



## Retroreflective sensor RLK28-55-Z/31/116



- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Programmable time function GAN, GAB, IAB, as well as GAN-GAB and GAN-IAB as double function
- Version with red light
- Version with relay output

### Retroreflective sensor with polarization filter



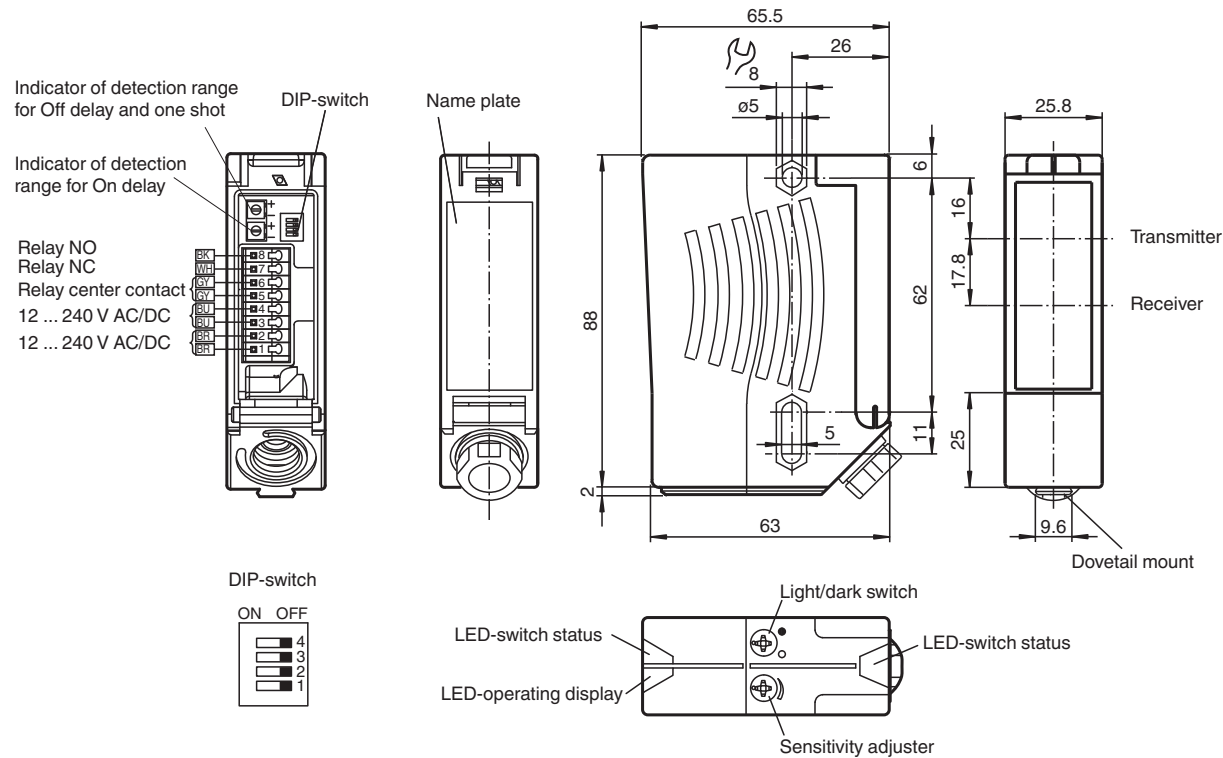
### Function

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.

### Application

- Object tracking in material handling, and the packaging sector
- Material flow monitoring
- Bin occupancy check in storage technology
- Fine positioning in high-bay warehouses
- Presence and height monitoring on pallet conveyors
- Single-beam protection for automatic industrial gates and elevator doors
- Protection at automatic gates

Dimensions



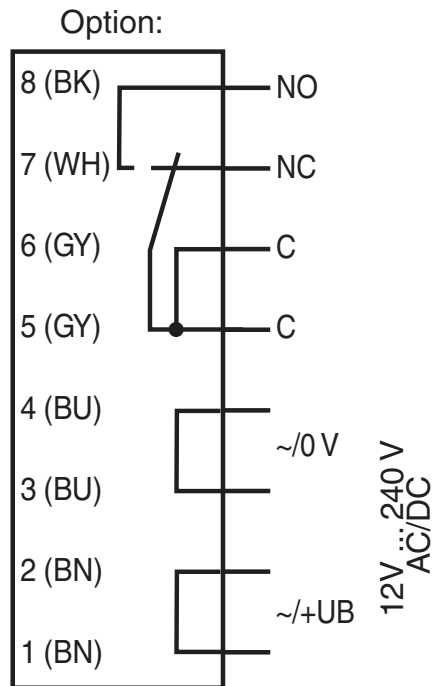
Technical Data

|                                             |                                                                                                                                        |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>General specifications</b>               |                                                                                                                                        |
| Effective detection range                   | 0 ... 17 m                                                                                                                             |
| Reflector distance                          | 0.05 ... 17 m                                                                                                                          |
| Threshold detection range                   | 21 m                                                                                                                                   |
| Reference target                            | H85-2 reflector                                                                                                                        |
| Light source                                | LED                                                                                                                                    |
| Light type                                  | modulated visible red light                                                                                                            |
| Polarization filter                         | yes                                                                                                                                    |
| Diameter of the light spot                  | approx. 290 mm at a distance of 17 m                                                                                                   |
| Opening angle                               | emitter 1.2°<br>receiver 2°                                                                                                            |
| Ambient light limit                         | 80000 Lux                                                                                                                              |
| <b>Functional safety related parameters</b> |                                                                                                                                        |
| MTTF <sub>d</sub>                           | 600 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, light up when light beam is free, flash when falling short of the stability control, off when light beam is interrupted |
| Control elements                            | sensitivity adjustment (Adjustment to < 25% of the effective operating range) , Light-on/dark-on changeover switch                     |
| <b>Electrical specifications</b>            |                                                                                                                                        |

## Technical Data

|                                   |       |                                                                                                                                                                                                                                                                                    |
|-----------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage                 | $U_B$ | 12 ... 240 V AC/DC                                                                                                                                                                                                                                                                 |
| Power consumption                 | $P_0$ | ≤ 3.5 VA                                                                                                                                                                                                                                                                           |
| <b>Output</b>                     |       |                                                                                                                                                                                                                                                                                    |
| Switching type                    |       | light/dark on switchable                                                                                                                                                                                                                                                           |
| 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                                                                                                                                                                                                                                                                            |
| 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                                                                                                                                                                                                                                                                              |

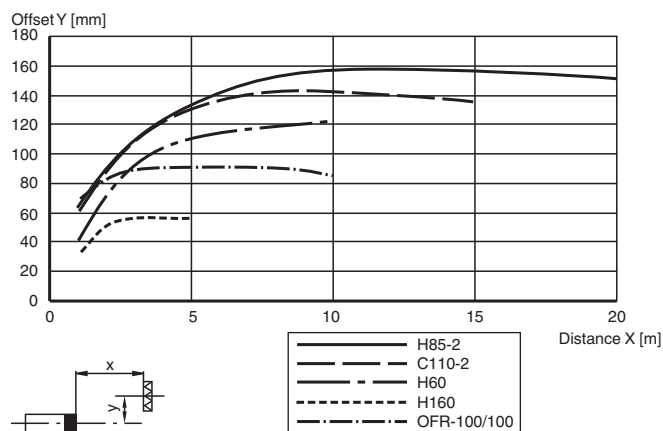
## Connection Assignment



The relay-functions "NC" and "NO" bear on the switching mode "Dark-ON". This complies to the default setting of the light/dark switch (factory setting).

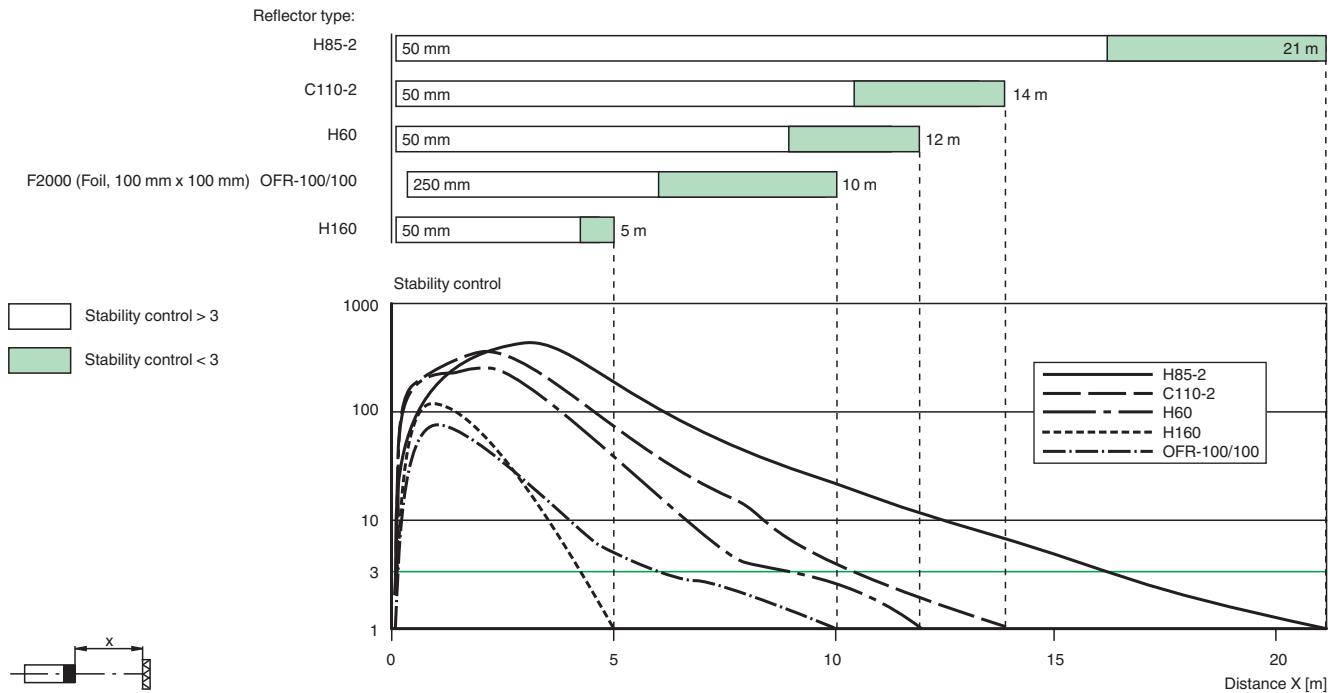
## Characteristic Curve

### Characteristic response curve



Characteristic Curve

Relative received light strength



Application



Accessories

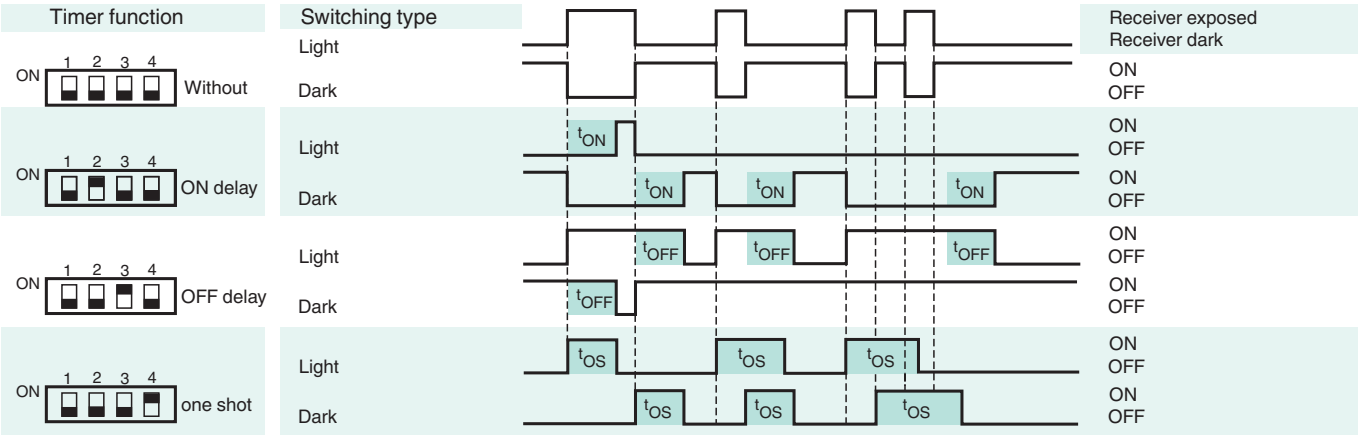
|                                                                                     |              |                                                               |
|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------|
|  | OMH-05       | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|  | OMH-21       | Mounting bracket: mounting aid for sensors in the RL* series  |
|  | OMH-22       | Mounting aid for RL* series                                   |
|  | OMH-RLK29    | Mounting bracket                                              |
|  | OMH-RLK29-HW | Mounting bracket for rear wall mounting                       |

Accessories

|                                                                                   |            |                       |
|-----------------------------------------------------------------------------------|------------|-----------------------|
|  | OMH-RL28-C | Weld slag cover model |
|-----------------------------------------------------------------------------------|------------|-----------------------|

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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  |                                            |