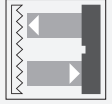




## Retroreflective sensor OBR17M-R202-E5-0,3M-V1



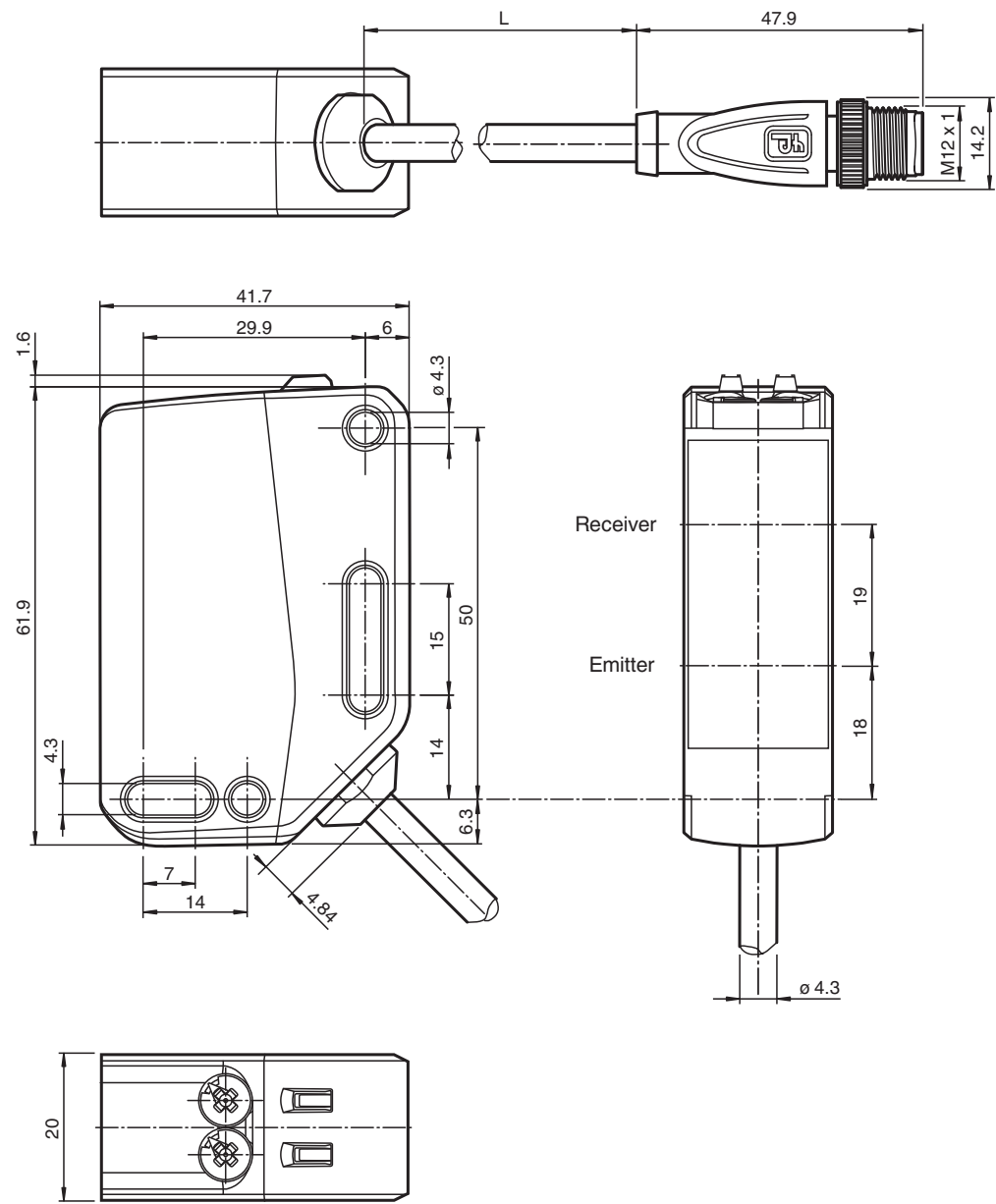
- Medium design with versatile mounting options
- Degree of protection IP67
- Mounting on full metal sockets
- Very bright, highly visible light spot
- Highly visible LEDs for Power ON and switching state
- Easy to use
- Image is generic for this device type and may deviate from the specific variant



### Function

The optical sensors of this series for applications in standard automation have a modern housing design. The sensors are characterized by the many mounting options, easy handling and highly visible LED status indicators. The integrated full metal bushings ensure long-term secure and dimensionally stable mounting.

Dimensions



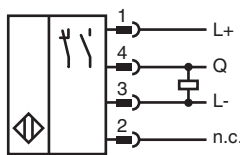
Technical Data

| General specifications    |  |                             |
|---------------------------|--|-----------------------------|
| Effective detection range |  | 0 ... 17 m                  |
| Reflector distance        |  | 0.02 ... 17 m               |
| Threshold detection range |  | 20 m                        |
| Reference target          |  | H85-2 reflector             |
| Light source              |  | LED                         |
| Light type                |  | modulated visible red light |
| LED risk group labelling  |  | exempt group                |

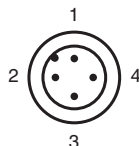
## Technical Data

|                                             |                |                                                                                                                                                                                                                 |
|---------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Polarization filter                         |                | yes                                                                                                                                                                                                             |
| Diameter of the light spot                  |                | approx. 500 mm at a distance of 17 m                                                                                                                                                                            |
| Opening angle                               |                | 2 °                                                                                                                                                                                                             |
| Ambient light limit                         |                | EN 60947-5-2 : 60000 Lux                                                                                                                                                                                        |
| <b>Functional safety related parameters</b> |                |                                                                                                                                                                                                                 |
| MTTF <sub>d</sub>                           |                | 876 a                                                                                                                                                                                                           |
| Mission Time (T <sub>M</sub> )              |                | 20 a                                                                                                                                                                                                            |
| Diagnostic Coverage (DC)                    |                | 0 %                                                                                                                                                                                                             |
| <b>Indicators/operating means</b>           |                |                                                                                                                                                                                                                 |
| Operation indicator                         |                | LED green:<br>on - power on<br>flashing (4 Hz) - short circuit                                                                                                                                                  |
| Function indicator                          |                | Yellow LED:<br>Permanently lit - light path clear<br>Permanently off - object detected<br>Flashing (4 Hz) - insufficient operating reserve<br>Flashing (8 Hz) - fault detected, the outputs maintain the status |
| Control elements                            |                | Light-on/dark-on changeover switch                                                                                                                                                                              |
| Control elements                            |                | sensitivity adjustment                                                                                                                                                                                          |
| <b>Electrical specifications</b>            |                |                                                                                                                                                                                                                 |
| Operating voltage                           | U <sub>B</sub> | 10 ... 30 V DC                                                                                                                                                                                                  |
| Ripple                                      |                | max. 10 %                                                                                                                                                                                                       |
| No-load supply current                      | I <sub>0</sub> | < 30 mA at 24 V Operating voltage                                                                                                                                                                               |
| Protection class                            |                | III                                                                                                                                                                                                             |
| <b>Output</b>                               |                |                                                                                                                                                                                                                 |
| Switching type                              |                | The switching type of the sensor is adjustable. The default setting is:<br>Q - Pin4: PNP normally open / dark-on                                                                                                |
| Signal output                               |                | 1 PNP, short-circuit protected, reverse polarity protected, open collector                                                                                                                                      |
| Switching voltage                           |                | max. 30 V DC                                                                                                                                                                                                    |
| Switching current                           |                | max. 100 mA , resistive load                                                                                                                                                                                    |
| Usage category                              |                | DC-12 and DC-13                                                                                                                                                                                                 |
| Voltage drop                                | U <sub>d</sub> | ≤ 1.5 V DC                                                                                                                                                                                                      |
| Switching frequency                         | f              | 1000 Hz                                                                                                                                                                                                         |
| Response time                               |                | 0.5 ms                                                                                                                                                                                                          |
| <b>Conformity</b>                           |                |                                                                                                                                                                                                                 |
| Product standard                            |                | EN 60947-5-2                                                                                                                                                                                                    |
| <b>Approvals and certificates</b>           |                |                                                                                                                                                                                                                 |
| UL approval                                 |                | E87056 , cULus Listed , class 2 power supply , type rating 1                                                                                                                                                    |
| CCC approval                                |                | CCC approval / marking not required for products rated ≤36 V                                                                                                                                                    |
| <b>Ambient conditions</b>                   |                |                                                                                                                                                                                                                 |
| Ambient temperature                         |                | -30 ... 60 °C (-22 ... 140 °F) , fixed cable<br>-20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains                                                                               |
| Storage temperature                         |                | -40 ... 70 °C (-40 ... 158 °F)                                                                                                                                                                                  |
| <b>Mechanical specifications</b>            |                |                                                                                                                                                                                                                 |
| Housing width                               |                | 20 mm                                                                                                                                                                                                           |
| Housing height                              |                | 62 mm                                                                                                                                                                                                           |
| Housing depth                               |                | 42 mm                                                                                                                                                                                                           |
| Degree of protection                        |                | IP67                                                                                                                                                                                                            |
| Connection                                  |                | 300 mm fixed cable with M12 x 1, 4-pin connector                                                                                                                                                                |
| <b>Material</b>                             |                |                                                                                                                                                                                                                 |
| Housing                                     |                | PC (Polycarbonate)                                                                                                                                                                                              |
| Optical face                                |                | PMMA                                                                                                                                                                                                            |
| Mass                                        |                | approx. 70 g                                                                                                                                                                                                    |
| Cable length                                |                | 0.3 m                                                                                                                                                                                                           |

Connection



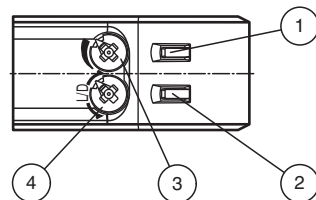
Connection Assignment



Wire colors in accordance with EN 60947-5-2

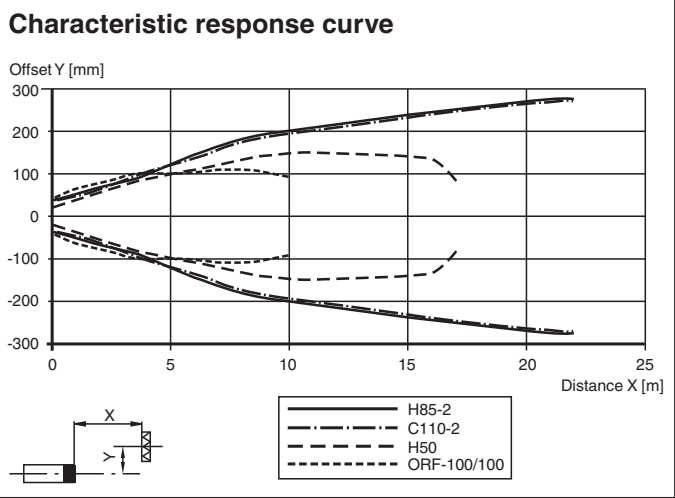
|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

Assembly

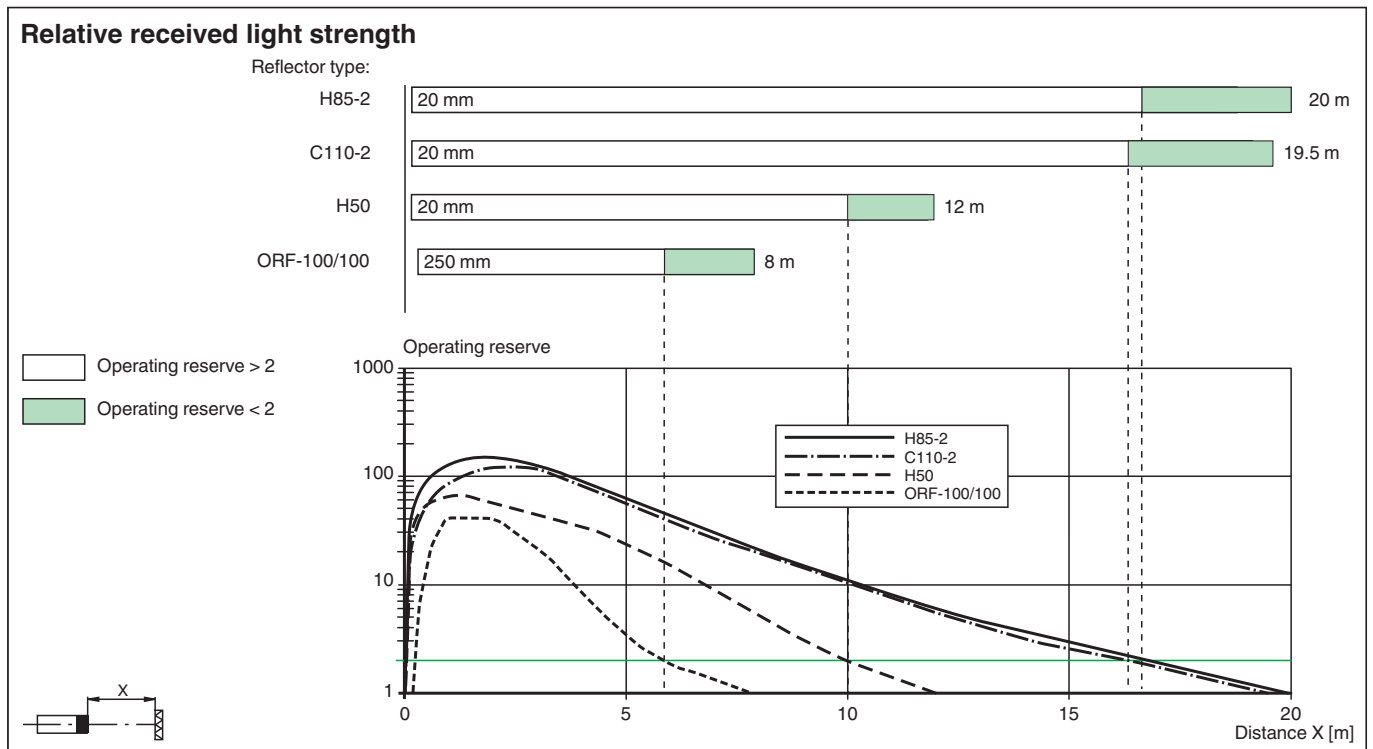


|   |                                      |    |
|---|--------------------------------------|----|
| 1 | Function indicator                   | YE |
| 2 | Operation indicator                  | GN |
| 3 | Sensitivity adjuster                 |    |
| 4 | Light-on / dark-on changeover switch |    |

Characteristic Curve



## Characteristic Curve



## Commissioning

### Sensing Range / Sensitivity

Turn sensing range / sensitivity adjuster clockwise to increase sensing range / sensitivity.  
 Turn sensing range / sensitivity adjuster counter clockwise to decrease sensing range / sensitivity.  
 The internal end stop signals the end of the adjustment range.

### Light-on / Dark-on Configuration

To set light switching or dark switching, turn the light/dark changeover switch to the end stop:

- clockwise: dark switching
- counterclockwise: light switching