergence | | 3 ° |
| Ambient light limit | | 50000 Lux ; according EN 60947-5-2 |
| **Functional safety related parameters** | | |
| $MTTF_d$ | | 920 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |
| **Indicators/operating means** | | |
| Operating display | | LED green: power on |
| Function display | | LED yellow:<br>1. LED lit constantly: signal > 2 x switching point (function reserve)<br>2. LED flashes: signal between 1 x switching point and 2 x switching point<br>3. LED off: signal < switching point |
| **Electrical specifications** | | |
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| Ripple | | 10 % |
| No-load supply current | $I_0$ | ≤ 20 mA |
| **Output** | | |
| Switching type | | light on |
| Signal output | | 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected |
| Switching voltage | | max. 30 V DC |
| Switching current | | max. 100 mA |
| Voltage drop | $U_d$ | ≤ 1.5 V |
| Switching frequency | f | ≤ 500 Hz |
| Response time | | ≤ 1 ms |
| **Ambient conditions** | | |
| Ambient temperature | | -30 ... 55 °C (-22 ... 131 °F) |
| Storage temperature | | -40 ... 70 °C (-40 ... 158 °F) |
| **Mechanical specifications** | | |
| Protection degree | | IP67 |
| Connection | | connector M12 x 1, 4-pin |
| Material | | |
| Housing | | plastic |
| Optical face | | PMMA |
| Mass | | 24 g |
| **Compliance with standards and directives** | | |
| Directive conformity | | EMC Directive 2004/108/EC |
| Standard conformity | | |
| Product standard | | EN 60947-5-2:2007<br>IEC 60947-5-2:2007 |
| **Approvals and certificates** | | |
| Protection class | | II , rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit basis insulation of input circuit according to EN 50178, rated insulation voltage 240 V AC |
| UL approval | | cULus Listed, Class 2 Power Source, Type 1 enclosure |
| CCC approval | | Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval. |

## Accessories

**OMH-RL31-01**
Mounting bracket

**OMH-RL31-02**
Mounting bracket narrow

**OMH-RL31-03**
Mounting bracket narrow

**OMH-RL31-04**
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-RL31-05**
Mounting bracket with M10 threaded rod

**OMH-RL31-06**
Stainless steel mounting bracket with adjustable half clamp on the side

**V1-G-2M-PUR**
Cable socket, M12, 4-pin, PUR cable

**V1-W-2M-PUR**
Cable socket, M12, 4-pin, PUR cable

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

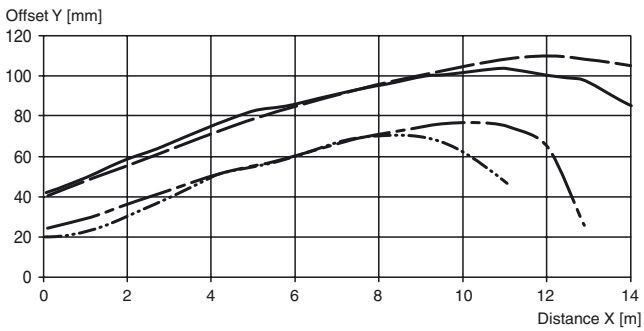
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USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@pepperl-fuchs.com
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## Curves/Diagrams

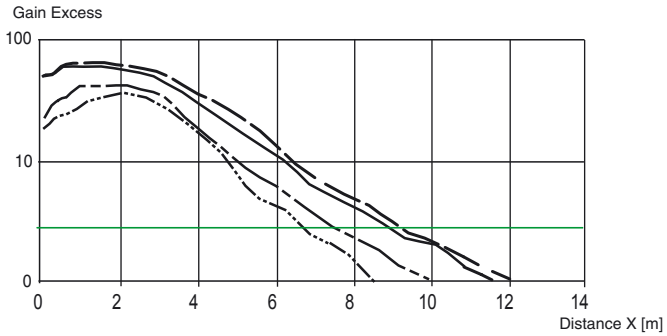
### Characteristic response curve

RL31-54/.../136




### Relative received light strength

RL31-54/...
RLK31-54/...




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