



**Model Number**

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

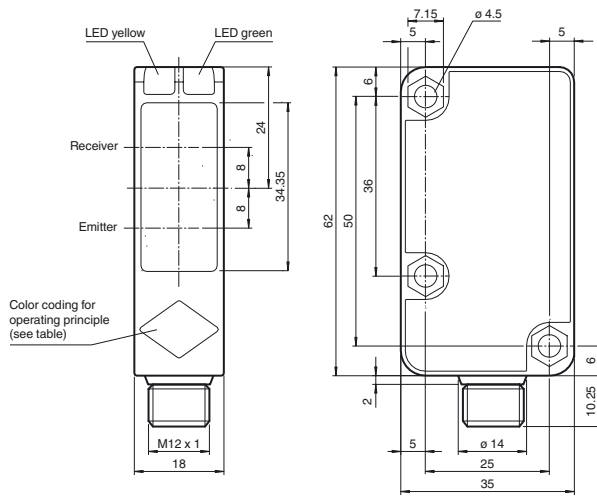
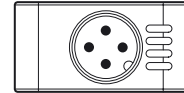
Retroreflective sensor  
with 4-pin, M12 x 1 connector

**Features**

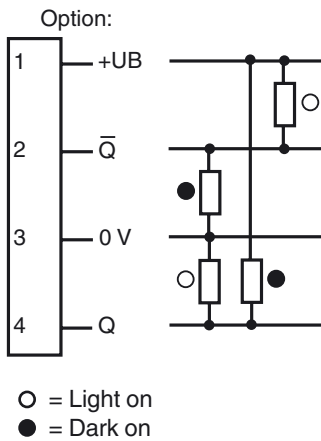
- Compact and stable housing
- Glare protected with polarization filter
- Highly visible LED
- Powerful push-pull output
- Protection class II

**Dimensions**

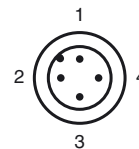
|   |       |
|---|-------|
| Operating principle                               | color |
| Retroreflective sensor with polarisation filter   | green |
| Retroreflective sensor                            | blue  |
| Diffusive mode sensor                             | white |
| Thru-beam sensor      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



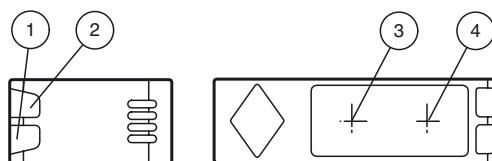
**Electrical connection**



**Pinout**



**Indicators/operating means**



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

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**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 <sub>d</sub>              | 920 a |
| Mission Time (T <sub>M</sub> ) | 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 <sub>B</sub> | 10 ... 30 V DC |
| Ripple                 |                | 10 %           |
| No-load supply current | I <sub>0</sub> | ≤ 20 mA        |

**Output**

|                     |   |          |
|---------------------|---|----------|
| Switching type      | dark on   |          |
| Signal output       | 2 Push-pull outputs, short-circuit protected, reverse polarity protection |          |
| Switching voltage   | max. 30 V DC  |          |
| Switching current   | max. 100 mA   |          |
| Voltage drop        | U <sub>d</sub>  | ≤ 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

**OMH-RL31-03**  
Mounting bracket

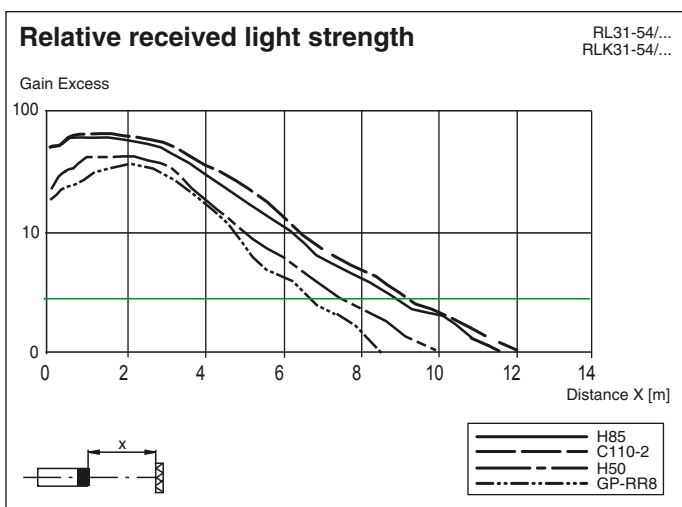
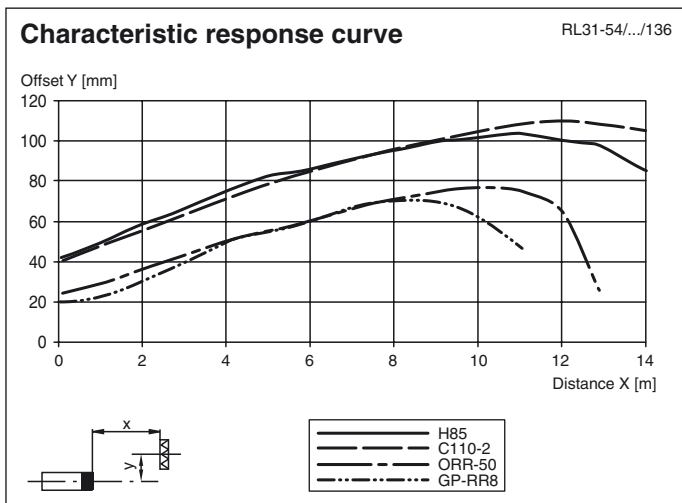
**OMH-RL31-04**  
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-RL31-05**  
Mounting bracket

**OMH-RL31-06**  
Mounting bracket

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

**Curves/Diagrams**



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