

Diffuse mode sensor

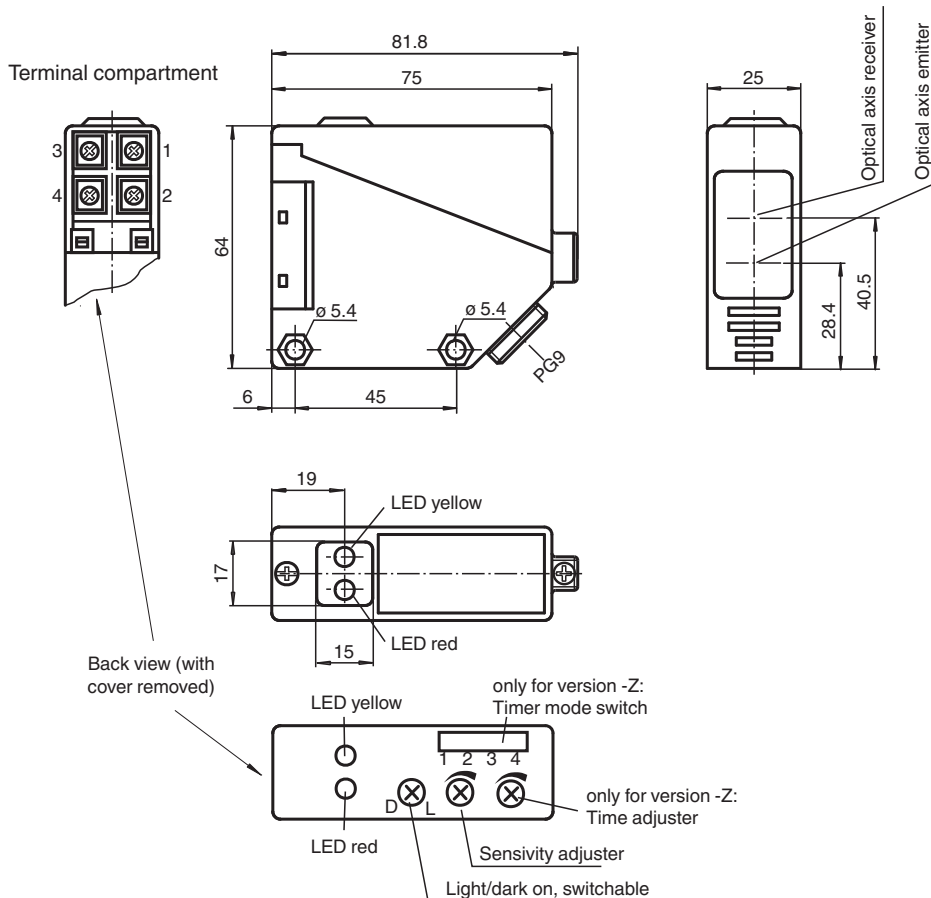
RL39-8-2000/30/40a/116/126a



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



Dimensions



Technical Data

General specifications

Release date: 2024-03-28 Date of issue: 2024-03-28 Filename: 088824_eng.pdf

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

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Technical Data

Detection range	0 ... 2000 mm	
Adjustment range	200 ... 2000 mm	
Reference target	standard white 200 mm x 200 mm	
Light source	IRED	
Light type	modulated infrared light	
Ambient light limit	IEC / EN 60947-5-2 , 10000 Lux	
Functional safety related parameters		
MTTF _d	800 a	
Mission Time (T _M)	20 a	
Diagnostic Coverage (DC)	0 %	
Indicators/operating means		
Function indicator	LED yellow: switching state LED red: pre-fault indication	
Control elements	Sensing range adjuster, light-on/dark-on changeover switch	
Electrical specifications		
Operating voltage	U _B	10 ... 30 V DC
Ripple	10 %	
No-load supply current	I ₀	≤ 20 mA
Time delay before availability	t _v	≤ 300 ms
Output		
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 _d	≤ 3 V
Switching frequency	f	≤ 300 Hz
Response time	≤ 1.5 ms	
Conformity		
Product standard	EN 60947-5-2	
Approvals and certificates		
Approvals	CE	
Ambient conditions		
Ambient temperature	-25 ... 55 °C (-13 ... 131 °F)	
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)	
Mechanical specifications		
Degree of protection	IP54	
Connection	terminal compartment PG9 , ≤ 0.75 mm ²	
Material		
Housing	PBT	
Optical face	PMMA	
Mass	approx. 100 g	
Dimensions		
Height	64 mm	
Width	25 mm	
Depth	75 mm	
General information		
Scope of delivery	Mounting aid	

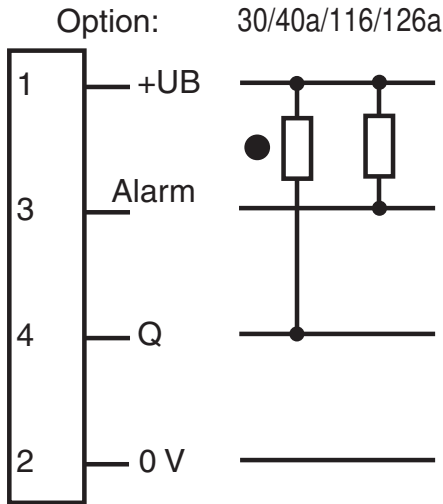
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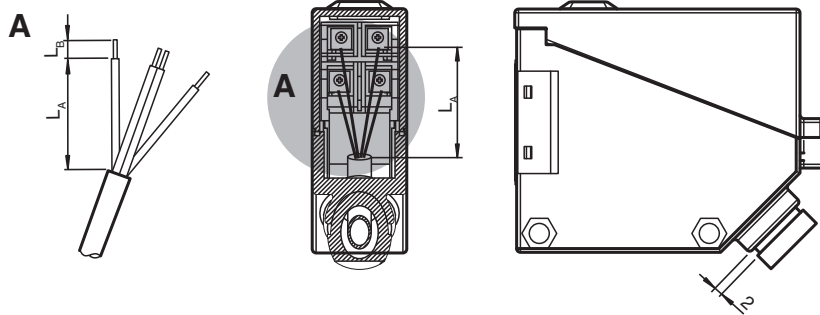
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Connection Assignment



○ = Light on
● = Dark on

Installation



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

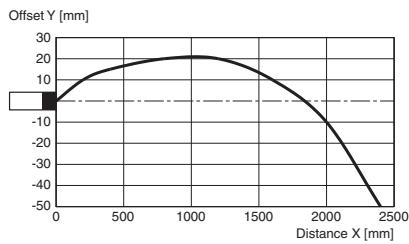
Recommendations for cable installation:

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.

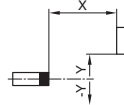
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Characteristic Curve

Characteristic response curve



Permissible distance (offset) between optical axis and object.



Additional Information

System Description

A retroreflective sensor contains both an emitter and a receiver in a single housing. The light of the emitter is reflected by the detected object, returned to, and evaluated by the receiver. The sensing range depends on the object color. For dark or very small objects, the sensing range is reduced.

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.

Aligning the sensor: Align the sensor with the background.

Yellow signal indicator lights up continuously: Use the sensing range adjuster to set the sensing range correctly. When the sensing range is right, the yellow signal indicator goes out.

Commissioning

Check Object Detection: Check as follows if the sensor detects objects as intended.

Position the object in the required sensing range of the sensor and align the light spot towards the object.

The yellow signal indicator is off. The indicator lights up only when the object is detected.

Troubleshooting: If the sensor does not respond as expected, change the sensing range setting until the signal indicator lights up during object detection.

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.