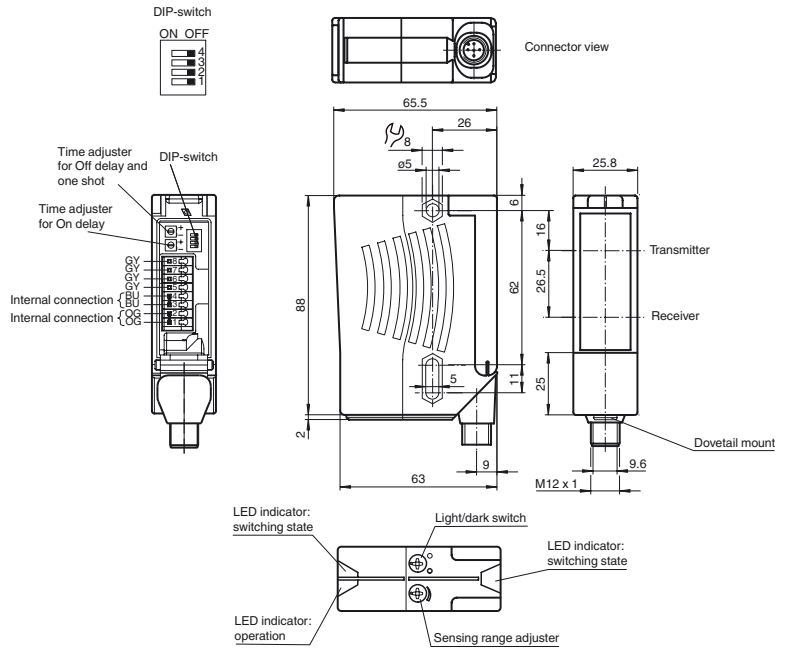## Dimensions

Model Number

RL28-8-H-700-IR-Z/47/112

Background suppression sensor

with metal connector M12; 5-pin, 90° convertible
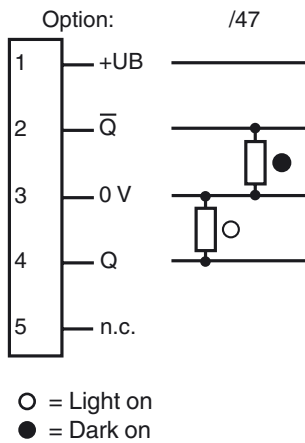
Features

- 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
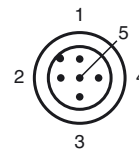
- Waterproof, protection degree IP67

Electrical connection

Option: /47

○ = Light on
● = Dark on

Pinout

Subject to modifications without notice

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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	IRED
Light type	modulated infrared light , 880 nm
Black/White difference (6 %/90 %)	< 8 %
Diameter of the light spot	approx. 24 mm at a distance of 700 mm
Angle of divergence	transmitter 2° receiver 2°
Ambient light limit	50000 Lux

Functional safety related parameters

$MTTF_d$	1130 a
Mission Time (T_M)	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_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

Ambient conditions

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

Mechanical specifications

Protection degree	IP67
Connection	5-pin, M12 x 1 connector, 90° rotatable
Material	
Housing	Plastic ABS
Optical face	plastic
Connector	metal
Mass	approx. 100 g

Compliance with standards and directives

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

Approvals and certificates

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

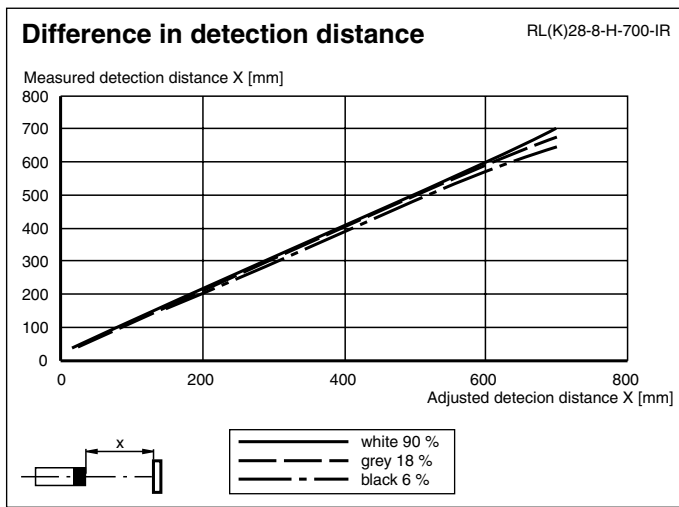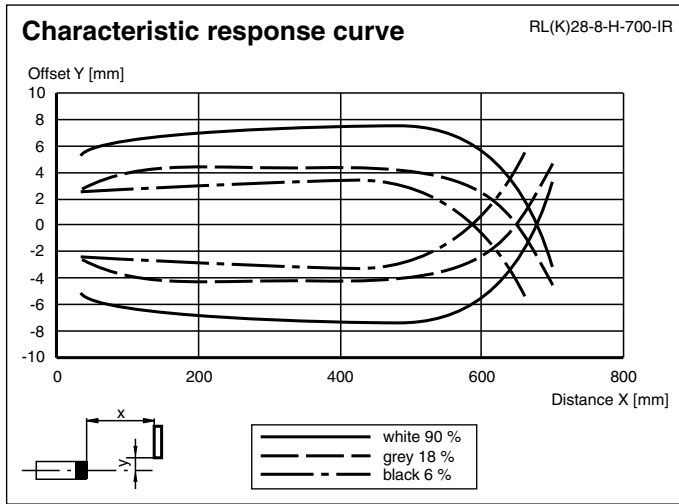**OMH-RLK29**
Mounting bracket

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

Curves/Diagrams

Characteristic response curve
RL(K)28-8-H-700-IR

Offset Y [mm]

Distance X [mm]

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

Difference in detection distance
RL(K)28-8-H-700-IR

Measured detection distance X [mm]

Adjusted detecion 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 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 - 10 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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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

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