



## Background suppression sensor

RLK28-8-H-400-IR-Z/31/116

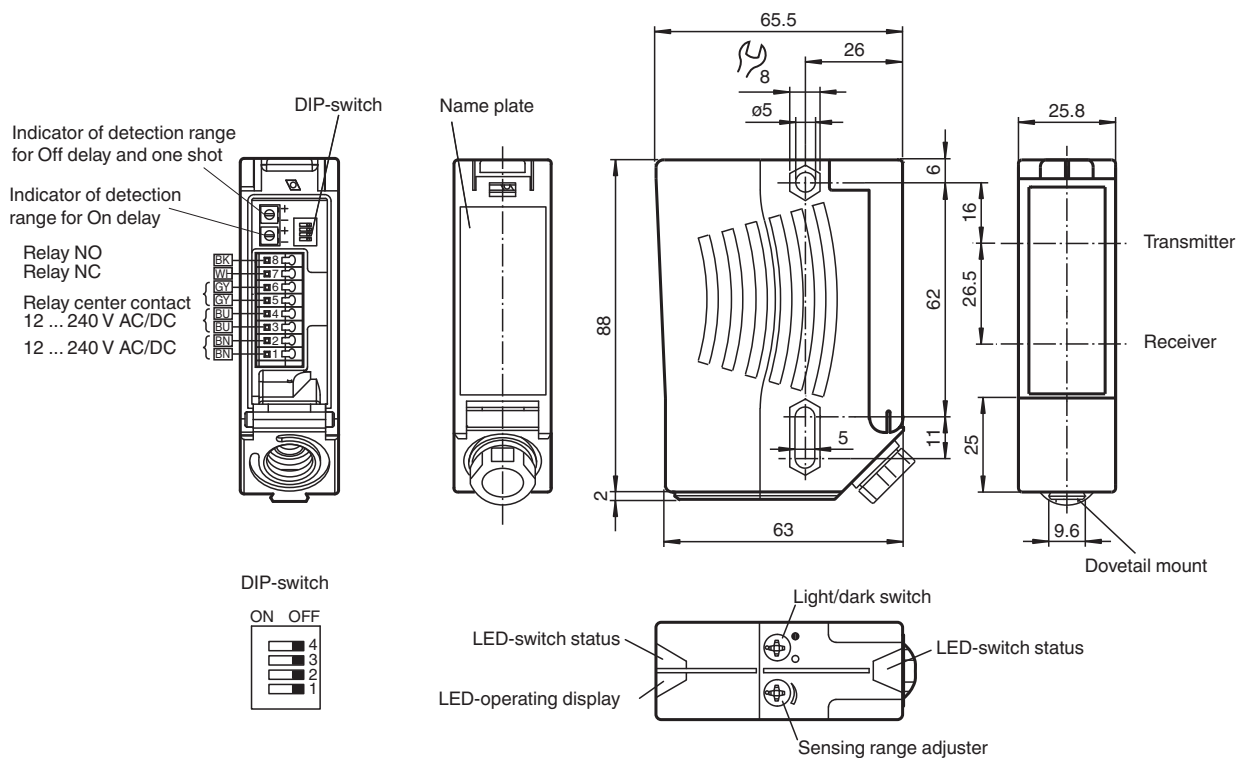


- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Minimal black-white difference through the infrared transmission LED
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Version for universal voltages

Background suppression sensor



### Dimensions



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

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**PEPPERL+FUCHS**

## Technical Data

|                                             |                |                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General specifications</b>               |                |                                                                                                                                                                                                                                                                                    |
| Detection range                             |                | 20 ... 400 mm                                                                                                                                                                                                                                                                      |
| Detection range min.                        |                | 20 ... 150 mm                                                                                                                                                                                                                                                                      |
| Detection range max.                        |                | 20 ... 400 mm                                                                                                                                                                                                                                                                      |
| Adjustment range                            |                | 150 ... 400 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 %)           |                | < 5 %                                                                                                                                                                                                                                                                              |
| Diameter of the light spot                  |                | approx. 14 mm at a distance of 400 mm                                                                                                                                                                                                                                              |
| Opening angle                               |                | transmitter 2°<br>receiver 2°                                                                                                                                                                                                                                                      |
| Ambient light limit                         |                | 50000 Lux                                                                                                                                                                                                                                                                          |
| <b>Functional safety related parameters</b> |                |                                                                                                                                                                                                                                                                                    |
| MTTF <sub>d</sub>                           |                | 620 a                                                                                                                                                                                                                                                                              |
| Mission Time (T <sub>M</sub> )              |                | 20 a                                                                                                                                                                                                                                                                               |
| Diagnostic Coverage (DC)                    |                | 0 %                                                                                                                                                                                                                                                                                |
| <b>Indicators/operating means</b>           |                |                                                                                                                                                                                                                                                                                    |
| Operation indicator                         |                | LED green                                                                                                                                                                                                                                                                          |
| Function indicator                          |                | 2 LEDs yellow<br>ON: object inside the scanning range<br>OFF: object outside the scanning range                                                                                                                                                                                    |
| Control elements                            |                | Sensing range adjuster , Light-on/dark-on changeover switch                                                                                                                                                                                                                        |
| <b>Electrical specifications</b>            |                |                                                                                                                                                                                                                                                                                    |
| Operating voltage                           | U <sub>B</sub> | 12 ... 240 V AC/DC                                                                                                                                                                                                                                                                 |
| Power consumption                           | P <sub>0</sub> | ≤ 3.5 VA                                                                                                                                                                                                                                                                           |
| <b>Output</b>                               |                |                                                                                                                                                                                                                                                                                    |
| Switching type                              |                | light/dark on, switchable (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)                                                                                                                                                             |
| Signal output                               |                | Relay, 1 alternator                                                                                                                                                                                                                                                                |
| Switching voltage                           |                | max. 250 V AC/DC                                                                                                                                                                                                                                                                   |
| Switching current                           |                | max. 2 A                                                                                                                                                                                                                                                                           |
| Switching power                             |                | DC: max. 50 W AC: max. 500 VA                                                                                                                                                                                                                                                      |
| Switching frequency                         | f              | 25 Hz                                                                                                                                                                                                                                                                              |
| Response time                               |                | 20 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 0.1 ... 10 s                                                                                                                          |
| <b>Conformity</b>                           |                |                                                                                                                                                                                                                                                                                    |
| Product standard                            |                | EN 60947-5-2                                                                                                                                                                                                                                                                       |
| <b>Approvals and certificates</b>           |                |                                                                                                                                                                                                                                                                                    |
| Protection class                            |                | II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit insulated from control circuit in accordance with IEC 61140. Caution!<br>The protection class 2 is only valid when the terminal compartment is closed.                   |
| UL approval                                 |                | E87056 , cULus Listed <b>Caution:</b> This equipment is considered as open-type equipment. It must be mounted within an enclosure, that is suitably designed for protection against internal fire and personal injury resulting from accessibility to live parts according UL 508. |
| CCC approval                                |                | Certified by China Compulsory Certification (CCC)                                                                                                                                                                                                                                  |
| <b>Ambient conditions</b>                   |                |                                                                                                                                                                                                                                                                                    |
| Ambient temperature                         |                | -40 ... 60 °C (-40 ... 140 °F)                                                                                                                                                                                                                                                     |
| Storage temperature                         |                | -40 ... 60 °C (-40 ... 140 °F)                                                                                                                                                                                                                                                     |
| <b>Mechanical specifications</b>            |                |                                                                                                                                                                                                                                                                                    |
| Housing width                               |                | 25.8 mm                                                                                                                                                                                                                                                                            |
| Housing height                              |                | 88 mm                                                                                                                                                                                                                                                                              |
| Housing depth                               |                | 65.5 mm                                                                                                                                                                                                                                                                            |

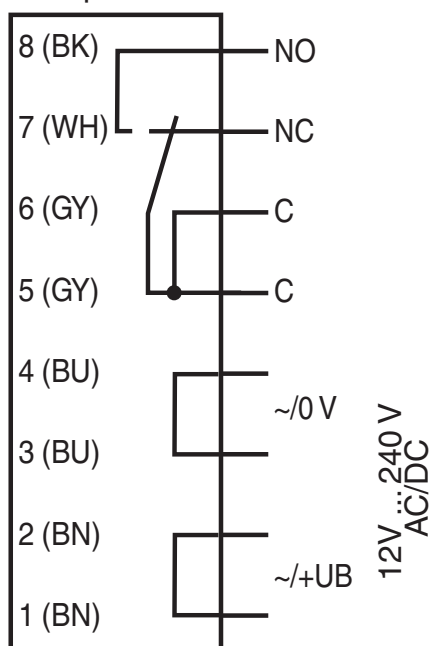
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|                      |      |                                                                                                                                                                     |
|----------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection | IP67 |                                                                                                                                                                     |
| Connection           |      | terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm <sup>2</sup> , insulation stripping 7.5 ... 8.5 mm, M16 x 1.5 cable gland |
| Material             |      |                                                                                                                                                                     |
| Housing              |      | Plastic ABS                                                                                                                                                         |
| Optical face         |      | Plastic pane                                                                                                                                                        |
| Mass                 |      | 112 g                                                                                                                                                               |

## Connection Assignment

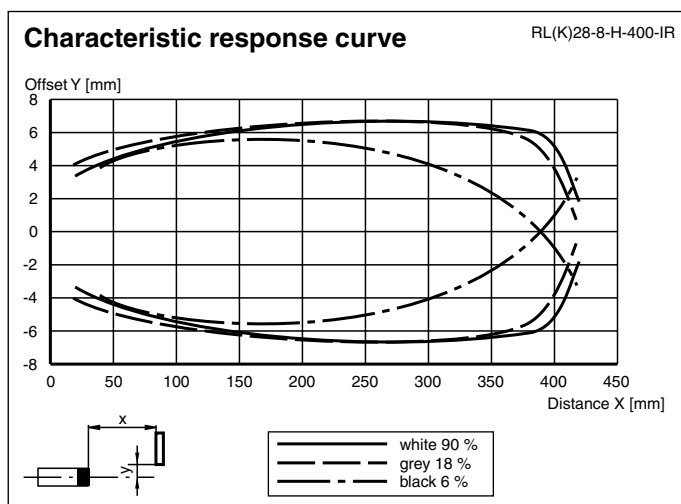
Option:



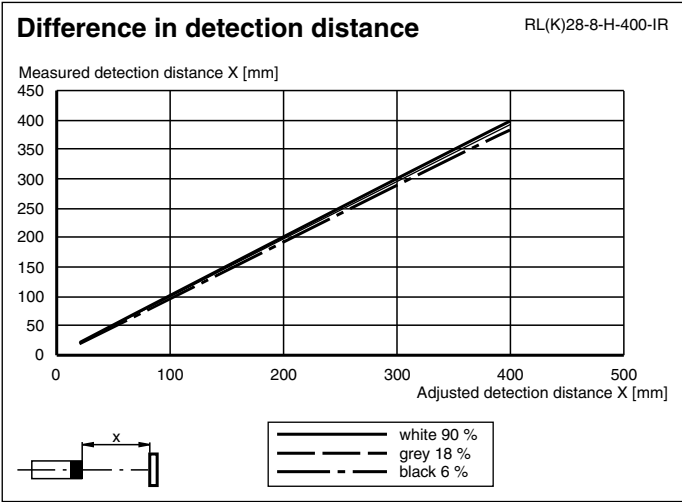
The relay-functions "NC" and "NO" bear on the switching mode "Light-ON".

This complies to the default setting of the light/dark switch, located on top of the housing (factory setting).

## Characteristic Curve



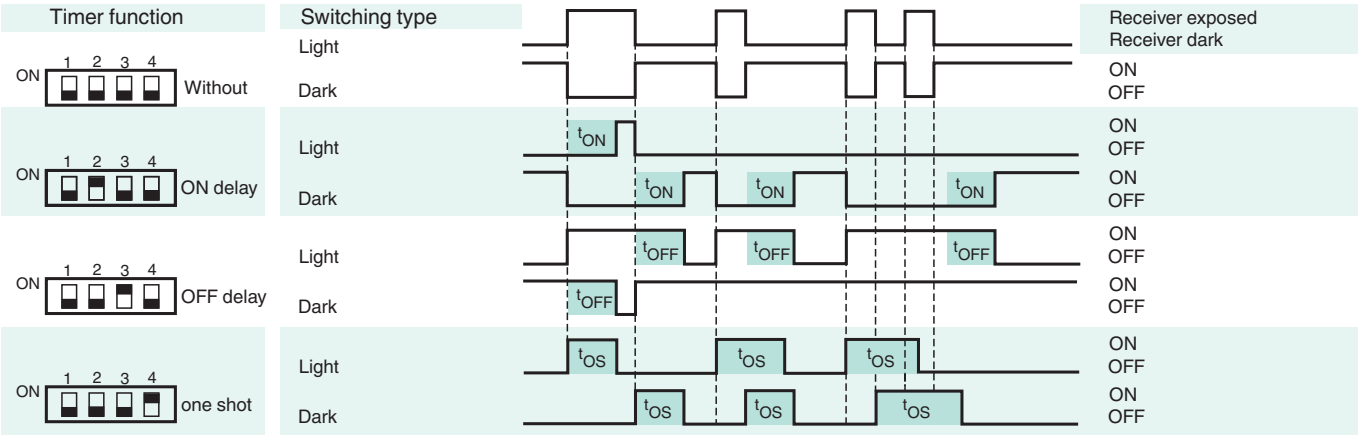
Characteristic Curve



Accessories

|                                                                                     |                     |                                                               |
|-------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------|
|    | <b>OMH-05</b>       | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|    | <b>OMH-21</b>       | Mounting bracket: mounting aid for sensors in the RL* series  |
|   | <b>OMH-22</b>       | Mounting aid for RL* series                                   |
|  | <b>OMH-RLK29</b>    | Mounting bracket                                              |
|  | <b>OMH-RLK29-HW</b> | Mounting bracket for rear wall mounting                       |
|  | <b>OMH-RL28-C</b>   | Weld slag cover model                                         |

Timer functions



Time  $t_{ON}$ ,  $t_{OFF}$  and  $t_{OS}$  are adjustable from 0.1 to 10 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<br>(0.1 s - 10 s) |
|      | one shot timer                   |                                            |
|      | ON delay timer                   |                                            |
|      | ON delay timer / OFF delay timer |                                            |
|      | ON delay timer / one shot timer  |                                            |