



## Background suppression sensor

### RL28-8-H-700-IR/47/105

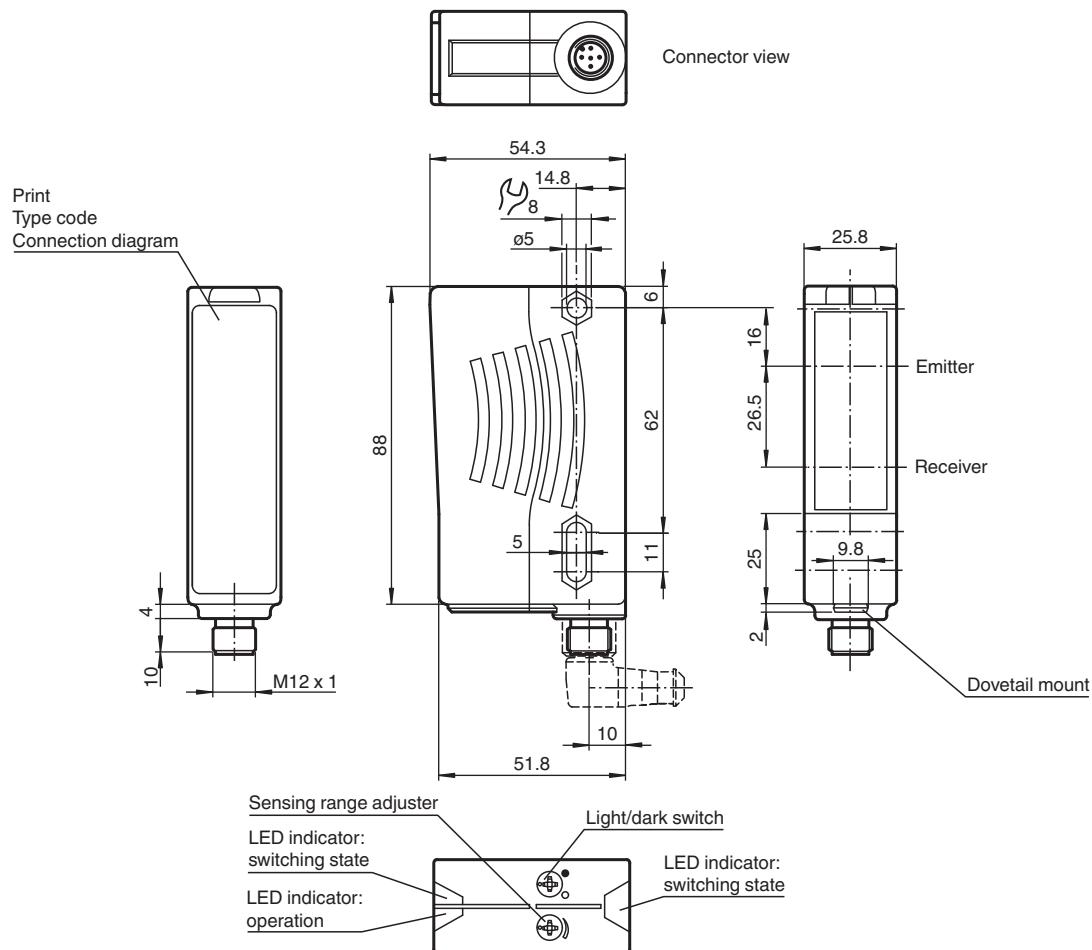


- Ultra bright LEDs for power on and switching state
- Minimal black-white difference through the infrared transmission LED
- Not sensitive to ambient light, even with switched energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Background suppression sensor



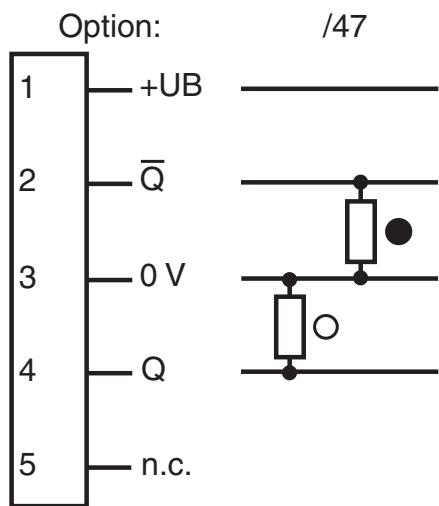
#### Dimensions



## Technical Data

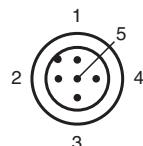
| General specifications               |   |   |
|--------------------------------------|---|---|
| Detection range                      | 20 ... 700 mm   |   |
| Detection range min.                 | 20 ... 200 mm   |   |
| Detection range max.                 | 20 ... 700 mm   |   |
| Background suppression               | 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   |   |
| Opening angle                        | transmitter 2°<br>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<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                                     |   |
| 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  |
| 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  |
| 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                                |
| Ambient conditions                   |   |   |
| Ambient temperature                  |   | -40 ... 60 °C (-40 ... 140 °F)  |
| Storage temperature                  |   | -40 ... 60 °C (-40 ... 140 °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   |
| Connector                            |   | plastic   |
| Mass                                 |   | 70 g  |

## Connection Assignment



○ = Light on  
● = Dark on

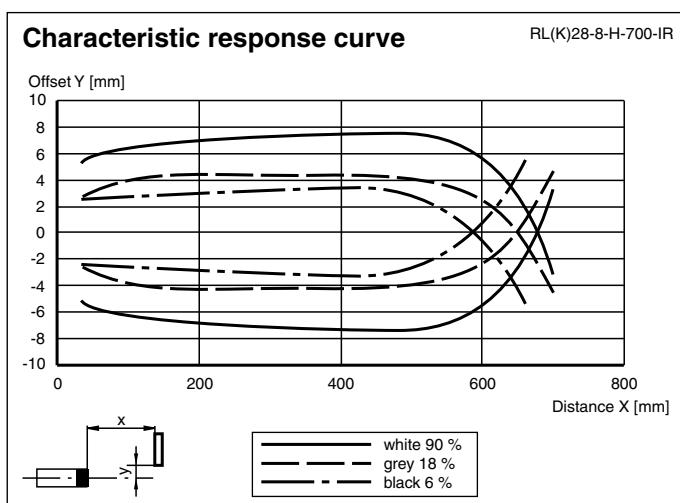
## Connection Assignment



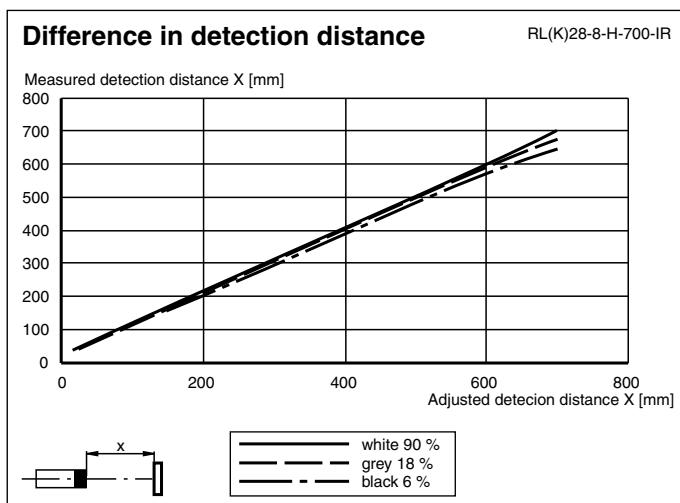
Wire colors in accordance with EN 60947-5-2

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

## Characteristic Curve



## Characteristic Curve



## Application



## 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-HW</b> | Mounting bracket for rear wall mounting                       |
|  | <b>OMH-RL28-C</b>   | Weld slag cover model   |

## 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 V DC ... 30 V DC: fit a protection diode, max. 200 mA