



### Model Number

**RL28-8-H-700-IR/47/105/106**

Background suppression sensor  
with 5-pin, M12 x 1 plastic connector

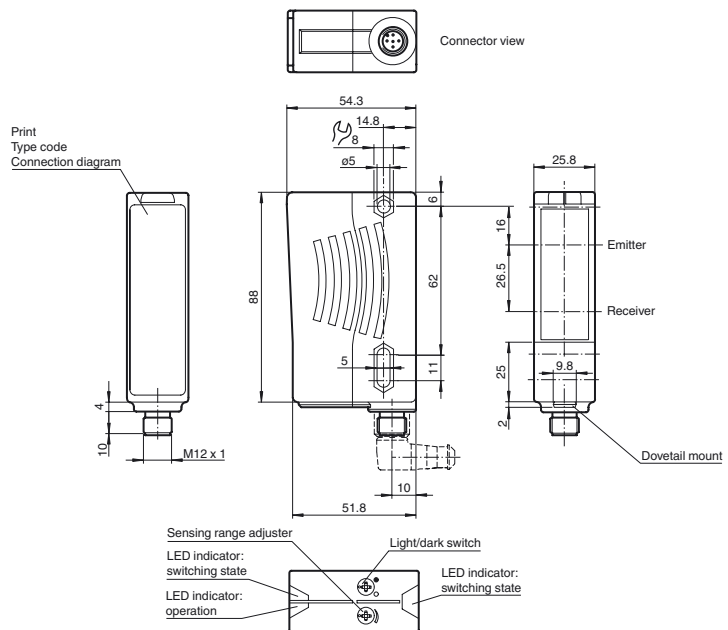
### Features

- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Minimal black-white difference through the infrared transmission LED
- Version with heated front panel

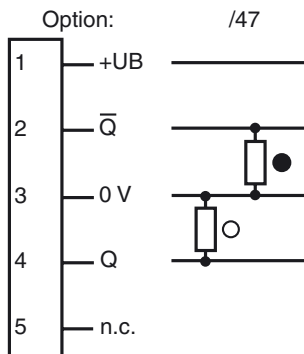
### Product information

The series 28 family of sensors can be universally used. It has a large range of models that allows it to be integrated into any automation environment. The sensors are contained in sturdy water resistant plastic housings with multiple fastening options and scratch resistant optical cover. Features such as a timer function, and functions including a light/dark switch, sensitivity adjuster and highly visible status LEDs make for less effort on the part of the user and streamline installation, setup and operation. Just about any task associated with positioning, moving, conveying and monitoring can be accomplished with these sensors.

### Dimensions

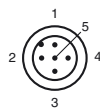


### Electrical connection



○ = Light on  
● = Dark on

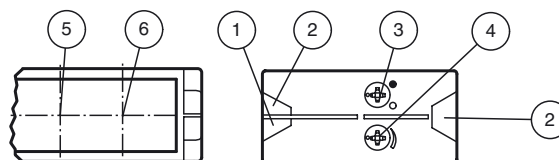
### Pinout



Wire colors in accordance with EN 60947-5-2

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

### Indicators/operating means



1	Operating display green
2	Switch state yellow
3	Bright/dark switch
4	Detection range adjuster
5	Receiver
6	Emitter

**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	IREL
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 <sub>d</sub>	720 a
Mission Time (T <sub>M</sub> )	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 <sub>B</sub>	24 V DC ± 20 %
Ripple		10 %
No-load supply current	I <sub>0</sub>	≤ 40 mA

**Output**

Switching type	light/dark on switchable	
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	

**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	54.3 mm
Degree of protection	IP67
Connection	5-pin, M12 x 1 connector
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	70 g
Note	Heated lens

**Approvals and certificates**

Protection class	II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
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-HW**

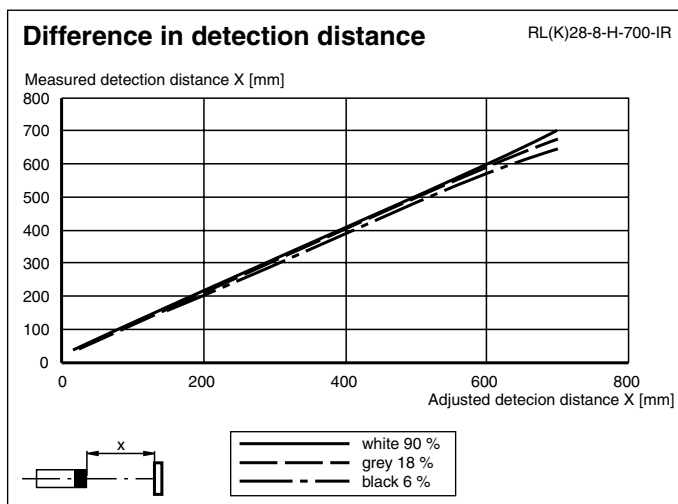
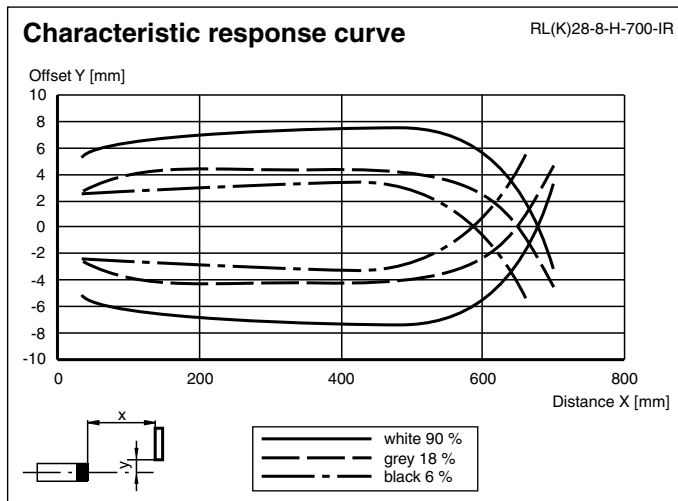
Mounting bracket for rear wall mounting

**OMH-RL28-C**

Weld slag cover model

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

## Curves/Diagrams



## Additional information

## 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