



Retroreflective sensor

RLK28-54-G/31/116

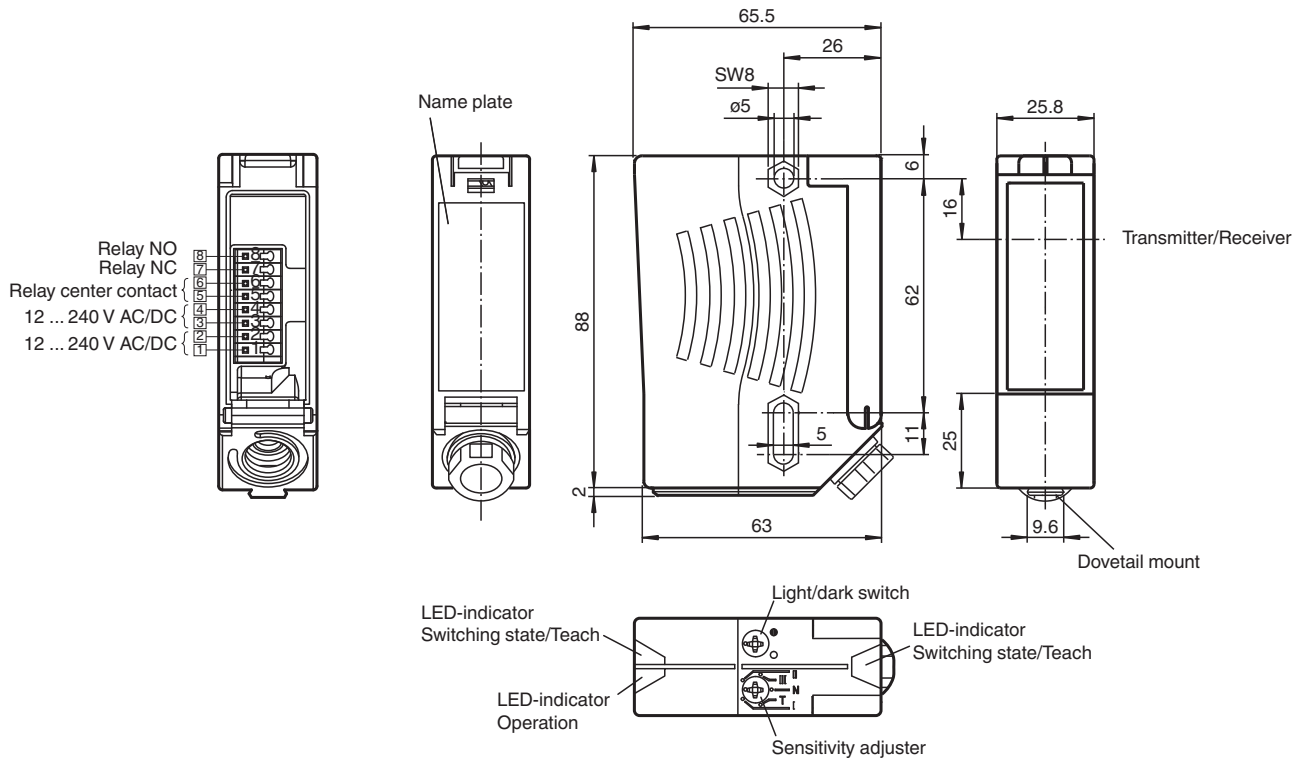


- Detects transparent objects, i.e., clear glass, PET and transparent films
- TEACH-IN switch for setting the contrast detection levels
- Automatic adjustment in case of soiling in contrast detection mode
- Ultra bright LEDs for power on, weak signal indication and switching state
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Retroreflective sensor with polarization filter for clear object detection



Dimensions



Release date: 2023-04-04 Date of issue: 2023-04-04 Filename: 134127_eng.pdf

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

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Technical Data

General specifications			
Effective detection range			0 ... 5.6 m
Reflector distance			0 ... 5.6 m
Threshold detection range			7 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. 90 mm at a distance of 5.6 m
Opening angle			Emitter: 1 ° Receiver: 1.2 °
Ambient light limit			50000 Lux
Functional safety related parameters			
MTTF _d			790 a
Mission Time (T _M)			20 a
Diagnostic Coverage (DC)			0 %
Indicators/operating means			
Operation indicator			LED green
Function indicator			2 LEDs yellow for switching state, stability control, TEACH-IN and contrast detection mode
Control elements			rotary switch for light/dark, 5-step switch for contrast recognition adjustment
Contrast detection levels			10 % - clean, water filled PET bottles 18 % - clear glass bottles 40 % - colored glass or opaque materials adjustable due to Teach-In switch
Electrical specifications			
Operating voltage	U _B		12 ... 240 V AC/DC
Power consumption	P ₀		≤ 3.5 VA
Output			
Switching type			light/dark on switchable
Signal output			Relay, 1 alternator
Switching voltage			max. 250 V AC/DC
Switching current			max. 2 A
Switching power			DC: max. 50 W AC: max. 500 VA
Switching frequency	f		25 Hz
Response time			20 ms
Conformity			
Product standard			EN 60947-5-2
Approvals and certificates			
Protection class			II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit insulated from control circuit in accordance with IEC 61140. Caution! The protection class 2 is only valid when the terminal compartment is closed.
UL approval			cULus Listed Caution: This equipment is considered as open-type equipment. It must be mounted within an enclosure, that is suitably designed for protection against internal fire and personal injury resulting from accessibility to live parts according UL 508.
CCC approval			Certified by China Compulsory Certification (CCC)
Ambient conditions			
Ambient temperature			-40 ... 60 °C (-40 ... 140 °F)
Storage temperature			-40 ... 60 °C (-40 ... 140 °F)
Mechanical specifications			
Housing width			25.8 mm
Housing height			88 mm
Housing depth			65.5 mm
Degree of protection			IP67

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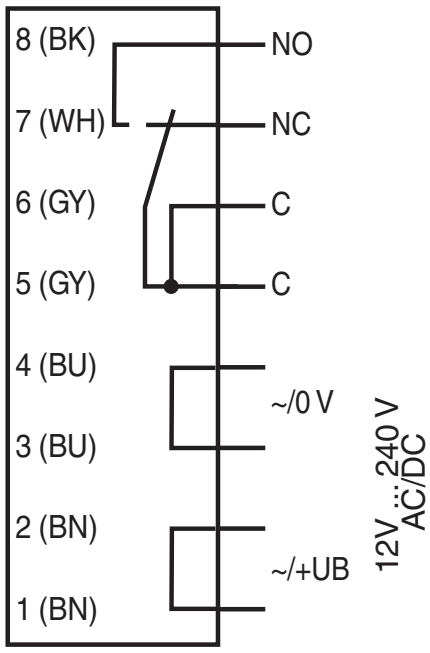
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Technical Data

Connection	terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm ² , insulation stripping 7.5 ... 8.5 mm, M16 x 1.5 cable gland
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	100 g

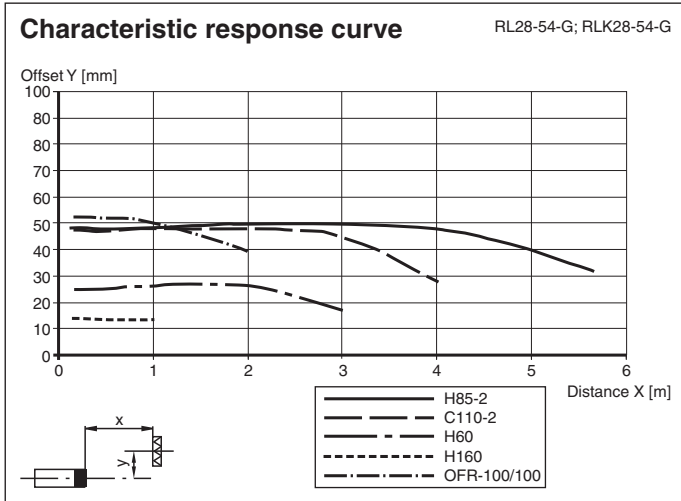
Connection Assignment

Option:



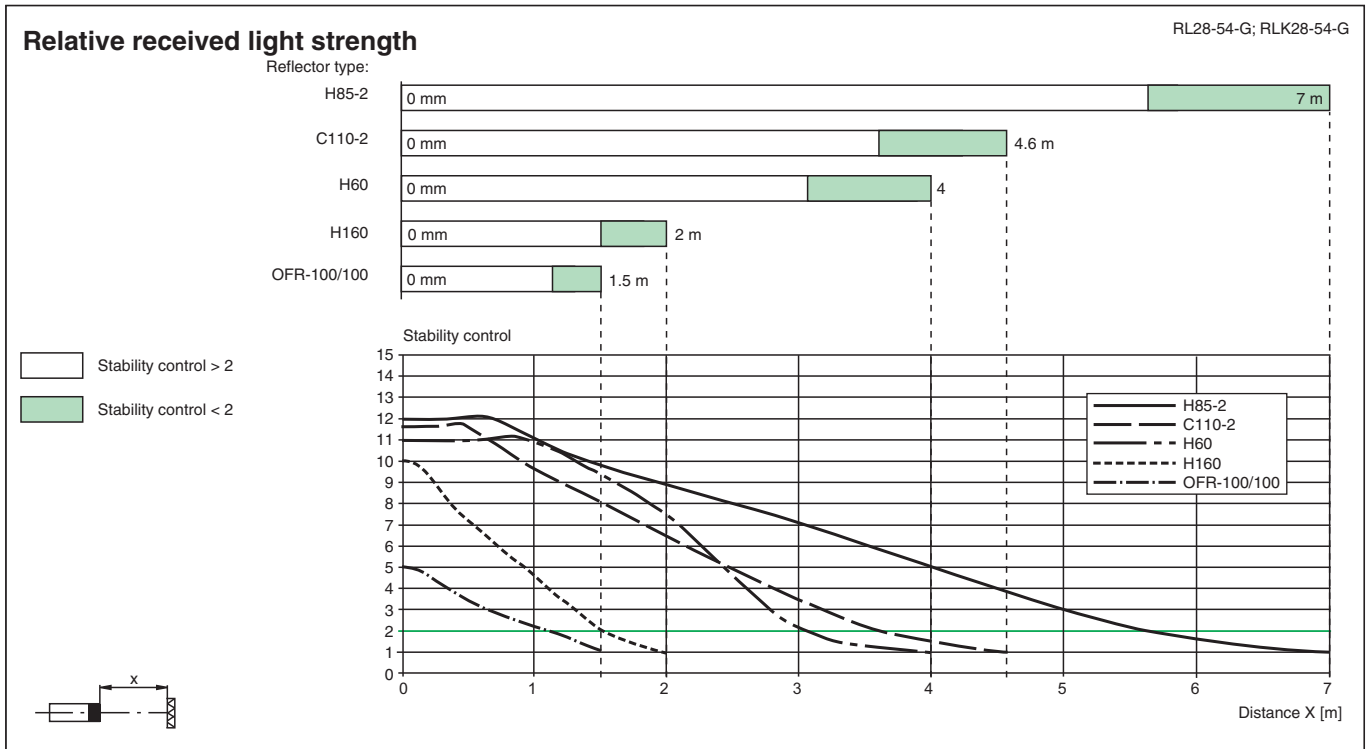
The relay-functions "NC" and "NO" bear on the switching mode "Light-ON". This complies to the default setting of the light/dark switch, located on top of the housing (factory setting).

Characteristic Curve



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Characteristic Curve



Accessories

	OMH-05	Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm
	OMH-21	Mounting bracket: mounting aid for sensors in the RL* series
	OMH-22	Mounting aid for RL* series
	OMH-RLK29	Mounting bracket
	OMH-RLK29-HW	Mounting bracket for rear wall mounting
	OMH-RL28-C	Weld slag cover model

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Teach-In

Switch position "N" (standard operation):

LEDs are lit when the light beam is unobstructed, they flash quickly (approx. 4 Hz) when the value falls short of the function reserve and they go out when the beam is interrupted.

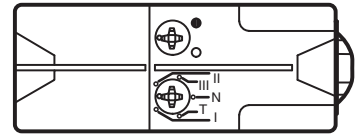
Switch position "T" (Teach-in mode):

After 1 s, the LED flashes slowly (approx. 1.5 Hz). The sensor is now ready to be set for a specific contrast detection value via the mechanical switch (pos. I, II or III).

Switch positions "I", "II" and "III" (contrast detection mode)

Contrast recognition values: I for 10 %, II for 18 %, III for 40 %

1. LED permanently lit: light path unobstructed
2. LED off: element to be sensed detected
3. LED flashes rapidly: detection failure, excessive soiling, function reserve too low.



You need not turning the switch into T-position again, when changing the contrast recognition value during operation. For sensor operation in contrast recognition mode, the stability control value must be at least 2.5 (see curve relative received light strength).

Additional Information

Mounting instructions:

The sensor is held in place by two pass-through drill holes for M5. The surface underneath must be flat to prevent the housing from moving when it is tightened into position. We recommend securing the nuts in place with spring screws to prevent the sensor from going out of adjustment.

Outdoor mounting:

The sensors must be protected from shock and splashed water. It may be necessary to provide a covering.

Adjustment:

Align the unit to the reflector in the "N" switch setting. The yellow LED must be lit constantly. Move the switch to the "T" setting and wait for about 1 sec. until the yellow LED starts flashing slowly.

Move the switch to the setting for the desired contrast detection level: "I" for 10 %, "II" for 18 %, "III" for 40 %.

Contrast detection levels:

The output becomes inactive if dirt and dust make it impossible to readjust the setting. In this case the yellow LED will flash quickly.

If dirt and dust continue to accumulate, detection of slight contrasts can no longer be guaranteed.