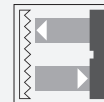




## Retroreflective sensor RL31-54/115/136

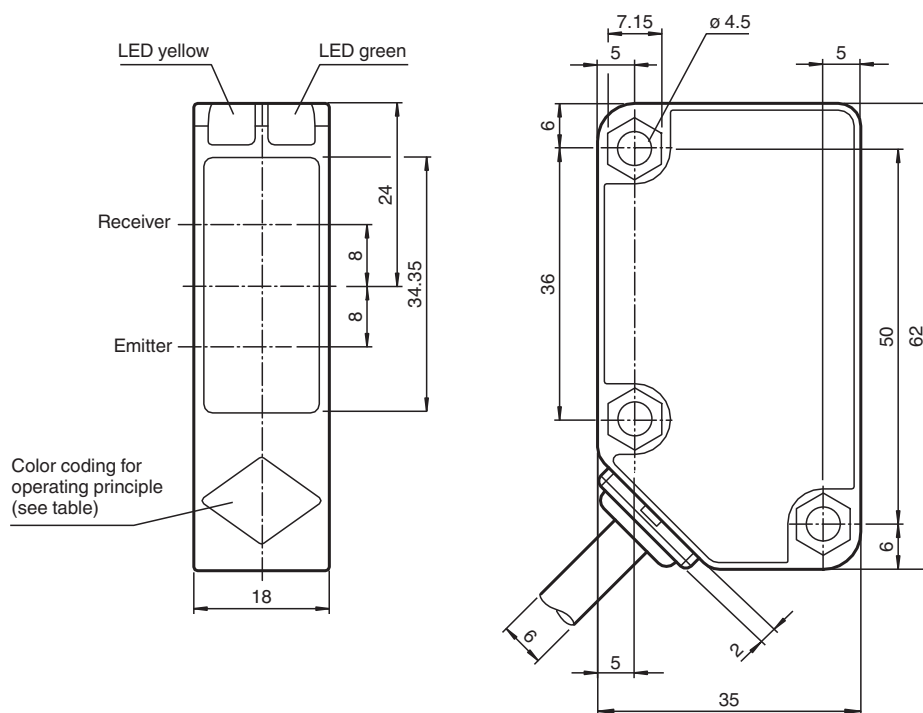


- Compact and stable housing
- Glare protected with polarization filter
- Highly visible LED
- Powerful push-pull output
- Protection class II

Retroreflective sensor with polarization filter, plastic housing, 9 m detection range, red light, dark on, DC version, 2 push-pull outputs, no control elements, fixed cable



### Dimensions



| Operating principle                               | color |
|---------------------------------------------------|-------|
| Retroreflective sensor with polarisation filter   | green |
| Retroreflective sensor                            | blue  |
| Diffusive mode sensor                             | white |
| Thru-beam sensor                                  | grey  |
| Diffusive mode sensor with background suppression | red   |

### Technical Data

#### General specifications

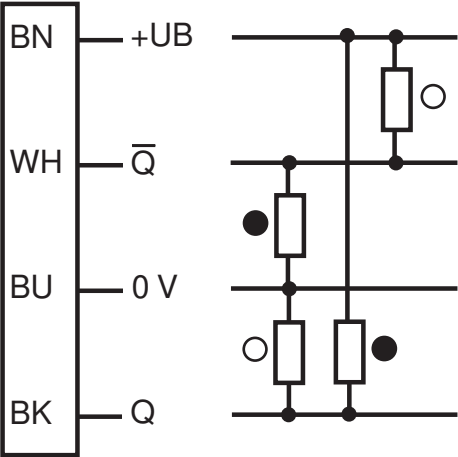
Effective detection range 0 ... 9000 mm

## Technical Data

|                                             |                |                                                                                                                                                                                                             |
|---------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reflector distance                          |                | 20 ... 9000 mm                                                                                                                                                                                              |
| Threshold detection range                   |                | 12 m                                                                                                                                                                                                        |
| Reference target                            |                | reflector C110-2                                                                                                                                                                                            |
| Light source                                |                | LED                                                                                                                                                                                                         |
| Light type                                  |                | modulated visible red light , 630 nm                                                                                                                                                                        |
| Polarization filter                         |                | yes                                                                                                                                                                                                         |
| Diameter of the light spot                  |                | approx. 200 mm at a distance of 6 m                                                                                                                                                                         |
| Opening angle                               |                | 3 °                                                                                                                                                                                                         |
| Ambient light limit                         |                | 50000 Lux ; according to EN 60947-5-2                                                                                                                                                                       |
| <b>Functional safety related parameters</b> |                |                                                                                                                                                                                                             |
| MTTF <sub>d</sub>                           |                | 920 a                                                                                                                                                                                                       |
| Mission Time (T <sub>M</sub> )              |                | 20 a                                                                                                                                                                                                        |
| Diagnostic Coverage (DC)                    |                | 0 %                                                                                                                                                                                                         |
| <b>Indicators/operating means</b>           |                |                                                                                                                                                                                                             |
| Operation indicator                         |                | LED green: power on                                                                                                                                                                                         |
| Function indicator                          |                | LED yellow:<br>1. LED lit constantly: signal > 2 x switching point (function reserve)<br>2. LED flashes: signal between 1 x switching point and 2 x switching point<br>3. LED off: signal < switching point |
| <b>Electrical specifications</b>            |                |                                                                                                                                                                                                             |
| Operating voltage                           | U <sub>B</sub> | 10 ... 30 V DC                                                                                                                                                                                              |
| Ripple                                      |                | 10 %                                                                                                                                                                                                        |
| No-load supply current                      | I <sub>0</sub> | ≤ 20 mA                                                                                                                                                                                                     |
| <b>Output</b>                               |                |                                                                                                                                                                                                             |
| Switching type                              |                | dark-on                                                                                                                                                                                                     |
| Signal output                               |                | 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected                                                                                                                           |
| Switching voltage                           |                | max. 30 V DC                                                                                                                                                                                                |
| Switching current                           |                | max. 100 mA                                                                                                                                                                                                 |
| Voltage drop                                | U <sub>d</sub> | ≤ 1.5 V                                                                                                                                                                                                     |
| Switching frequency                         | f              | ≤ 500 Hz                                                                                                                                                                                                    |
| Response time                               |                | ≤ 1 ms                                                                                                                                                                                                      |
| <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 basis insulation of input circuit according to EN 50178, rated insulation voltage 240 V AC       |
| UL approval                                 |                | cULus Listed, Class 2 Power Source, Type 1 enclosure                                                                                                                                                        |
| CCC approval                                |                | CCC approval / marking not required for products rated ≤36 V                                                                                                                                                |
| <b>Ambient conditions</b>                   |                |                                                                                                                                                                                                             |
| Ambient temperature                         |                | -30 ... 55 °C (-22 ... 131 °F)                                                                                                                                                                              |
| Storage temperature                         |                | -40 ... 70 °C (-40 ... 158 °F)                                                                                                                                                                              |
| <b>Mechanical specifications</b>            |                |                                                                                                                                                                                                             |
| Housing width                               |                | 18 mm                                                                                                                                                                                                       |
| Housing height                              |                | 62 mm                                                                                                                                                                                                       |
| Housing depth                               |                | 35 mm                                                                                                                                                                                                       |
| Degree of protection                        |                | IP67                                                                                                                                                                                                        |
| Connection                                  |                | 2 m fixed cable                                                                                                                                                                                             |
| Material                                    |                |                                                                                                                                                                                                             |
| Housing                                     |                | plastic                                                                                                                                                                                                     |
| Optical face                                |                | PMMA                                                                                                                                                                                                        |
| Mass                                        |                | 133 g                                                                                                                                                                                                       |

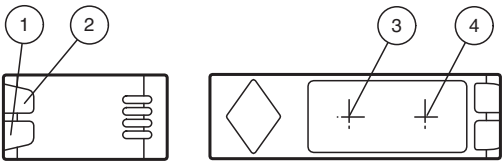
Connection Assignment

Option:



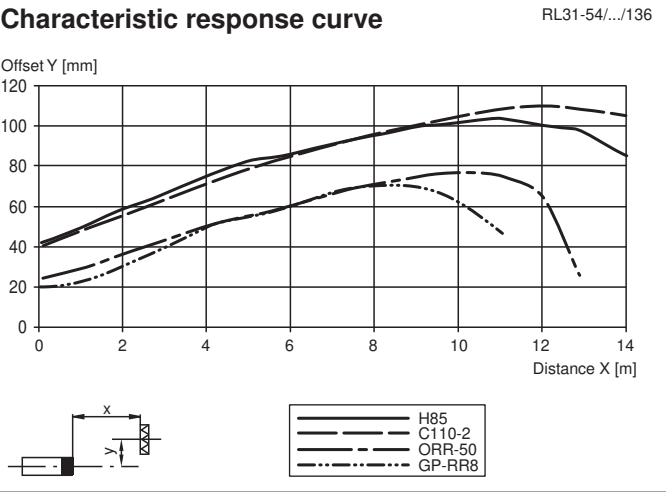
○ = Light on  
● = Dark on

Assembly



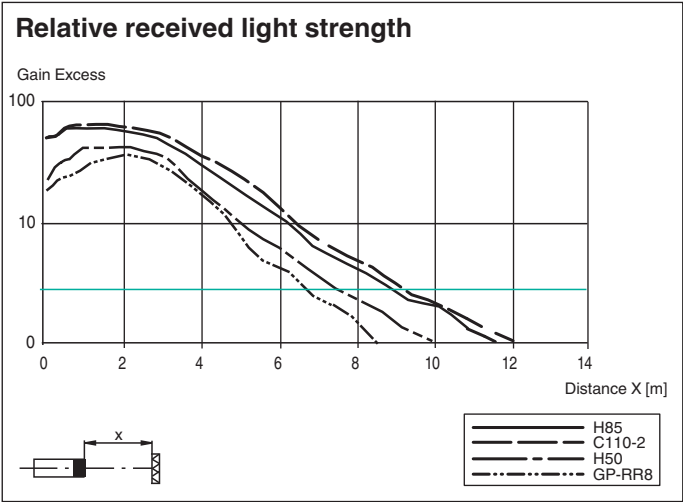
|   |                   |        |
|---|-------------------|--------|
| 1 | Operating display | green  |
| 2 | Signal display    | yellow |
| 3 | Emitter           |        |
| 4 | Receiver          |        |

Characteristic Curve



Release date: 2023-10-13 Date of issue: 2023-10-13 Filename: 186472\_eng.pdf

Characteristic Curve



Accessories

|                                                                                     |                    |                                                                         |
|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------|
|    | <b>OMH-RL31-01</b> | Mounting bracket                                                        |
|    | <b>OMH-RL31-02</b> | Mounting bracket narrow                                                 |
|   | <b>OMH-RL31-03</b> | Mounting bracket narrow                                                 |
|  | <b>OMH-RL31-04</b> | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm           |
|  | <b>OMH-RL31-05</b> | Mounting bracket for mounting on flat surfaces with 2 M4 screws         |
|  | <b>OMH-RL31-06</b> | Stainless steel mounting bracket with adjustable half clamp on the side |