

# Retroreflective sensor

## RLK39-55/31/35/40a/116

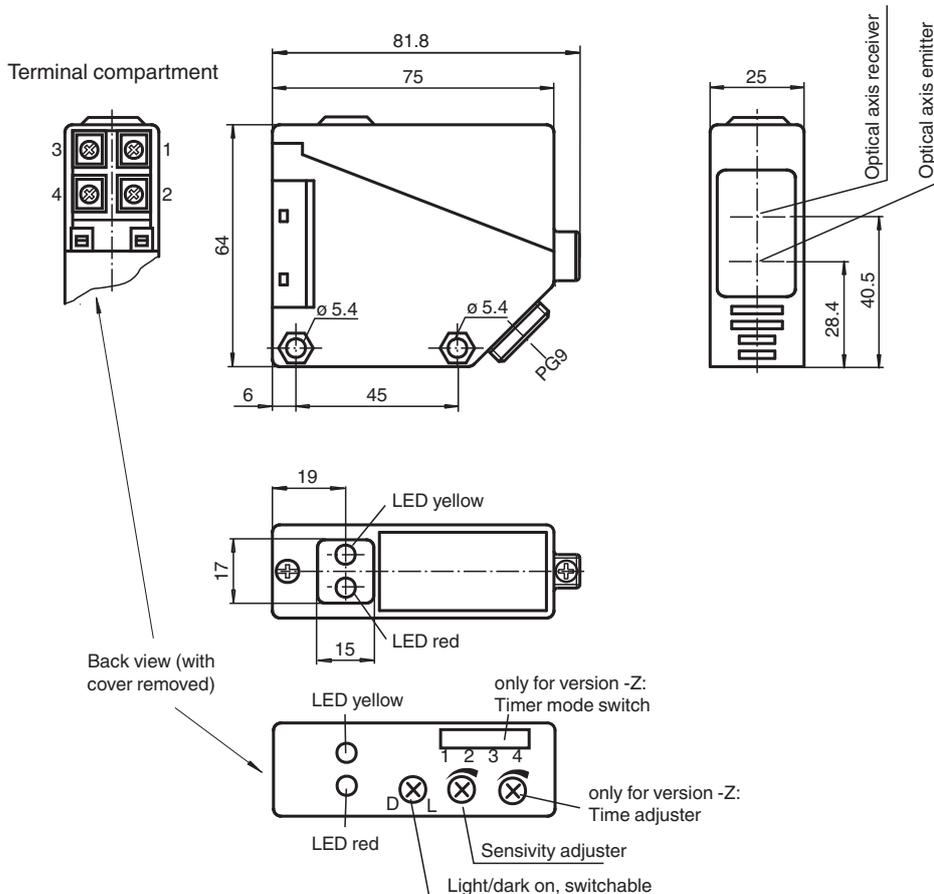


- Visible red light
- Light-on/dark-on, switchable
- Degree of protection IP54

Retroreflective sensor without polarization filter



### Dimensions



### Technical Data

#### General specifications

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

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## Technical Data

|                                             |                                                                                                                                                                                                                                                               |                                                   |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Effective detection range                   | 0 ... 17 m                                                                                                                                                                                                                                                    |                                                   |
| Reflector distance                          | 0.1 ... 17 m                                                                                                                                                                                                                                                  |                                                   |
| Threshold detection range                   | 20 m                                                                                                                                                                                                                                                          |                                                   |
| Reference target                            | H50 reflector                                                                                                                                                                                                                                                 |                                                   |
| Light source                                | LED red                                                                                                                                                                                                                                                       |                                                   |
| Light type                                  | modulated visible red light                                                                                                                                                                                                                                   |                                                   |
| Polarization filter                         | no                                                                                                                                                                                                                                                            |                                                   |
| Ambient light limit                         | IEC / EN 60947-5-2 , 10000 Lux                                                                                                                                                                                                                                |                                                   |
| <b>Functional safety related parameters</b> |                                                                                                                                                                                                                                                               |                                                   |
| MTTF <sub>d</sub>                           | 803 a                                                                                                                                                                                                                                                         |                                                   |
| Mission Time (T <sub>M</sub> )              | 20 a                                                                                                                                                                                                                                                          |                                                   |
| Diagnostic Coverage (DC)                    | 0 %                                                                                                                                                                                                                                                           |                                                   |
| <b>Indicators/operating means</b>           |                                                                                                                                                                                                                                                               |                                                   |
| Function indicator                          | LED yellow: switching state<br>LED red: pre-fault indication                                                                                                                                                                                                  |                                                   |
| Control elements                            | Sensing range adjuster, light-on/dark-on changeover switch                                                                                                                                                                                                    |                                                   |
| <b>Electrical specifications</b>            |                                                                                                                                                                                                                                                               |                                                   |
| Operating voltage                           | U <sub>B</sub>                                                                                                                                                                                                                                                | 12 ... 240 V DC<br>24 ... 240 V AC (50 ... 60 Hz) |
| Ripple                                      | 10 %                                                                                                                                                                                                                                                          |                                                   |
| No-load supply current                      | I <sub>0</sub>                                                                                                                                                                                                                                                | ≤ 50 mA                                           |
| Protection class                            | II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1<br>Caution!<br>The protection class 2 is only valid when the terminal compartment is closed. output circuit has basic insulation to control circuit according to IEC/EN 61140 |                                                   |
| Power consumption                           | P <sub>0</sub>                                                                                                                                                                                                                                                | ≤ 3 VA                                            |
| Time delay before availability              | t <sub>v</sub>                                                                                                                                                                                                                                                | ≤ 300 ms                                          |
| <b>Output</b>                               |                                                                                                                                                                                                                                                               |                                                   |
| Switching type                              | light/dark on                                                                                                                                                                                                                                                 |                                                   |
| Signal output                               | 1 relay output                                                                                                                                                                                                                                                |                                                   |
| Switching voltage                           | max. 240 V AC ; 150 V DC                                                                                                                                                                                                                                      |                                                   |
| Switching current                           | max. 3 A                                                                                                                                                                                                                                                      |                                                   |
| Switching power                             | DC: max. 90 W AC: max. 750 VA                                                                                                                                                                                                                                 |                                                   |
| Switching frequency                         | f                                                                                                                                                                                                                                                             | ≤ 25 Hz                                           |
| Response time                               | ≤ 20 ms                                                                                                                                                                                                                                                       |                                                   |
| <b>Conformity</b>                           |                                                                                                                                                                                                                                                               |                                                   |
| Product standard                            | EN 60947-5-2                                                                                                                                                                                                                                                  |                                                   |
| <b>Approvals and certificates</b>           |                                                                                                                                                                                                                                                               |                                                   |
| CCC approval                                | Certified by China Compulsory Certification (CCC)                                                                                                                                                                                                             |                                                   |
| Approvals                                   | CE                                                                                                                                                                                                                                                            |                                                   |
| <b>Ambient conditions</b>                   |                                                                                                                                                                                                                                                               |                                                   |
| Ambient temperature                         | -25 ... 55 °C (-13 ... 131 °F)                                                                                                                                                                                                                                |                                                   |
| Storage temperature                         | -40 ... 70 °C (-40 ... 158 °F)                                                                                                                                                                                                                                |                                                   |
| <b>Mechanical specifications</b>            |                                                                                                                                                                                                                                                               |                                                   |
| Degree of protection                        | IP54                                                                                                                                                                                                                                                          |                                                   |
| Connection                                  | terminal compartment PG9 , ≤ 0.75 mm <sup>2</sup>                                                                                                                                                                                                             |                                                   |
| Material                                    |                                                                                                                                                                                                                                                               |                                                   |
| Housing                                     | PBT                                                                                                                                                                                                                                                           |                                                   |
| Optical face                                | PMMA                                                                                                                                                                                                                                                          |                                                   |
| Mass                                        | approx. 110 g                                                                                                                                                                                                                                                 |                                                   |
| Dimensions                                  |                                                                                                                                                                                                                                                               |                                                   |
| Height                                      | 64 mm                                                                                                                                                                                                                                                         |                                                   |
| Width                                       | 25 mm                                                                                                                                                                                                                                                         |                                                   |
| Depth                                       | 75 mm                                                                                                                                                                                                                                                         |                                                   |
| <b>General information</b>                  |                                                                                                                                                                                                                                                               |                                                   |

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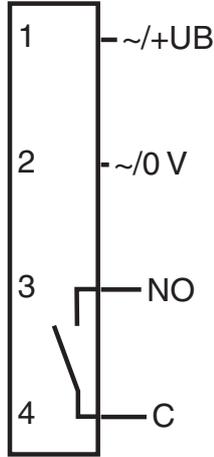
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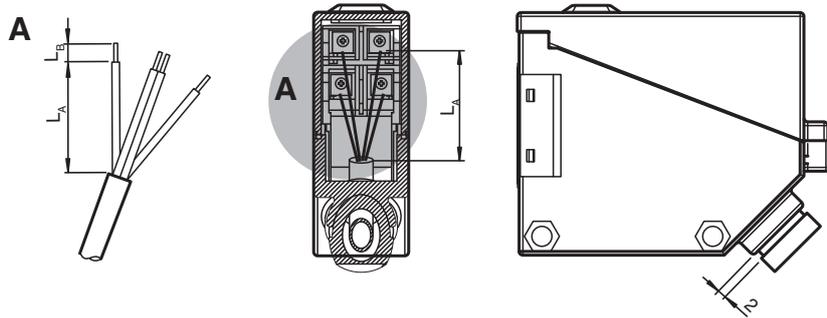
**Technical Data**

|                   |              |
|-------------------|--------------|
| Scope of delivery | Mounting aid |
|-------------------|--------------|

**Connection Assignment**



**Installation**



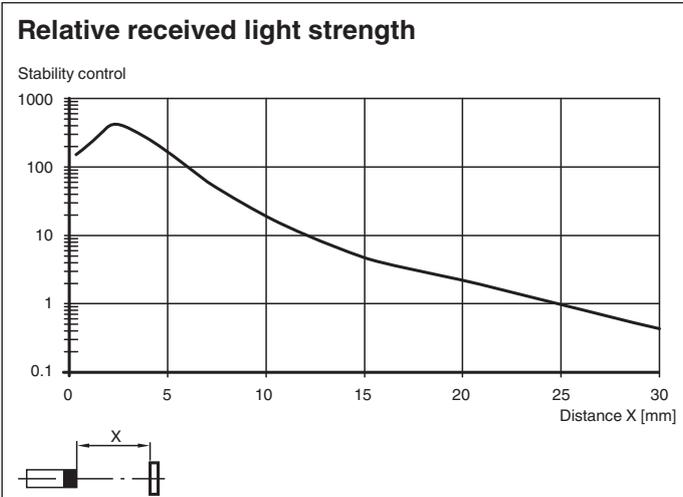
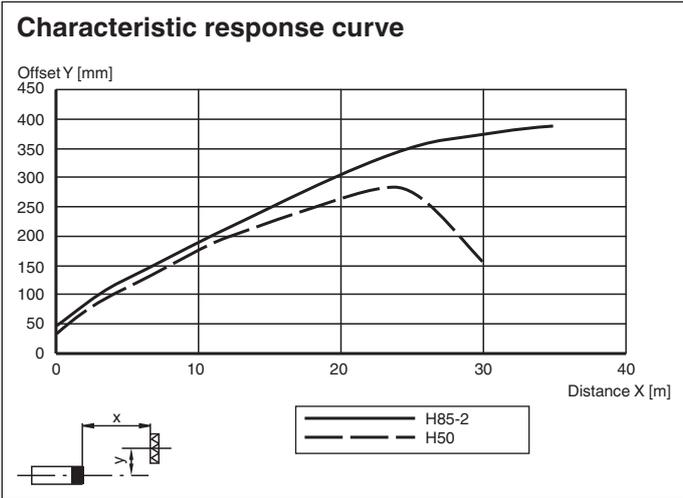
| Wire length $L_A$ [mm] | Strip length $L_B$ [mm] |
|------------------------|-------------------------|
| $30 \pm 2$             | $5 \pm 1$               |

Recommendations for cable installation:

1. Use flexible cable with a bending radius less than 5 x outer diameter.
2. Use cable with an outer diameter of  $6.2 \pm 0.2$  mm with the provided gasket with an inner diameter of 7 mm.
3. Cut, strip, and crimp the cable according to the dimensions in the table above.
4. Ensure that the distance between cable gland and housing is approximately 2 mm. Do not screw in the cable gland fully.

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**Characteristic Curve**



**Additional Information**

**System Description**

A retroreflective sensor contains emitters and receivers integrated in a single housing. The emitted light is reflected back to the receiver by a reflector. When the light beam is interrupted by an object, the switching function is triggered.

**Mounting**

The sensors can be mounted directly with thru-holes or using the mounting bracket supplied. Ensure that the background is level to prevent the housing from becoming distorted when the fittings are tightened. Secure the nuts and screws with spring disks to prevent the sensor from becoming misaligned.

Mount a suitable reflector opposite the light barrier. Roughly align the sensor (without an object) with the reflector. Next, adjust the sensor to the reflector by swiveling the sensor horizontally and vertically so that the yellow signal indicator lights up continuously. In the event of misalignment, the red signal indicator lights up.

**Commissioning**

**Checking object detection:** Follow the steps below to check that the sensor detects objects as required.

Position the object in the beam path of the sensor.

When the object is detected, the yellow signal indicator goes out. If the yellow signal indicator remains lit, reduce the sensitivity of the potentiometer until the yellow signal indicator goes out.

When the object disappears from the beam path of the sensor, the yellow signal indicator lights up again continuously.

**Maintenance**

**Cleaning:** If the transmission reception deteriorates, e.g., due to dirt or misalignment, and is lower than the functional reserve, the red signal indicator on the receiver lights up. Clean the optical interfaces of the sensor (e.g., lenses) at regular intervals.

**Maintenance:** Check the mounting fittings and the electrical connections regularly.

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