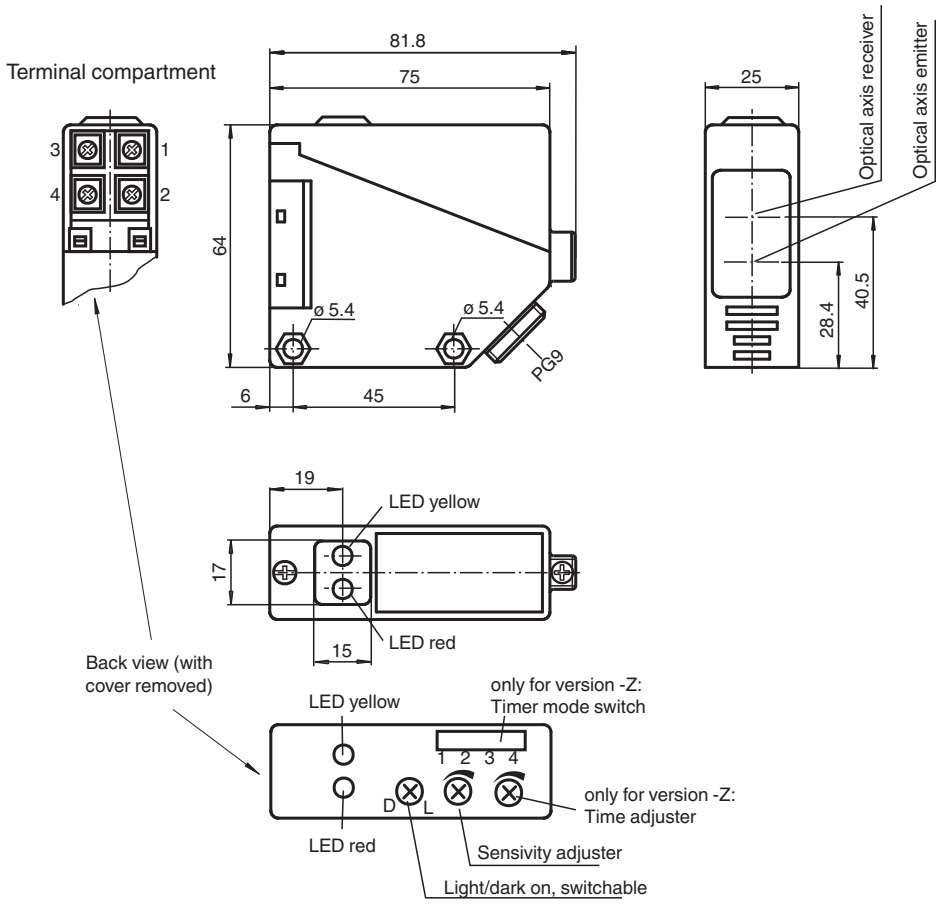
Diffuse mode sensor

RL39-8-2000/32/40a/82a/116

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

Dimensions



Technical Data

General specifications

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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 PNP, active when falling short of the stability control
Switching type		light/dark on
Signal output		1 PNP 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 mm²
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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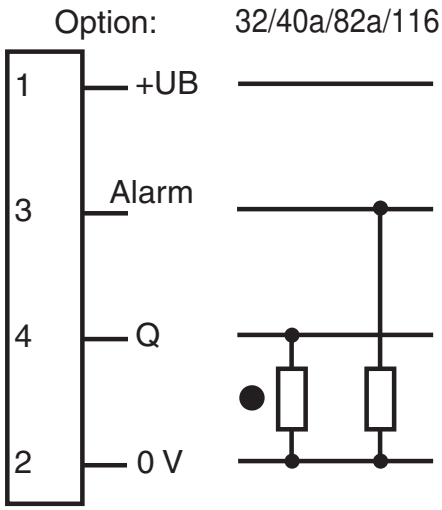
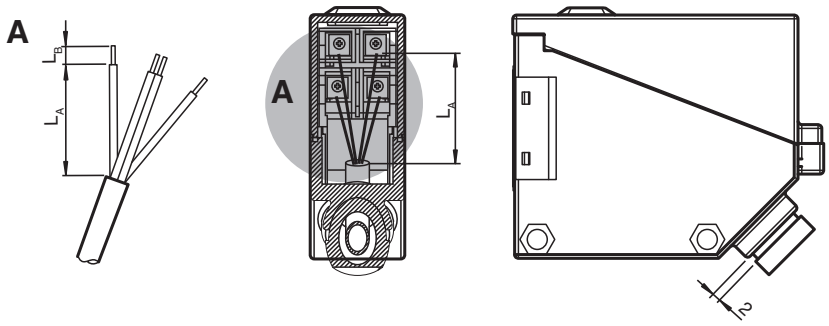
Connection Assignment



○ = 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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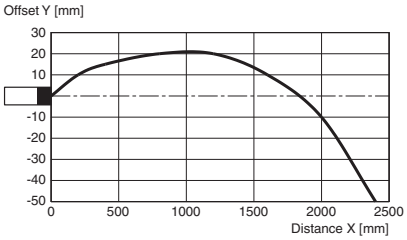
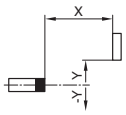
Characteristic Curve

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 ist 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.

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