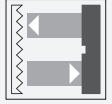


# Retroreflective sensor

## OBR5000-18GM60A-E5-V1



- Strong metallic housing in cylindrical shape M18 x 1
- Not sensitive to ambient light
- Degree of protection IP67
- Very high detection range

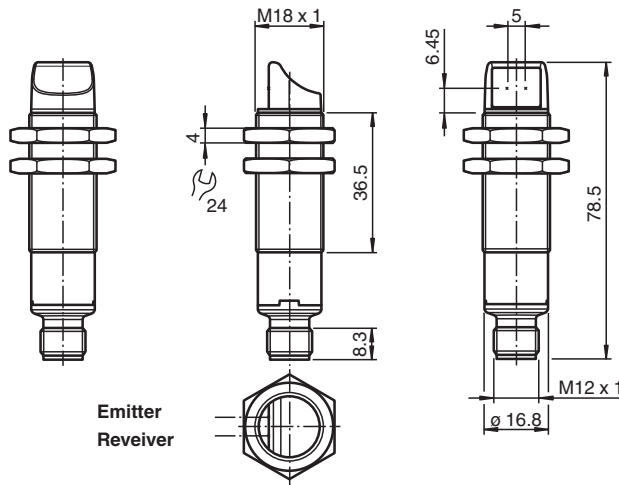
### Retroreflective sensor



### Function

The optical sensors of this series have an M18 threaded housing that is optionally available in plastic or metal. The sensors are robust and versatile. Focusing on the essential requirements simplifies selection and commissioning, saving time and costs.

### Dimensions



### Technical Data

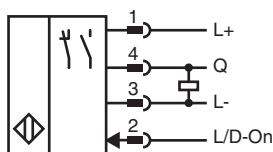
#### General specifications

|                            |                             |
|----------------------------|-----------------------------|
| Effective detection range  | 0 ... 5 m                   |
| Reflector distance         | 0 ... 5 m                   |
| Threshold detection range  | 7 m                         |
| Reference target           | reflector C110-2            |
| Light source               | LED                         |
| Light type                 | modulated visible red light |
| Polarization filter        | yes                         |
| Diameter of the light spot | approx. 270 mm at 5 m       |
| Opening angle              | approx. 2.6 °               |
| Optical face               | lateral                     |
| Ambient light limit        | EN 60947-5-2 20000 Lux      |

## Technical Data

| Functional safety related parameters |                |  |
|--------------------------------------|----------------|--|
| MTTF <sub>d</sub>                    |                | 962 a  |
| Mission Time (T <sub>M</sub> )       |                | 20 a   |
| Diagnostic Coverage (DC)             |                | 0 %  |
| Indicators/operating means           |                |  |
| 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 |
| Control elements                     |                | light/dark on electrically switchable  |
| Electrical specifications            |                |  |
| Operating voltage                    | U <sub>B</sub> | 10 ... 30 V DC   |
| Ripple                               |                | max. 10 %  |
| No-load supply current               | I <sub>0</sub> | < 25 mA  |
| Protection class                     |                | III  |
| Output                               |                |  |
| Switching type                       |                | The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP output / dark-on L/D-On - Pin2: Low-active input     |
| Signal output                        |                | 1 PNP output, short-circuit protected, reverse polarity protected, open collector  |
| Switching voltage                    |                | max. 30 V DC   |
| Switching current                    |                | max. 100 mA , resistive load   |
| Voltage drop                         | U <sub>d</sub> | ≤ 2 V DC   |
| Switching frequency                  | f              | 500 Hz   |
| Response time                        |                | ≤ 1 ms   |
| Conformity                           |                |  |
| Product standard                     |                | EN 60947-5-2   |
| Approvals and certificates           |                |  |
| 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 ... 70 °C (-40 ... 158 °F)   |
| Mechanical specifications            |                |  |
| Degree of protection                 |                | IP67   |
| Connection                           |                | 4-pin, M12 x 1 connector   |
| Material                             |                |  |
| Housing                              |                | brass, nickel-plated   |
| Optical face                         |                | PMMA   |
| Connector                            |                | plastic  |
| Mass                                 |                | approx. 24 g   |

## Connection



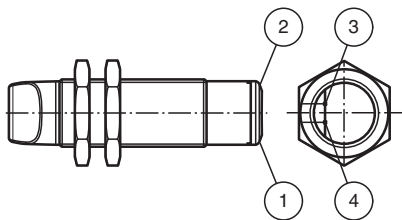
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

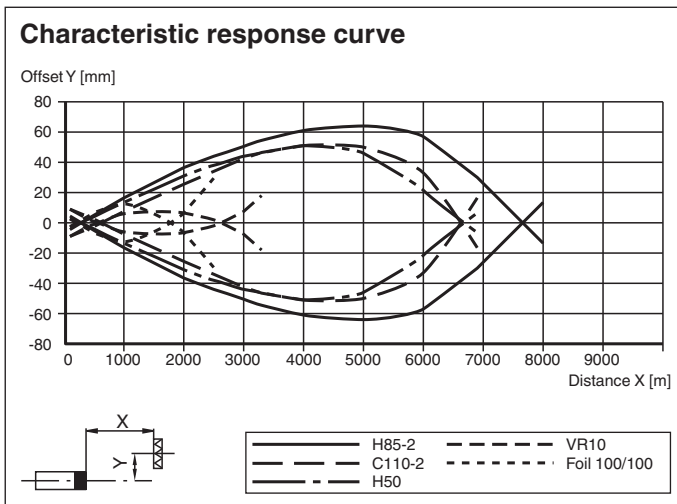
|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue)  |
| 4 | BK | (black) |

## Indication



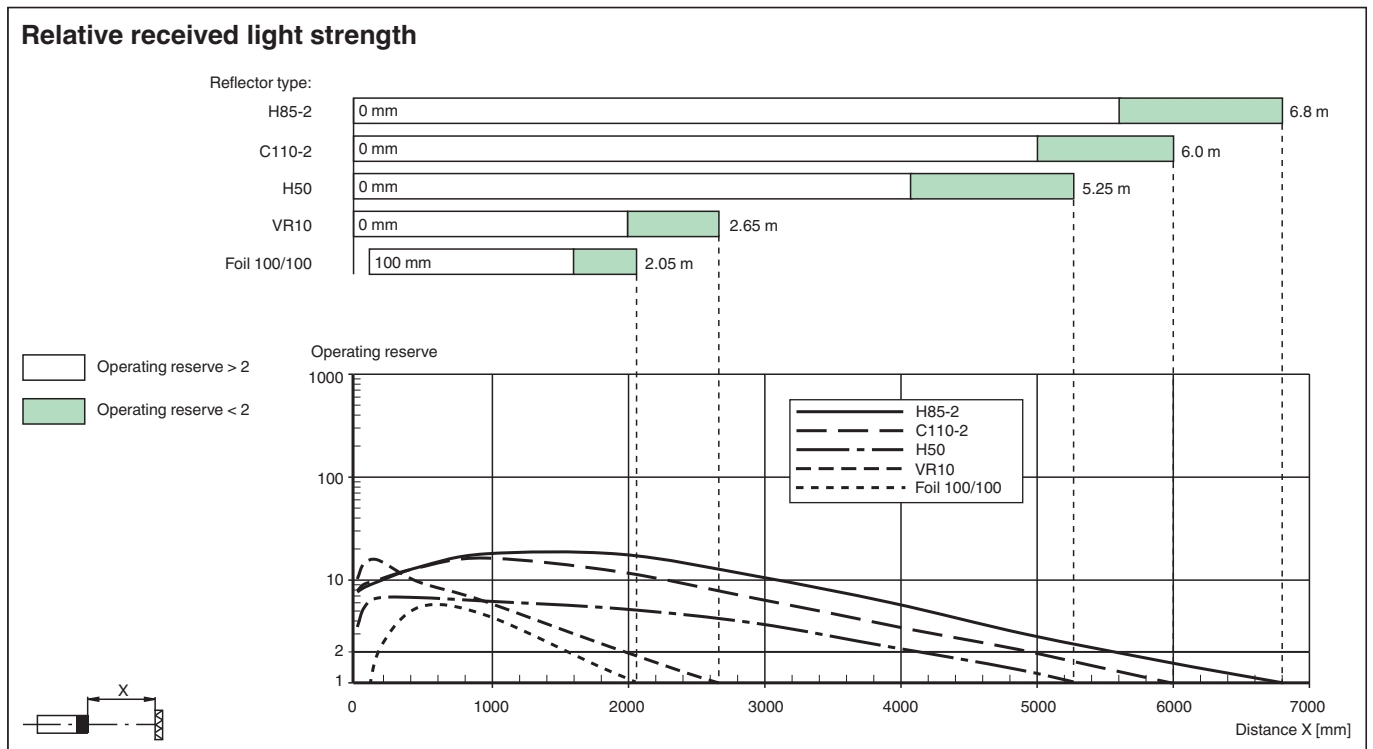
|   |                   |        |
|---|-------------------|--------|
| 1 | Operating display | green  |
| 2 | Signal display    | yellow |
| 3 | Emitter           |        |
| 4 | Receiver          |        |

## Characteristic Curve



Release date: 2022-05-12 Date of issue: 2022-05-12 Filename: 70113328-100056\_eng.pdf

## Characteristic Curve



## Accessories

|  |                    |   |
|--|--------------------|---|
|  | <b>V1-W-2M-PUR</b> | Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey             |
|  | <b>V1-G-2M-PUR</b> | Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey           |
|  | <b>BF 18</b>       | Mounting flange, 18 mm  |
|  | <b>CPZ18B03</b>    | Mounting Bracket with swivel nut  |
|  | <b>BF 18-F</b>     | Plastic mounting adapter, 18 mm   |
|  | <b>BF 5-30</b>     | Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm |
|  | <b>OMH-04</b>      | Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm         |
|  | <b>REF-H85-2</b>   | Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes                          |
|  | <b>REF-C110-2</b>  | Reflector, round $\varnothing$ 84 mm, central mounting hole                       |
|  | <b>REF-H50</b>     | Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap                |
|  | <b>REF-VR10</b>    | Reflector, rectangular 60 mm x 19 mm, mounting holes                              |

## Accessories



OFR-100/100

Reflective tape 100 mm x 100 mm