Retroreflective sensor with polarization filter

**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**

<table>
<thead>
<tr>
<th>Operating principle</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retroreflective sensor with polarization filter</td>
<td>green</td>
</tr>
<tr>
<td>Diffuse mode sensor</td>
<td>white</td>
</tr>
<tr>
<td>Thru-beam sensor</td>
<td>grey</td>
</tr>
<tr>
<td>Diffuse mode sensor with background suppression</td>
<td>red</td>
</tr>
</tbody>
</table>

**Electrical connection**

Option:

1. +UB
2. 0 V
3. Q
4. 0 V

O = Light on  ● = Dark on

**Pinout**

Wire colors in accordance with EN 60947-5-2

1. BN (brown)
2. WH (white)
3. BU (blue)
4. BK (black)

**Indicators/operating means**

1. Operating display green
2. Signal display yellow
3. Emitter
4. Receiver
Technical data

General specifications
- Effective detection range: 0 ... 9000 mm
- Reflector distance: 20 ... 9000 mm
- Threshold detection range: 12 m
- Reference target: reflexor C110-2
- Light source: LED
- Light type: modulated visible red light, 630 nm
- Polarization filter: yes
- 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
- MTTFd: 920 a
- Mission Time (T_M): 20 a
- Diagnostic Coverage (DC): 0 %

Indicators/operating means
- Operation indicator: LED green: power on
- Function indicator: LED yellow:
  1. LED lit constantly: signal > 2 x switching point (function reserve)
  2. LED flashes: signal between 1 x switching point and 2 x switching point
  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: dark 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
- Degree of protection: IP67
- Connection: 4-pin, M12 x 1 connector
- Material:
  - Housing: plastic
  - Optical face: PMMA
- Mass: 24 g

Compliance with standards and directives
- Standard conformity:
  - IEC 60947-5-2:2007

Approvals and certificates
- EAC conformity: TR CU 020/2011
- 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 50176, rated insulation voltage 240 V AC
- UL approval: cULus Listed, Class 2 Power Source, Type 1 enclosure
- CCC approval: CCC approval / marking not required for products rated ≤ 36 V

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: Female cordset, M12, 4-pin, PUR cable
  - V1-W-2M-PUR: Female cordset, M12, 4-pin, PUR cable

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

Characteristic response curve

Relative received light strength