



# Retroreflective sensor

## OBR7500-R101-E5-0,3M-V1



- Miniature design with versatile mounting options
- Extended temperature range  
-40 °C ... 60 °C
- High degree of protection IP69K

Retroreflective sensor with polarization filter



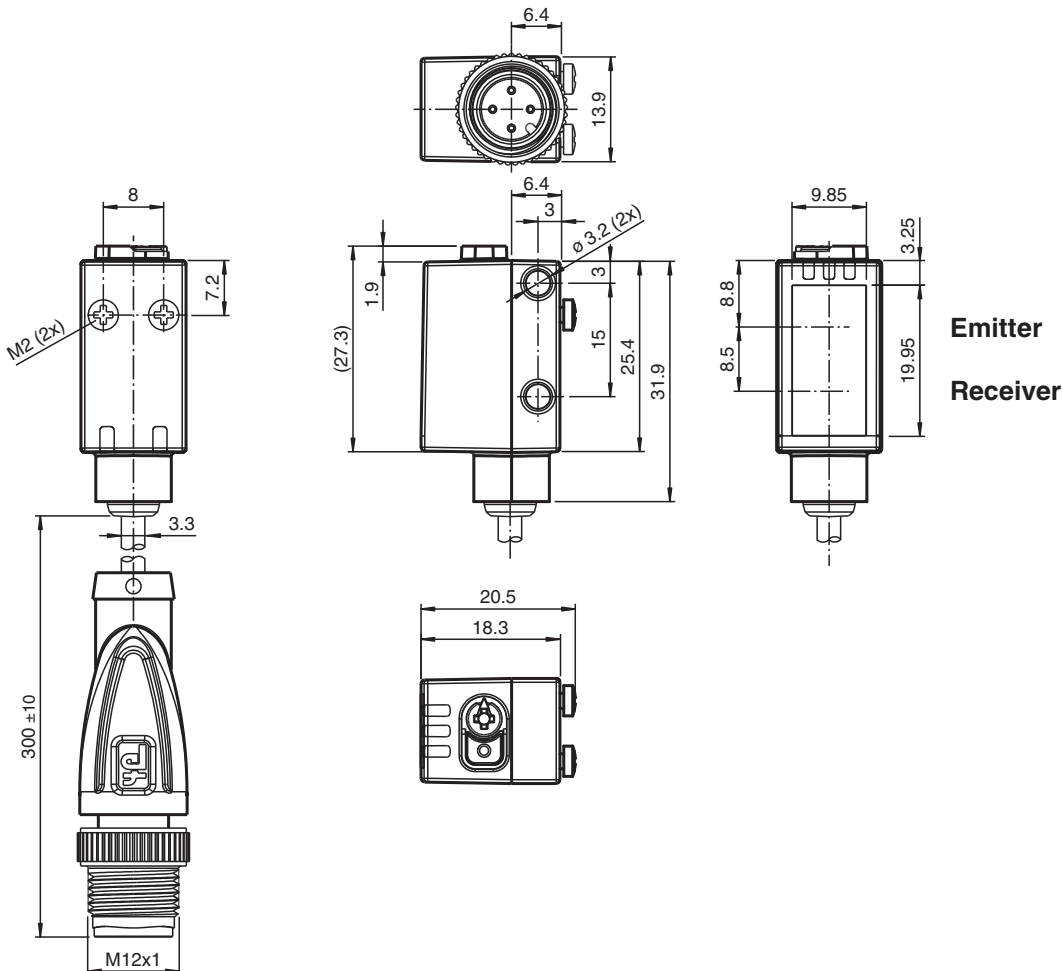
### Function

The miniature optical sensors are the first devices of their kind to offer an end-to-end solution in a small single standard design — from thru-beam sensor through to a distance measurement device. As a result of this design, the sensors are able to perform practically all standard automation tasks.

The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.

### Dimensions



Release date: 2023-03-28 Date of issue: 2023-03-28 Filename: 267075-100446\_eng.pdf

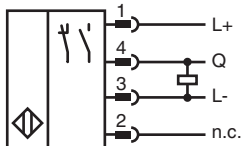
## Technical Data

General specifications		
Effective detection range		0 ... 7.5 m
Reflector distance		0.03 ... 7.5 m
Threshold detection range		10 m
Reference target		H85-2 reflector
Light source		LED
Light type		modulated visible red light
LED risk group labelling		exempt group
Polarization filter		yes
Diameter of the light spot		approx. 65 mm at a distance of 1 m
Opening angle		3.7 °
Ambient light limit		EN 60947-5-2
Functional safety related parameters		
MTTF <sub>d</sub>		724 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		Green LED: Permanently lit - power on Flashing (4 Hz) - short circuit
Function indicator		Yellow LED: Permanently lit - light path clear Permanently off - object detected Flashing (4 Hz) - insufficient operating reserve
Control elements		Light-on/dark-on changeover switch
Control elements		sensitivity adjustment
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 at 24 V supply voltage
Protection class		III
Output		
Switching type		The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP normally open / dark-on n.c. - Pin2: open
Signal output		1 PNP, short-circuit protected, reverse polarity protected
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
Conformity		
Communication interface		IEC 61131-9
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) , fixed cable -25 ... 60 °C (-13 ... 140 °F) , movable cable not appropriate for conveyor chains
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Housing width		13.9 mm
Housing height		33.8 mm
Housing depth		18.3 mm
Degree of protection		IP67 / IP69 / IP69K

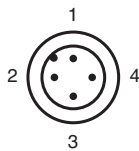
## Technical Data

Connection	300 mm fixed cable with M12 x 1, 4-pin connector
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 21 g
Cable length	0.3 m

## Connection



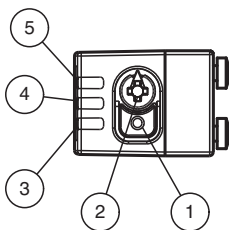
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

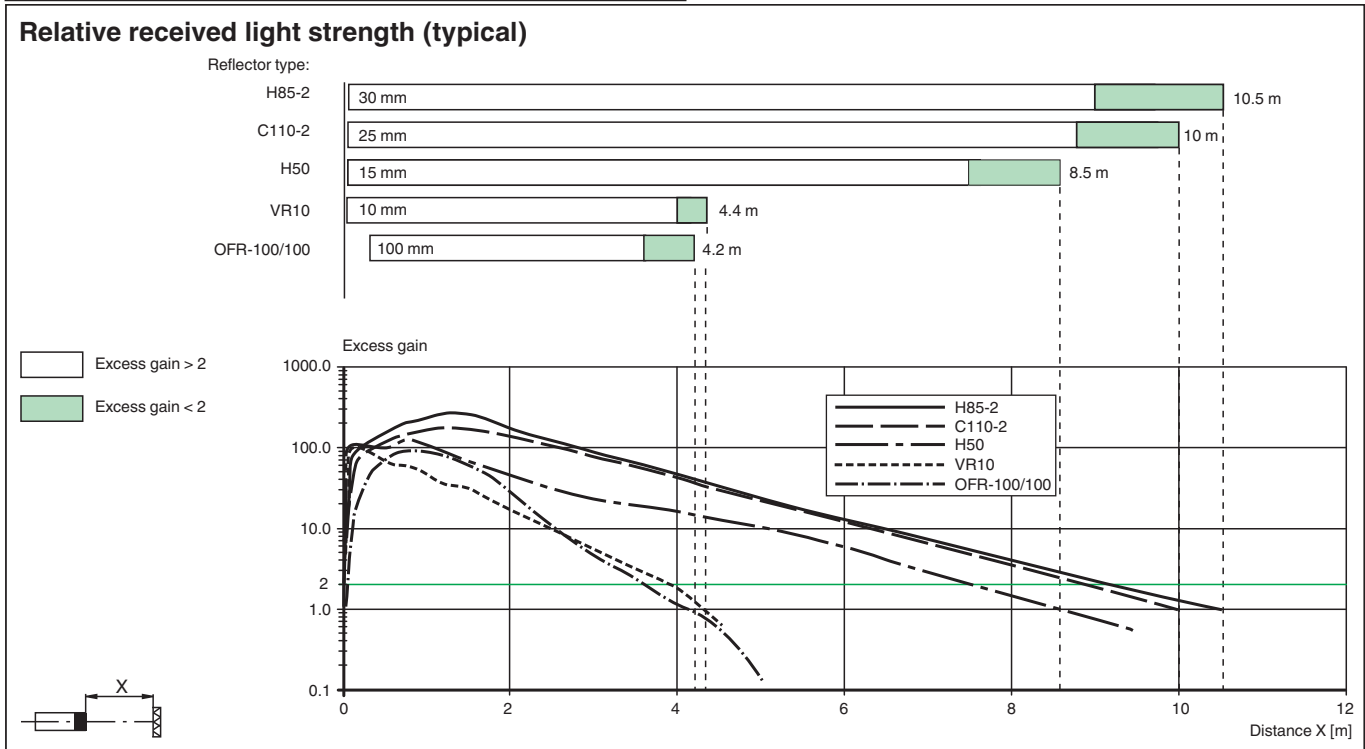
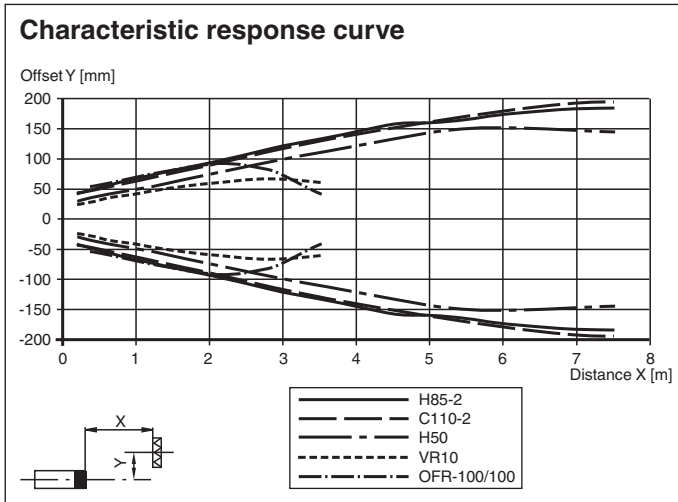
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

## Assembly



1	Light-on/dark-on changeover switch
2	Sensitivity adjuster
3	Operating indicator / dark on
4	Signal indicator
5	Operating indicator / light on

## Characteristic Curve











## Accessories

	<b>OMH-R101</b>	Mounting Clamp
	<b>OMH-R101-Front</b>	Mounting Clamp
	<b>OMH-4.1</b>	Mounting Clamp
	<b>OMH-ML6</b>	Mounting bracket
	<b>OMH-ML6-U</b>	Mounting bracket

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## Accessories

	<b>OMH-ML6-Z</b>	Mounting bracket
	<b>OFR-100/100</b>	Reflective tape 100 mm x 100 mm
	<b>REF-H33</b>	Reflector with screw fixing
	<b>REF-H50</b>	Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap
	<b>REF-H85-2</b>	Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes
	<b>REF-VR10</b>	Reflector, rectangular 60 mm x 19 mm, mounting holes
	<b>V1-G-2M-PUR</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	<b>V1-W-2M-PUR</b>	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey

## Configuration



- 1 - Light on / dark on changeover switch
- 2 - Sensing range / sensitivity adjuster
- 3 - Operating indicator / dark on
- 4 - Signal indicator
- 5 - Operating indicator / light on

To unlock the adjustment functions turn the sensing range adjuster for more than 180 degrees.

### Sensing Range / Sensitivity

Turn sensing range / sensitivity adjuster clockwise to increase sensing range / sensitivity.

Turn sensing range /sensitivity adjuster counterclockwise to decrease sensing range / sensitivity.

If the end of the adjustment range is reached, the signal indicator starts flashing with 8 Hz.

### Light on / Dark on Configuration

Press the light on / dark on changeover switch for more than 1 second (less than 4 seconds). The light on / dark on mode changes and the operating indicators are activated accordingly.

If you press the light on / dark on changeover switch for more than 4 seconds, the light on / dark on mode changes back to the original setting. On release of the light on / dark on changeover switch the current state is activated.

### Restore Factory Settings

Press the light on / dark on changeover switch for more than 10 seconds (less than 30 seconds) until all LEDs turn off. On release of the light on / dark on changeover switch the signal indicator turns on. After 5 seconds the sensor resumes operation with factory settings.

After 5 minutes of inactivity the sensing range / sensitivity adjustment is locked. In order to reactivate the sensing range / sensitivity adjustment, turn the sensing range / sensitivity adjuster for more than 180 degrees.