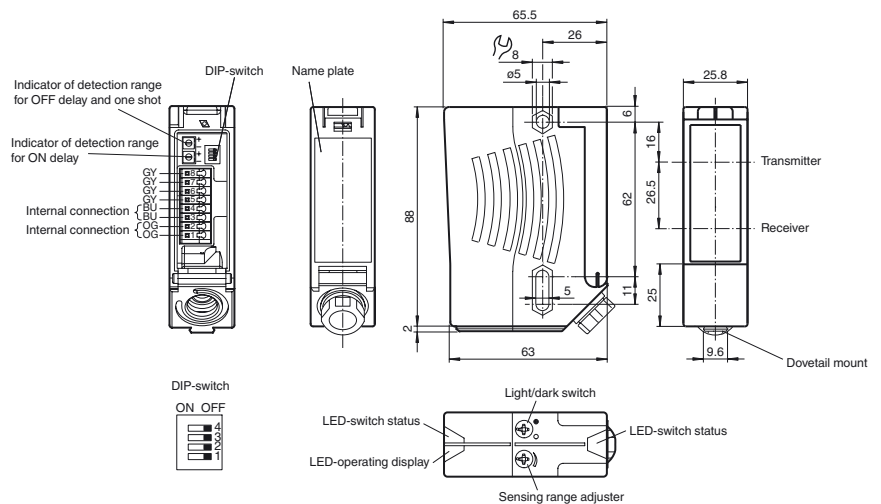## Dimensions

Model Number

RL28-8-H-700-RT-Z/47/116

Background suppression sensor
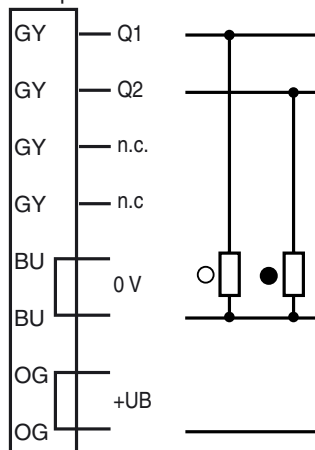with terminal compartment

Features

- Ultra bright LEDs for power on and switching state

- Good alignability due to red transmission LED

- Programmable time function GAN, GAB, IAB as well as GAN-IAB and GAN-GAB as double function

- Not sensitive to ambient light, even with switched energy saving lamps

- Waterproof, degree of protection IP67

- Protection class II

Electrical connection

Option: /47

GY	—	Q1
GY	—	Q2
GY	—	n.c.
GY	—	n.c
BU		
BU		0 V
OG		
OG		+UB

○ = Light on
● = Dark on

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

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 4411   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com   fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

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Technical data

General specifications

Detection range	20 ... 700 mm
Detection range min.	20 ... 200 mm
Detection range max.	20 ... 700 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 %)	< 20 %
Diameter of the light spot	approx. 15 mm at a distance of 700 mm
Angle of divergence	Emitter 1.2°, 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), ON delay-OFF delay (GAN-GAB), programmable adjustment interval 0.02 s ... 1 s

Conformity

Product standard	EN 60947-5-2

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	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
Mass	112 g

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	E87056 , cULus Listed , class 2 power supply , type rating 1

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
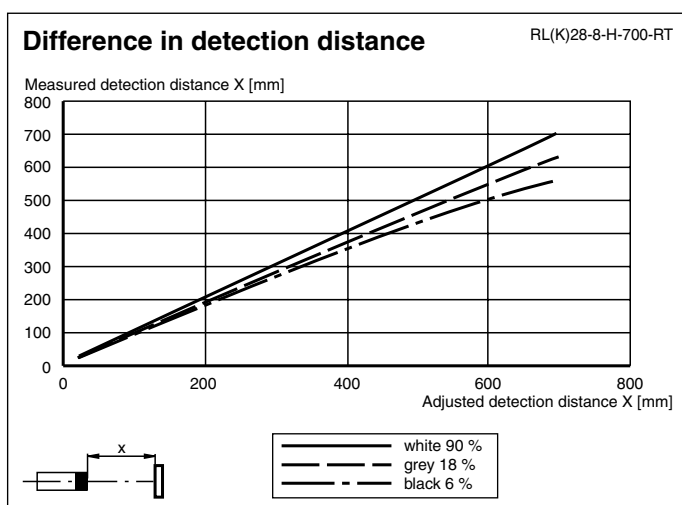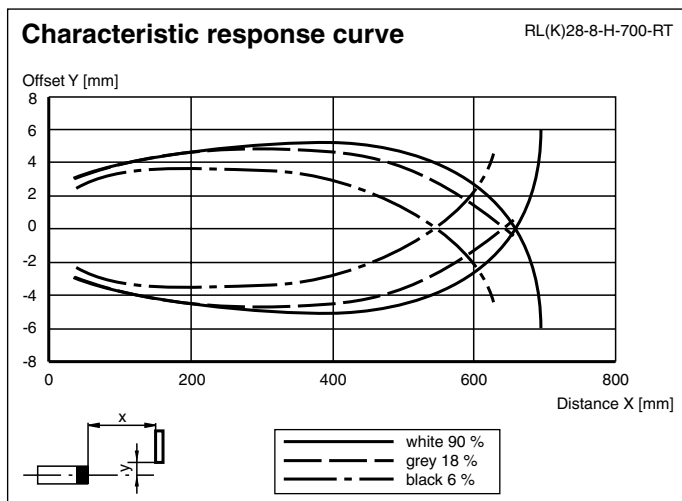
OMH-RLK29
Mounting bracket

OMH-RLK29-HW
Mounting bracket for rear wall mounting

OMH-RL28-C
Weld slag cover model

Other suitable accessories can be found at www.pepperl-fuchs.com

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

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www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com   fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

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Curves/Diagrams

Characteristic response curve

RL(K)28-8-H-700-RT

Offset Y [mm]

Distance X [mm]

——	white 90 %
— · —	grey 18 %
— ·· —	black 6 %

Difference in detection distance

RL(K)28-8-H-700-RT

Measured detection distance X [mm]

Adjusted detection distance X [mm]

——	white 90 %
— —	grey 18 %
— ·· —	black 6 %

Timer functions

Timer function	Switching type		Receiver exposed / Receiver dark
ON 1 2 3 4 — Without	Light		ON
	Dark		OFF / ON / OFF
ON 1 2 3 4 — ON delay	Light	t_{ON}	ON / OFF
	Dark	t_{ON} t_{ON} t_{ON}	ON / OFF
ON 1 2 3 4 — OFF delay	Light	t_{OFF} t_{OFF} t_{OFF}	ON / OFF
	Dark	t_{OFF}	ON / OFF
ON 1 2 3 4 — one shot	Light	t_{OS} t_{OS} t_{OS}	ON / OFF
	Dark	t_{OS} t_{OS} t_{OS}	ON / 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	

Additional information

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USA: +1 330 486 0001
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fa-info@sg.pepperl-fuchs.com

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Mounting instructions:

There are two bore holes for mounting the sensor with M5 bolts. The base surface must be flat to avoid distorting the housing during mounting. It is advisable to secure the bolts with spring washers so that the sensor does not become misaligned.
Outdoor installation:
The sensor must be protected against rain and splash-water, possibly must a cover be installed.

Adjustment:

Adjust the sensor on the background. After the connecting to the power supply the green LED illuminates. In case the yellow LEDs illuminate too, the detection range needs to be reduced with the detection range adjuster, until the yellow LEDs is switched off. If the object is moved into the detection range the yellow LEDs illuminates.

Driving inductive loads:

If the sensor are used to drive inductive loads, the following safety procedures must be carried out:
For operating voltage of 10 … 30 V DC: fit a protection diode, max. 200 mA