



**Model Number**

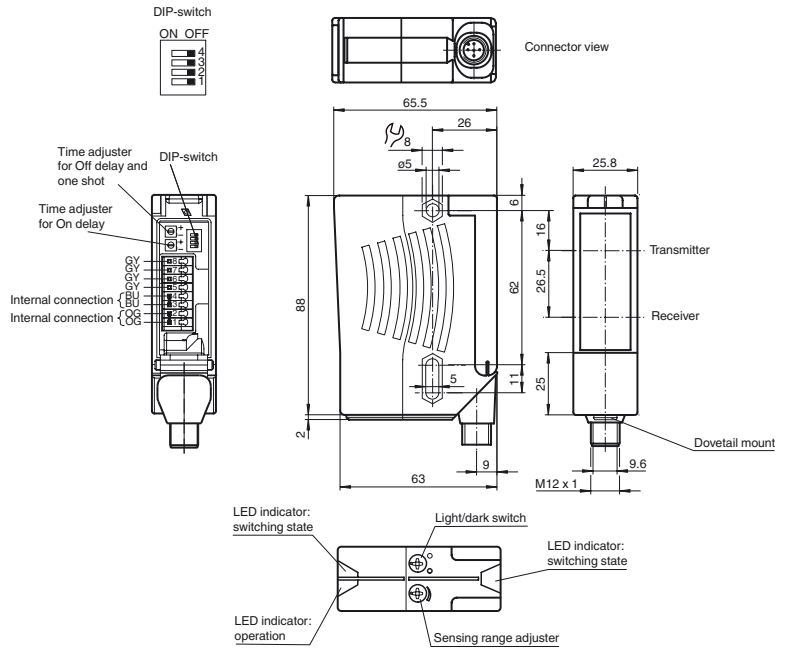
**RL28-8-H-700-RT-Z/49/112**

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

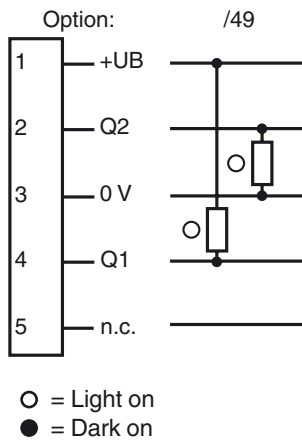
**Features**

- 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, protection degree IP67
- Protection class II

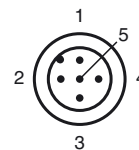
**Dimensions**



**Electrical connection**



**Pinout**



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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                      | 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°,<br>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<br>ON: object inside the scanning range<br>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 NPN, 1 PNP synchronized-switching, 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**

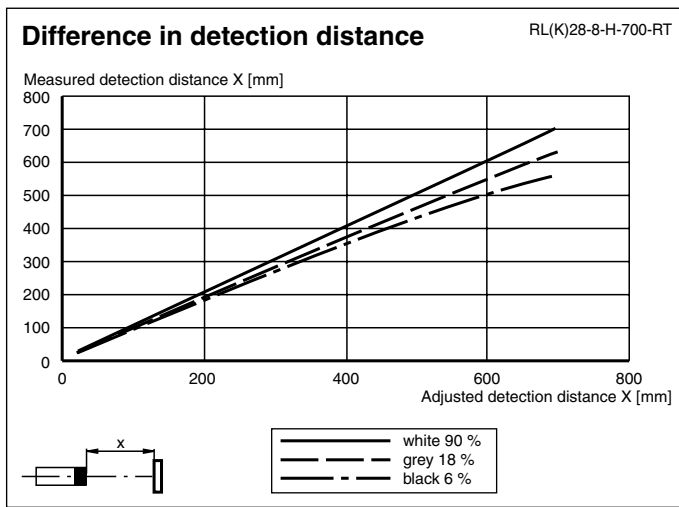
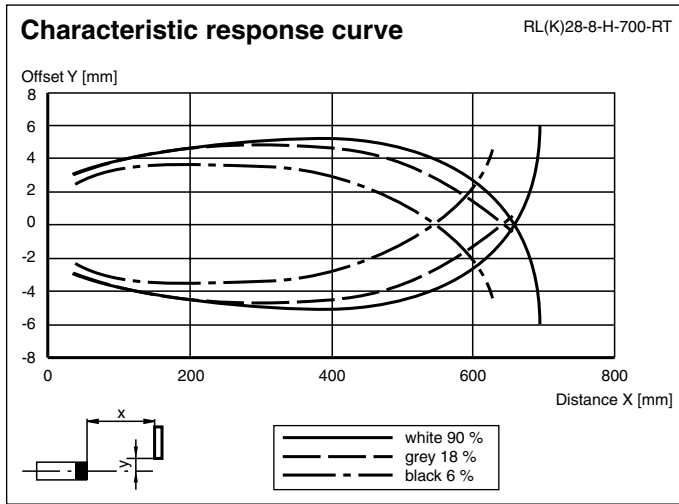
Mounting bracket for rear wall mounting

**OMH-RL28-C**

Protective cover

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

Curves/Diagrams



Timer functions

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