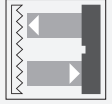


# Retroreflective sensor

## RL39-55/30/35/40a/116/126a

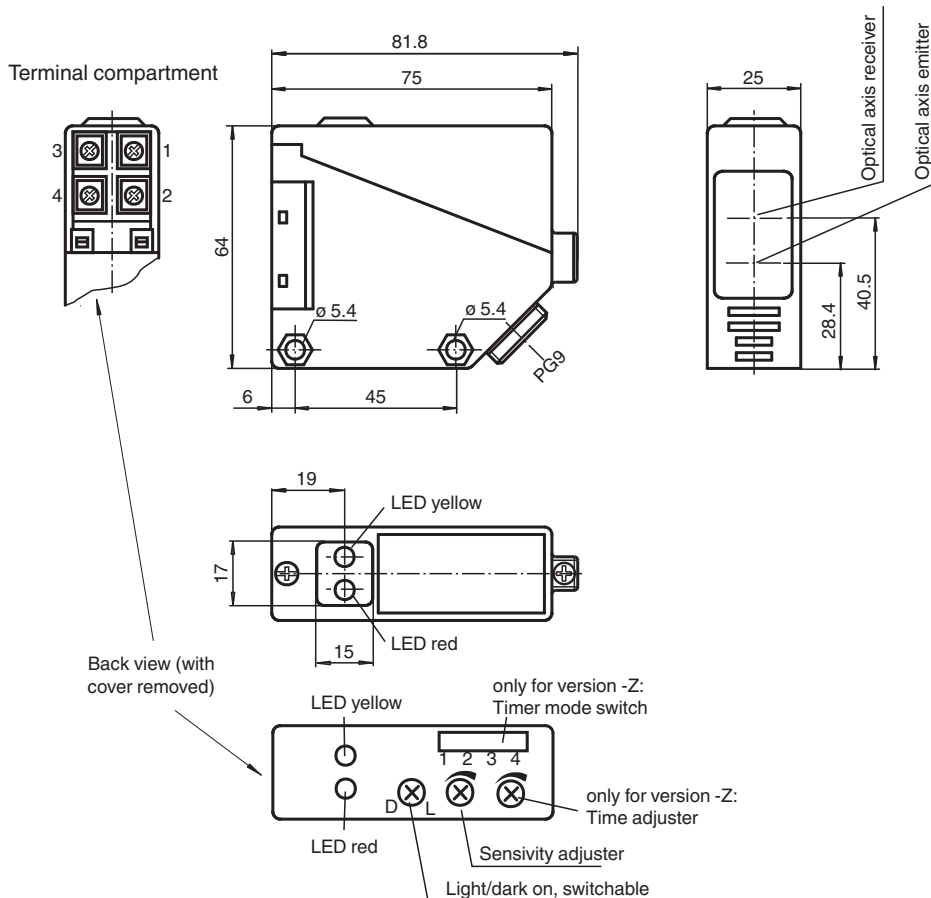


- Visible red light
- Light-on/dark-on, switchable
- Degree of protection IP54

Retroreflective sensor without polarization filter



### Dimensions



### Technical Data

#### General specifications

Release date: 2024-03-28 Date of issue: 2024-03-28 Filename: 088812\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**pf** PEPPERL+FUCHS

## 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>	800 a	
Mission Time (T <sub>M</sub> )	20 a	
Diagnostic Coverage (DC)	0 %	
<b>Indicators/operating means</b>		
Function indicator	LED yellow: switching state 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>	10 ... 30 V DC
Ripple	10 %	
No-load supply current	I <sub>0</sub>	≤ 20 mA
Time delay before availability	t <sub>v</sub>	≤ 300 ms
<b>Output</b>		
Stability alarm output	1 NPN, active when falling short of the stability control	
Switching type	light/dark on	
Signal output	1 NPN output, short-circuit protected, reverse polarity protected, open collector	
Switching voltage	max. 30 V DC	
Switching current	max. 200 mA , resistive load	
Voltage drop	U <sub>d</sub>	≤ 3 V
Switching frequency	f	≤ 300 Hz
Response time	≤ 1.5 ms	
<b>Conformity</b>		
Product standard	EN 60947-5-2	
<b>Approvals and certificates</b>		
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. 100 g	
Dimensions		
Height	64 mm	
Width	25 mm	
Depth	75 mm	
<b>General information</b>		
Scope of delivery	Mounting aid , Reflector	

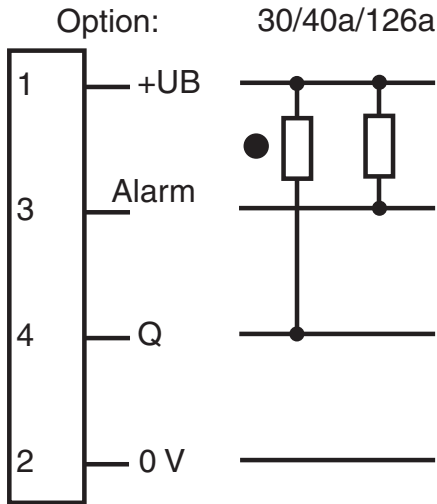
Release date: 2024-03-28 Date of issue: 2024-03-28 Filename: 088812\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.comUSA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.comGermany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

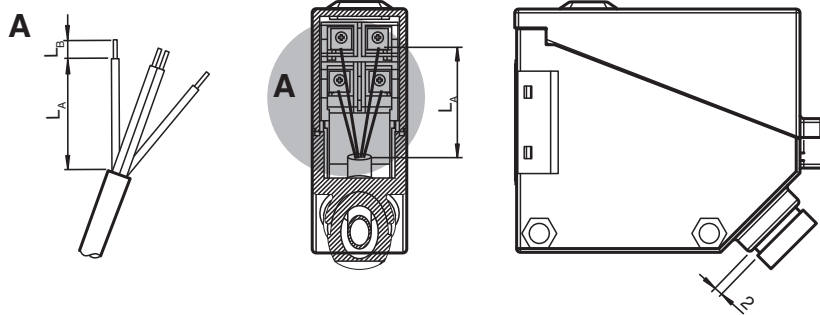
**PEPPERL+FUCHS**

**Connection Assignment**



○ = Light on  
● = Dark on

**Installation**



Wire length $L_A$ [mm]	Strip length $L_B$ [mm]
30±2	5±1

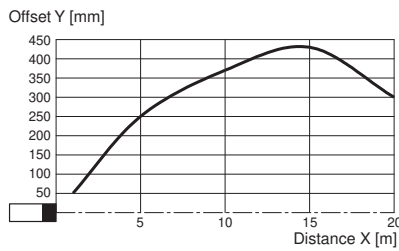
Recommendations for cable installation:

1. Use flexible cable with a bending radius less than 5 x outer diameter.
2. Use cable with an outer diameter of 6.2 ±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.

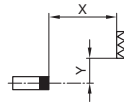
Release date: 2024-03-28 Date of issue: 2024-03-28 Filename: 088812\_eng.pdf

## Characteristic Curve

### Characteristic response curve



Permissible distance (offset) between optical axis and retro-reflector.



## 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.