



**Model Number**

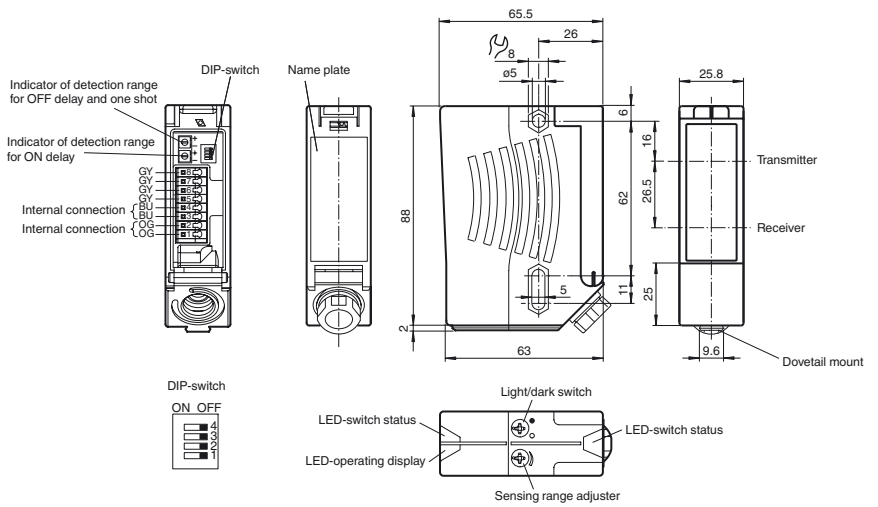
**RL28-8-H-400-RT-Z/110/116**

Background suppression sensor with terminal compartment

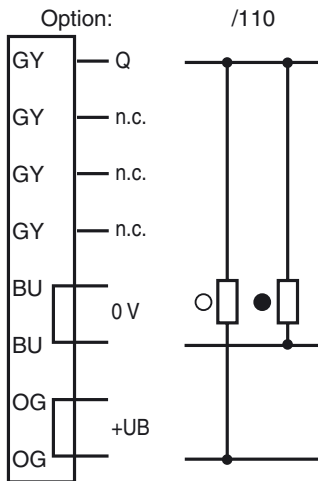
**Features**

- Ultra bright LEDs for power on and switching state
- Good alignability due to red transmission LED
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, protection degree IP67
- Protection class II

**Dimensions**



**Electrical connection**



- = Light on
- = Dark on

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**Technical data****General specifications**

Detection range	20 ... 400 mm
Detection range min.	20 ... 150 mm
Detection range max.	20 ... 400 mm
Background suppression	max. + 10 % of the upper limit of the detection range
Light source	LED
Light type	modulated visible red light , 660 nm
Black/White difference (6 %/90 %)	< 10 %
Diameter of the light spot	approx. 12 mm at a distance of 400 mm
Angle of divergence	Emitter 1.2°, Receiver 2°
Ambient light limit	50000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	1130 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Indicators/operating means**

Operating display	LED green
Function display	2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
Controls	Light/Dark switch
Controls	Detection range adjuster

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		10 %
No-load supply current	I <sub>0</sub>	≤ 40 mA

**Output**

Switching type	light/dark on, switchable (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)	
Signal output	1 push-pull output, short-circuit protected, reverse polarity protected	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Switching frequency	f	250 Hz
Response time	2 ms	
Timer function	ON delay (GAN), OFF delay (GAB), one shot (IAB), ON delay-one shot (GAN-IAB), ON delay-OFF delay (GAN-GAB), programmable adjustment interval 0.02 s ... 1 s	

**Ambient conditions**

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

**Mechanical specifications**

Protection degree	IP67
Connection	terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm <sup>2</sup> , insulation stripping 7.5 ... 8.5 mm, M16 x 1.5 cable gland
Material	
Housing	Plastic ABS
Optical face	plastic
Mass	112 g

**Compliance with standards and directives**

Standard conformity	
Product standard	EN 60947-5-2:2007

**Approvals and certificates**

Protection class	II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Caution! The protection class 2 is only valid when the terminal compartment is closed.
UL approval	cULus
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

**Accessories****OMH-05**

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-07**

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-21**

Mounting bracket

**OMH-22**

Mounting bracket

**OMH-MLV11-K**

dove tail mounting clamp

**OMH-RLK29**

Mounting bracket

**OMH-RLK29-HW**

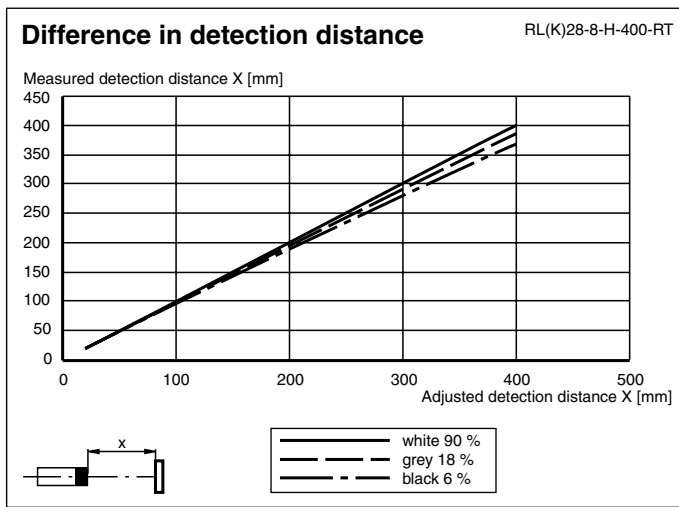
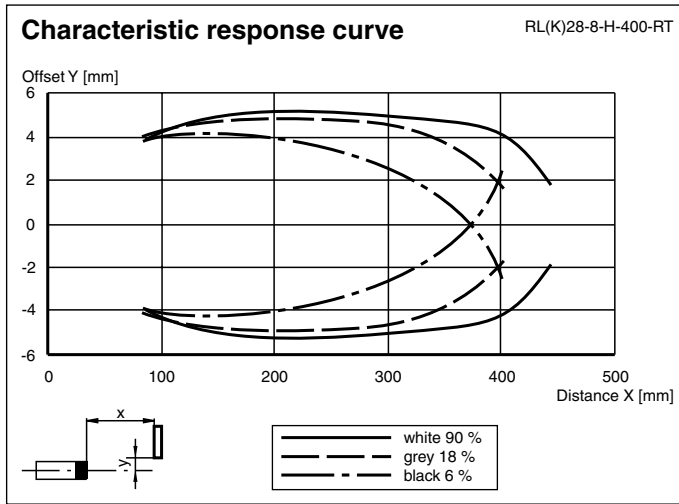
Mounting bracket for rear wall mounting

**OMH-RL28-C**

Protective cover

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

Curves/Diagrams



Timer functions

Timer function	Switching type		Receiver exposed Receiver dark
ON  Without	Light		ON
	Dark		OFF
ON  ON delay	Light		ON
	Dark		OFF
ON  OFF delay	Light		ON
	Dark		OFF
ON  one shot	Light		ON
	Dark		OFF

Time  $t_{ON}$ ,  $t_{OFF}$  and  $t_{OS}$  are adjustable from 0.02 to 1 seconds.  
 The Light-/Dark-Switch (Left, outer switch) is shown in the "Dark ON" position.

Type	Description	Notes
-Z	OFF delay timer	Adjustable time interval (0.02 s - 10 s)
	one shot timer	
	ON delay timer	
	ON delay timer / OFF delay timer	
	ON delay timer / one shot timer	

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## Additional information

### Intended use:

The transmitter and receiver are located in the same housing for direct detection sensors with background masking. Marking of objects outside the detection range is achieved by arranging the angle between the transmitter and receiver (2 receiver elements).

Objects are detected independently of their surface structures, brightness and colour, as well as the brightness of the background.

### Mounting instructions:

The sensors can be fastened directly with fixing screws or with a support bracket (not included with delivery).

The surface underneath must be flat to prevent the housing from moving when it is tightened into position. We recommend securing the nut and screw in place with spring washers to prevent the sensor from going out of adjustment.

### Adjustment:

After the operating voltage is applied, the LED is lit green.

Align the sensor to the background. If the yellow LED is lit, the detection range should be reduced with the detection range adjuster until the yellow LED goes out.

### Object direction:

Place the object to be detected at the desired maximum detection range and align the light spot to it. If the object is detected, the yellow LED lights up.

If it does not light up, the detection range must be adjusted on the potentiometer until it lights up when an object is detected.

### Cleaning:

We recommend cleaning the optical surface and checking the screwed connection and other connections at regular intervals.