



## Retroreflective sensor RL28-55-LAS/47/82b/115



- Visible red light, pulsed LASER light
- Ultra bright LEDs for power on, weak signal indication and switching state
- Not sensitive to ambient light, even with switched energy saving lamps
- Protection class II
- Waterproof, degree of protection IP67

Retroreflective sensor with polarization filter



### Safety Information

#### Laser Class 1 Information

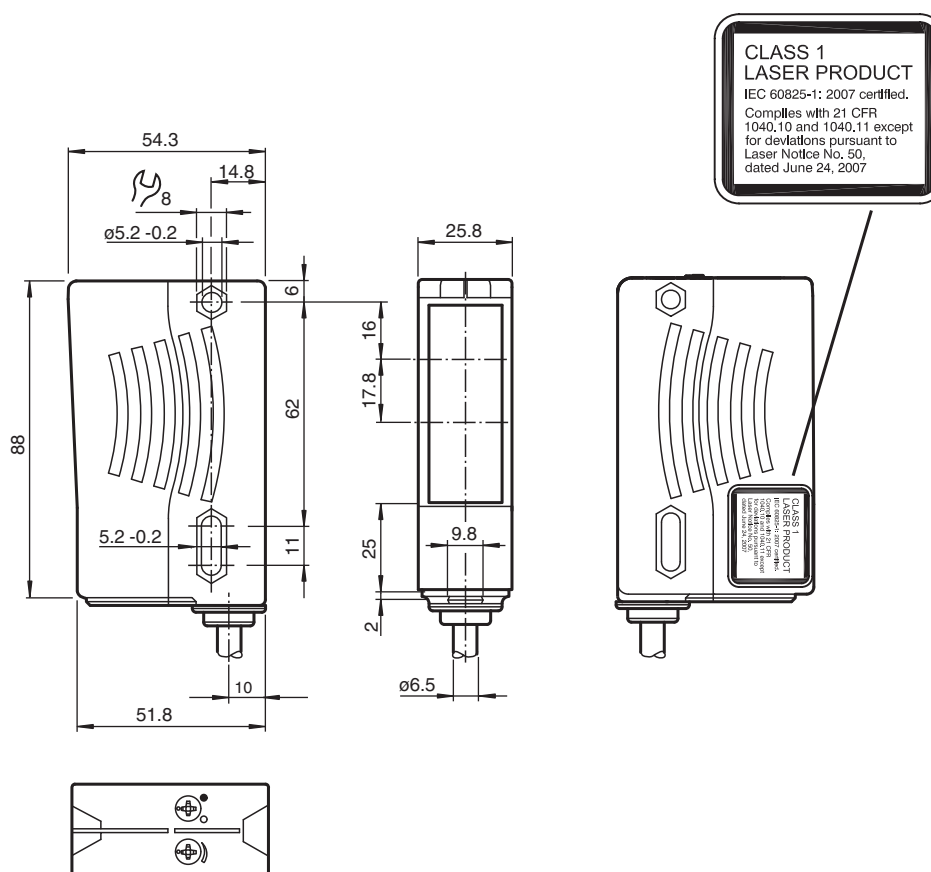
The irradiation can lead to irritation especially in a dark environment. Do not point at people!

Maintenance and repairs should only be carried out by authorized service personnel!

Attach the device so that the warning is clearly visible and readable.

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

## Dimensions



## Technical Data

### General specifications

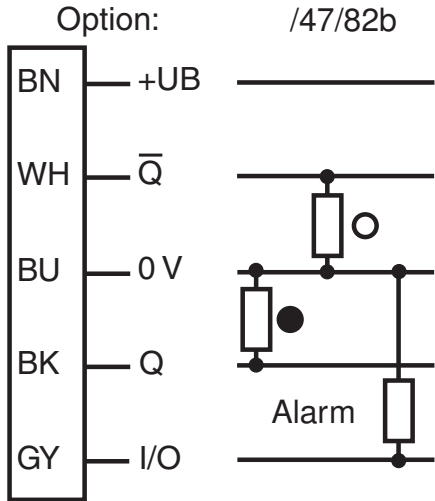
|                                             |                                      |
|---------------------------------------------|--------------------------------------|
| Effective detection range                   | 0 ... 30 m                           |
| Reflector distance                          | 0.3 ... 30 m                         |
| Threshold detection range                   | 42 m                                 |
| Reference target                            | MH82 reflector                       |
| Light source                                | laser diode                          |
| Light type                                  | modulated visible red light          |
| Polarization filter                         | yes                                  |
| Laser nominal ratings                       |                                      |
| Note                                        | LASER LIGHT , DO NOT STARE INTO BEAM |
| Laser class                                 | 1                                    |
| Wave length                                 | 650 nm                               |
| Beam divergence                             | < 1.5 mrad                           |
| Pulse length                                | approx. 4.5 µs                       |
| Repetition rate                             | approx. 6 kHz ... 20 kHz             |
| max. pulse energy                           | 4 nJ                                 |
| Diameter of the light spot                  | approx. 45 mm at 30 m                |
| Angle of divergence                         | Emitter: < 0.1 ° Receiver: < 2 °     |
| Ambient light limit                         | 50000 Lux                            |
| <b>Functional safety related parameters</b> |                                      |
| MTTF <sub>d</sub>                           | 560 a                                |
| Mission Time (T <sub>M</sub> )              | 20 a                                 |

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## Technical Data

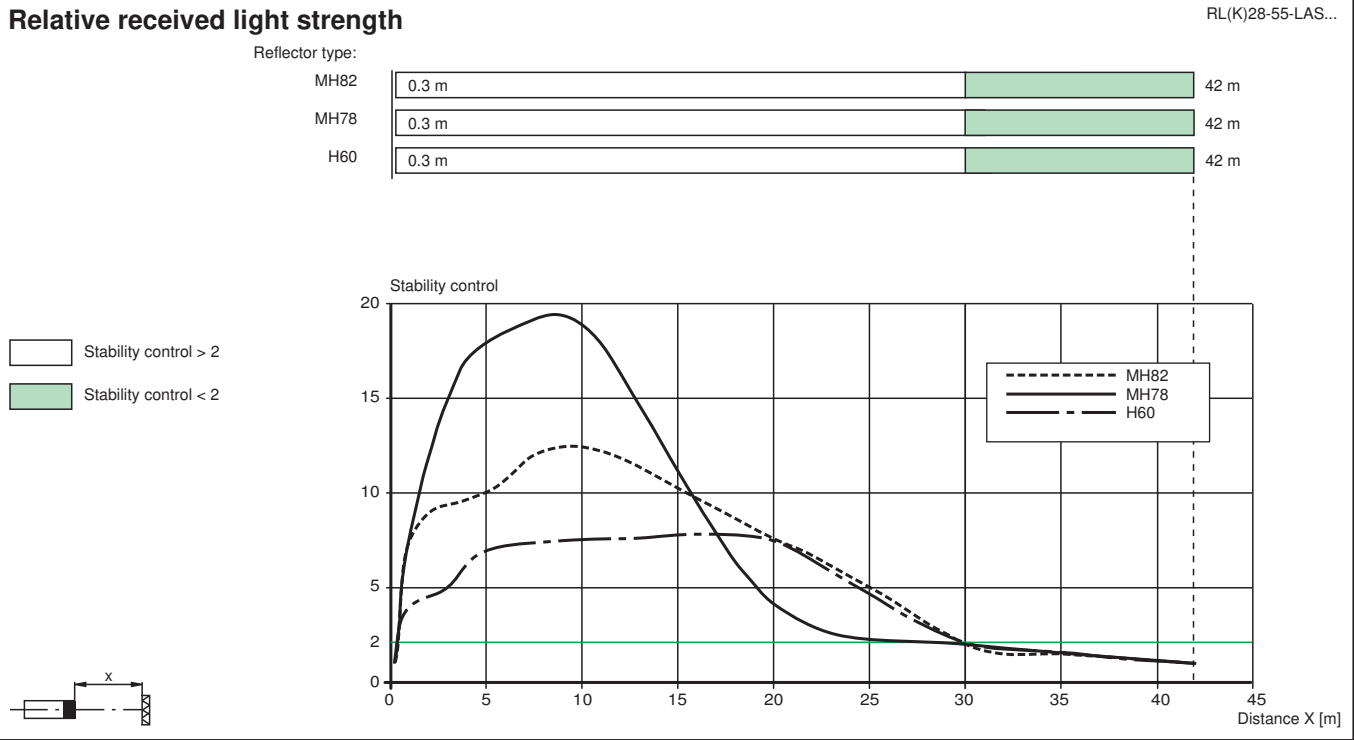
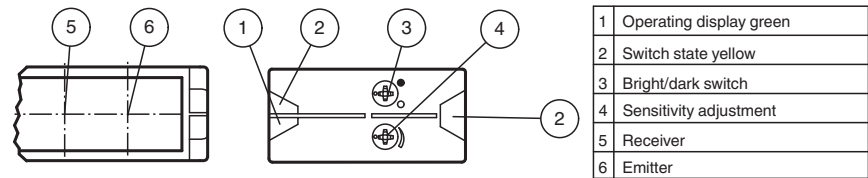
|                                   |       |                                                                                                                                        |
|-----------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------|
| 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>  |       |                                                                                                                                        |
| Operating voltage                 | $U_B$ | 10 ... 30 V DC                                                                                                                         |
| Ripple                            |       | max. 10 %                                                                                                                              |
| No-load supply current            | $I_0$ | ≤ 35 mA                                                                                                                                |
| Protection class                  |       | II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1                                             |
| <b>Output</b>                     |       |                                                                                                                                        |
| Pre-fault indication output       |       | 1 PNP, inactive when falling short of the stability control for 10;s immediately inactive if 4 light beam interruptions take place     |
| 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                                                                                                                            |
| Voltage drop                      | $U_d$ | ≤ 2.5 V DC                                                                                                                             |
| Switching frequency               | $f$   | 1000 Hz                                                                                                                                |
| Response time                     |       | 0.5 ms                                                                                                                                 |
| <b>Conformity</b>                 |       |                                                                                                                                        |
| Product standard                  |       | EN 60947-5-2                                                                                                                           |
| Laser safety                      |       | EN 60825-1                                                                                                                             |
| <b>Approvals and certificates</b> |       |                                                                                                                                        |
| EAC conformity                    |       | TR CU 020/2011                                                                                                                         |
| 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                                                                           |
| FDA approval                      |       | IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007   |
| <b>Ambient conditions</b>         |       |                                                                                                                                        |
| Ambient temperature               |       | -10 ... 50 °C (14 ... 122 °F)                                                                                                          |
| Storage temperature               |       | -20 ... 75 °C (-4 ... 167 °F)                                                                                                          |
| <b>Mechanical specifications</b>  |       |                                                                                                                                        |
| Housing width                     |       | 25.8 mm                                                                                                                                |
| Housing height                    |       | 88 mm                                                                                                                                  |
| Housing depth                     |       | 54.3 mm                                                                                                                                |
| Degree of protection              |       | IP67                                                                                                                                   |
| Connection                        |       | 2500 mm fixed cable                                                                                                                    |
| Material                          |       |                                                                                                                                        |
| Housing                           |       | Plastic ABS                                                                                                                            |
| Optical face                      |       | Plastic pane                                                                                                                           |
| Mass                              |       | 80 g                                                                                                                                   |

Connection Assignment



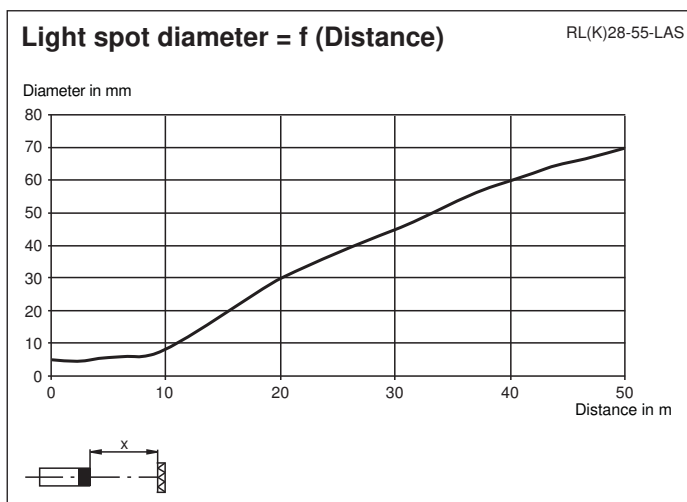
○ = Light on  
● = Dark on

Assembly



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## 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-HW</b> | Mounting bracket for rear wall mounting                                   |
|  | <b>OMH-RL28-C</b>   | Weld slag cover model                                                     |
|  | <b>REF-MH82</b>     | Reflector with Micro-structure, rectangular 82 mm x 60 mm, mounting holes |