Model Number

RL28-55/47/82b/105
Retroreflective sensor
with 5-pin, M12 x 1 plastic connector

Features

- Ultra bright LEDs for power on, weak signal indication and switching state
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Electrical connection

Option: /47/82b

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+UB</td>
</tr>
<tr>
<td>2</td>
<td>Q</td>
</tr>
<tr>
<td>3</td>
<td>0 V</td>
</tr>
<tr>
<td>4</td>
<td>Q</td>
</tr>
<tr>
<td>5</td>
<td>I/O</td>
</tr>
</tbody>
</table>

LED indicator:

- = Light on
= Dark on

Pinout

Wire colors in accordance with EN 60947-5-2

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BN (brown)</td>
</tr>
<tr>
<td>2</td>
<td>WH (white)</td>
</tr>
<tr>
<td>3</td>
<td>BU (blue)</td>
</tr>
<tr>
<td>4</td>
<td>BK (black)</td>
</tr>
<tr>
<td>5</td>
<td>GR (gray)</td>
</tr>
</tbody>
</table>
### Technical data

#### General specifications
- Effective detection range: 0 ... 17 m
- Reflector distance: 0.05 ... 17 m
- Threshold detection range: 21 m
- Reference target: H85-2 reflector
- Light source: LED
- Light type: modulated visible red light, 660 nm
- Polarization filter: yes
- Diameter of the light spot: approx. 290 mm at a distance of 17 m
- Angle of divergence: emitter 1.2° receiver 2°
- Ambient light limit: 80000 Lux

#### Functional safety related parameters
- MTTF<sub>d</sub>: 950 a
- Mission Time (T<sub>M</sub>): 20 a
- Diagnostic Coverage (DC): 0 %

#### Indicators/operating means
- Operation indicator: LED green
- Function indicator: 2 LEDs yellow, light up when light beam is free, flash when falling short of the stability control, off when light beam is interrupted
- Control elements: sensitivity adjustment (Adjustment to < 25% of the effective operating range), Light-on/dark-on changeover switch

#### Electrical specifications
- Operating voltage: \( U_B \) (10 ... 30 V DC)
- Ripple: 10 %
- No-load supply current: \( I_0 \) (\( \leq 40 \) mA)
- Output: Pre-fault indication output 1 PNP, inactive when falling short of the stability control for 10 s, immediately inactive if 4 light beam interruptions take place
- Switching type: light/dark on switchable
- Signal output: 2 PNP, complementary, short-circuit protected, reverse polarity protected, open collectors
- Switching voltage: max. 30 V DC
- Switching current: max. 200 mA
- Switching frequency: \( f \) (1000 Hz)
- Response time: 0.5 ms

#### Conformity
- Product standard: EN 60947-5-2

#### Ambient conditions
- Ambient temperature: -40 ... 60 °C (-40 ... 140 °F)
- Storage temperature: -40 ... 75 °C (-40 ... 167 °F)

#### Mechanical specifications
- Housing width: 25.8 mm
- Housing height: 88 mm
- Housing depth: 54.3 mm
- Degree of protection: IP67
- Connection: 5-pin, M12 x 1 connector
- Material: Housing: Plastic ABS, Optical face: plastic, Connector: plastic
- Mass: 70 g

#### Approvals and certificates
- Protection class: II, rated voltage \( \leq 250 \) V AC with pollution degree 1-2 according to IEC 60664-1
- UL approval: EB7056, cULus Listed, class 2 power supply, type rating 1

### Accessories
- **OMH-05**: Mounting aid for round steel \( \varnothing \) 12 mm or sheet 1.5 mm ... 3 mm
- **OMH-07**: Mounting aid for round steel \( \varnothing \) 12 mm or sheet 1.5 mm ... 3 mm
- **OMH-21**: Mounting bracket
- **OMH-22**: Mounting bracket
- **OMH-MLV11-K**: dove tail mounting clamp
- **OMH-RLK29-HW**: Mounting bracket for rear wall mounting
- **OMH-RL28-C**: Weld slag cover model

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

**Characteristic response curve**

![Characteristic response curve diagram](image)

- **Offset Y [mm]**: 0, 20, 40, 60, 80, 100, 120, 140, 160
- **Distance X [m]**: 0, 5, 10, 15, 20

Legend:
- **HBS-2**
- **C110-2**
- **H60**
- **H160**
- **OFR-100/100**

**Relative received light strength**

- **Reflector type**:
  - Stability control > 3
  - Stability control < 3

- **Reduction type**:
  - H85-2
  - C110-2
  - H60
  - H160
  - OFR-100/100

- **Distance X [m]**: 0, 5, 10, 15, 20
- **Relative received light strength**:
  - 0, 5, 10, 15, 20

Legend:
- Stability control > 3
- Stability control < 3