



Model Number

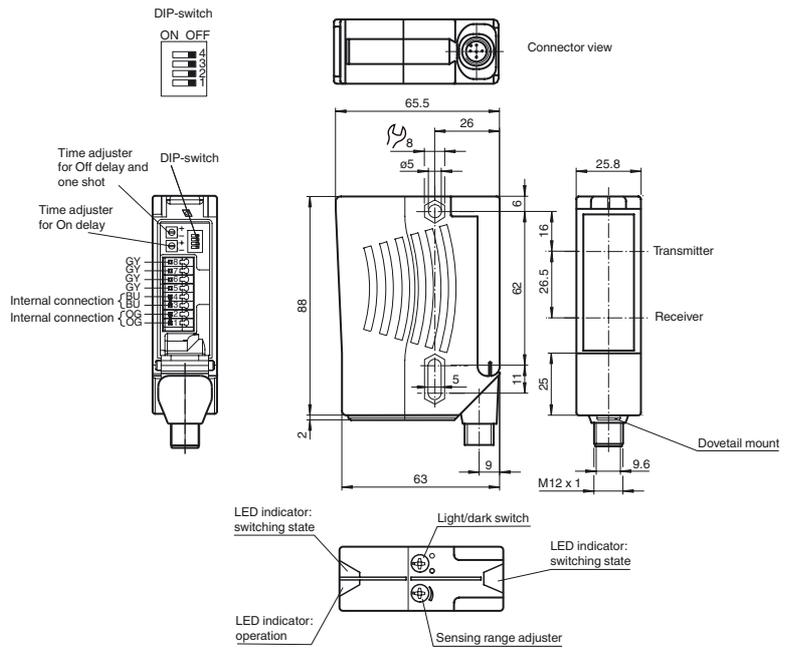
RL28-8-H-2000-IR-Z/47/112

Background suppression sensor with metal connector M12; 5-pin, 90° convertible

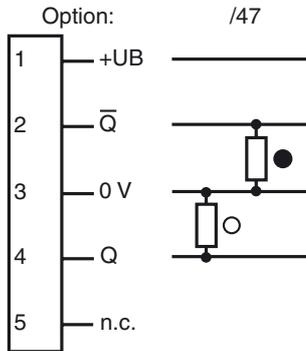
Features

- Ultra bright LEDs for power on and switching state
- Minimal black-white difference through the infrared transmission LED
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Not sensitive to ambient light, even with energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Dimensions

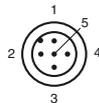


Electrical connection



○ = Light on
● = Dark on

Pinout



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

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

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Technical data**General specifications**

Detection range	20 ... 2000 mm
Detection range min.	20 ... 200 mm
Detection range max.	20 ... 2000 mm
Background suppression	max. + 10 % of the upper limit of the detection range
Light source	IREd
Light type	modulated infrared light , 880 nm
Black/White difference (6 %/90 %)	< 40 %
Diameter of the light spot	approx. 70 mm at a distance of 2000 mm
Angle of divergence	transmitter 2° receiver 2°
Ambient light limit	50000 Lux

Functional safety related parameters

MTTF _d	720 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green
Function indicator	2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
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	≤ 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	2 PNP, complementary, short-circuit protected, reverse polarity protected , open collectors	
Switching voltage	max. 30 V DC	
Switching current	max. 200 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), programmable adjustment interval 0.02 s ... 1 s	

Conformity

Product standard	EN 60947-5-2
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Ambient conditions

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

Mechanical specifications

Housing width	25.8 mm
Housing height	88 mm
Housing depth	65.5 mm
Degree of protection	IP67
Connection	5-pin, M12 x 1 connector, 90° rotatable
Material	
Housing	Plastic ABS
Optical face	plastic
Connector	metal
Mass	approx. 100 g

Approvals and certificates

UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
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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-HW

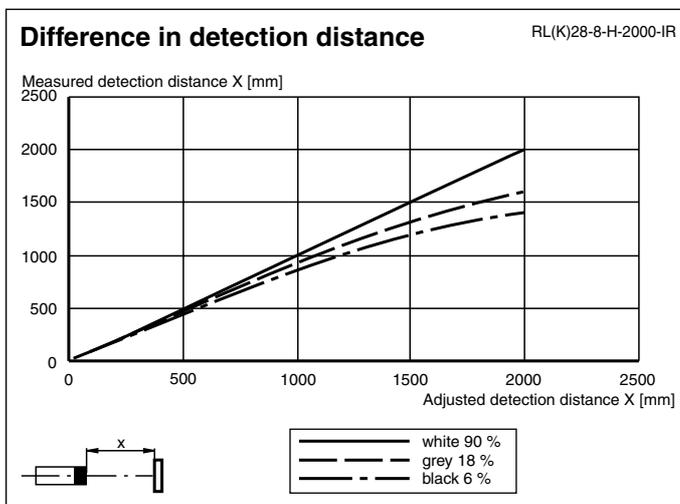
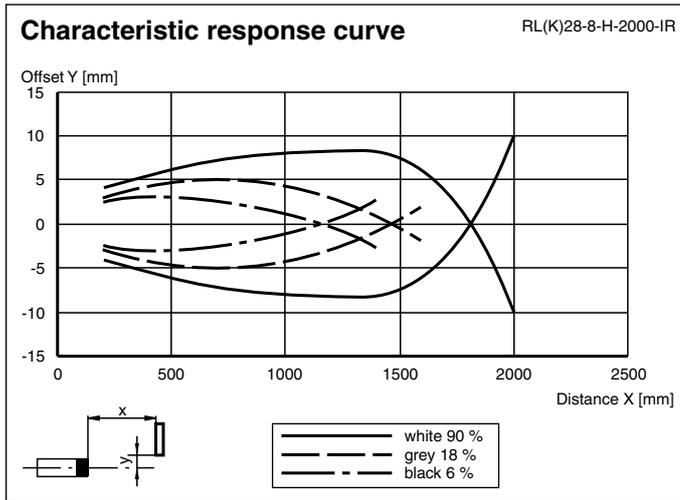
Mounting bracket for rear wall mounting

OMH-RL28-C

Weld slag cover model

Other suitable accessories can be found at 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 - 1 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.