



### Model Number

**OBG8000-R201-2EP-IO-0,3M-V1**

Retroreflective sensor (glass)  
with fixed cable and M12 connector, 4-pin

### Features

- Medium design with versatile mounting options
- Detects transparent objects, i.e., clear glass, PET and transparent films
- Two machines in one: clear object detection or reflection operating mode with long range
- High degree of protection IP69K
- IO-link interface for service and process data

### Product information

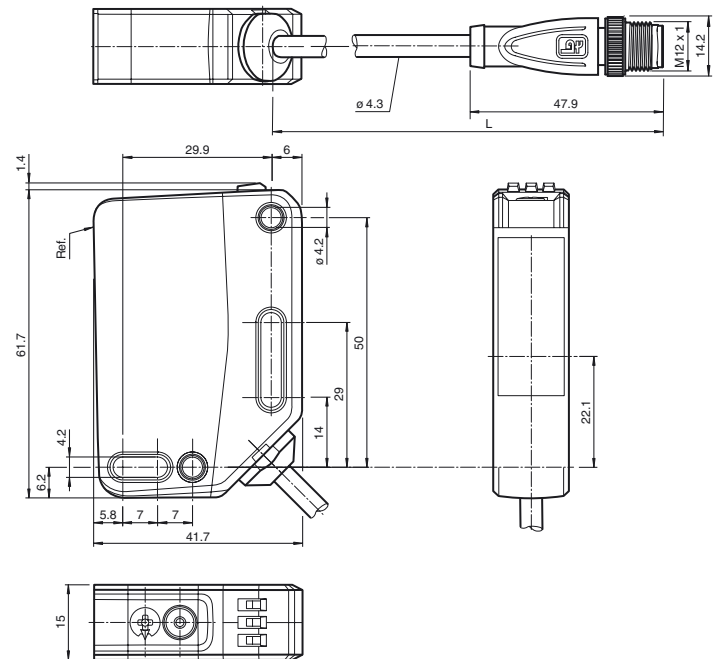
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

The entire series enables sensors to communicate via IO-Link.

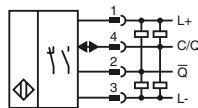
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

Multi Pixel Technology (MPT) ensures that the standard sensors are flexible and can be adapted to the application environment.

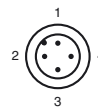
### Dimensions



### Electrical connection



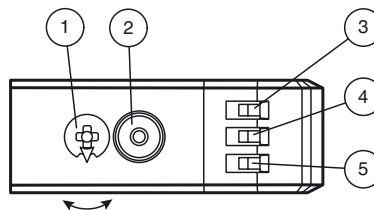
### Pinout



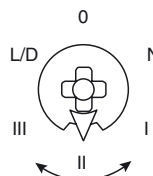
Wire colors in accordance with EN 60947-5-2

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

### Indicators/operating means



1	Mode rotary switch	
2	Teach-in button	
3	Operating indicator/dark-on	GN
4	Function indicator	YE
5	Operating indicator/light-on	GN



N	Normal operation
I	10 % contrast detection
II	18 % contrast detection
III	40 % contrast detection
L/D	Switching type
0	Keylock

## Technical data

### General specifications

Effective detection range	0 ... 5.6 m in TEACH mode ; 0 ... 8 m at switch position "N"
Reflector distance	0 ... 5.6 m in TEACH mode ; 0 ... 8 m at switch position "N"
Threshold detection range	9 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. 170 mm at a distance of 3.5 m
Angle of divergence	approx. 5 °
Ambient light limit	EN 60947-5-2 : 18000 Lux

### Functional safety related parameters

MTTF <sub>d</sub>	600 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Indicators/operating means

Operation indicator	LED green: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode
Function indicator	Yellow LED: Permanently lit - light path clear Permanently off - object detected Flashing (4 Hz) - insufficient operating reserve
Control elements	Teach-In key
Control elements	5-step rotary switch for operating modes selection
Contrast detection levels	10 % - clean, water filled PET bottles 18 % - clear glass bottles 40 % - colored glass or opaque materials Adjustable via rotary switch

### 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

### Interface

Interface type	IO-Link ( via C/Q = pin 4 )
Device profile	Identification and diagnosis Smart Sensor type 2.4
Transfer rate	COM 2 (38.4 kBaud)
IO-Link Revision	1.1
Min. cycle time	2.3 ms
Process data width	Process data input 2 Bit Process data output 2 Bit
SIO mode support	yes
Device ID	0x111A11 (1120785)
Compatible master port type	A

### Output

Switching type	The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally open / dark-on	
Signal output	2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage 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	500 Hz
Response time	1 ms	

### Conformity

Communication interface	IEC 61131-9
Product standard	EN 60947-5-2

### Ambient conditions

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

### Mechanical specifications

Housing width	15 mm
Housing height	61.7 mm
Housing depth	41.7 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	300 mm fixed cable with M12 x 1, 4-pin connector

## Accessories

### IO-Link-Master02-USB

IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

### REF-H85-2

Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

### REF-C110-2

Reflector, round ø 84 mm, central mounting hole

### FE-RR1

Reflector, round ø 80.87 mm, central mounting hole

### REF-VR10

Reflector, rectangular 60 mm x 19 mm, mounting holes

### OFR-100/100

Reflective tape 100 mm x 100 mm

### REF-H32G-2

### REF-ORR50G-2

### OMH-RL31-02

Mounting bracket narrow

### OMH-RL31-03

Mounting bracket narrow

### OMH-RL31-04

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

### OMH-RL31-07

Mounting bracket including adjustment

### OMH-R20x-Quick-Mount

Quick mounting accessory

### V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

### V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

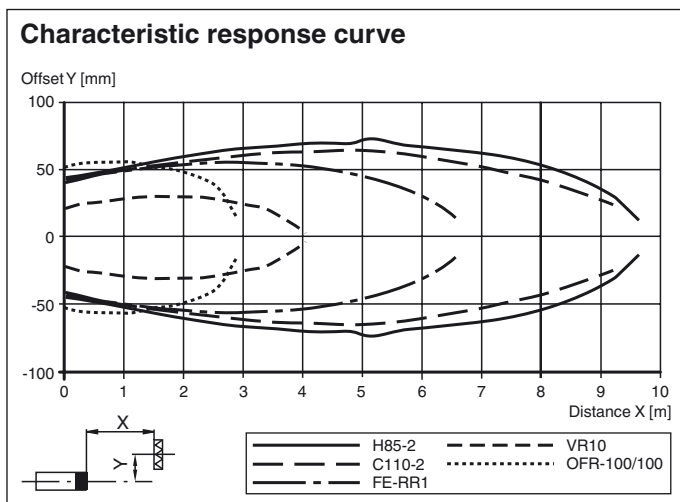
## Material

Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 55 g
Cable length	0.3 m

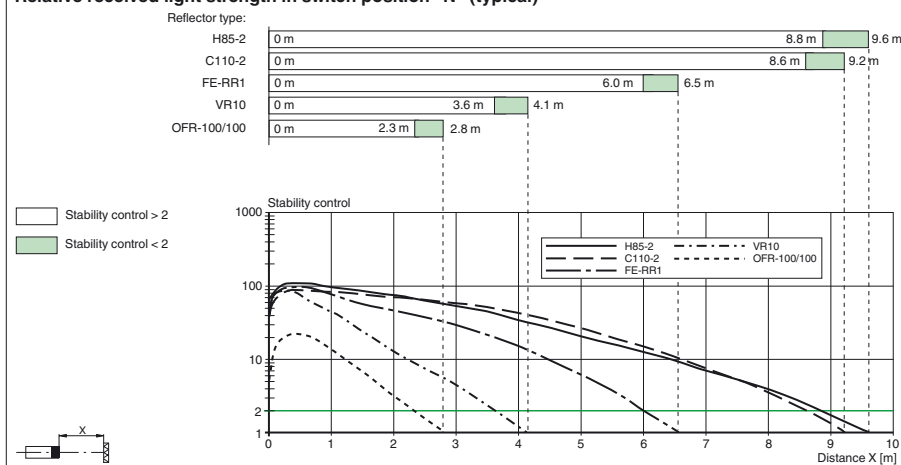
## Approvals and certificates

UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
CCC approval	CCC approval / marking not required for products rated $\leq 36$ V

## Curves/Diagrams



## Relative received light strength in switch position "N" (typical)



## Settings

## Teach-in:

Use the rotary switch to select the required operating mode: Normal mode (N) or contrast level I – III.

To teach in a threshold or activate an operating mode, press the "TI" button until the yellow and green LEDs flash in phase (approx. 1 s).

Release the "TI" button. Teach-in starts.

Successful teach-in is indicated by alternating flashing (2.5 Hz) of the yellow and green LEDs. The sensor will now operate in the selected operating mode with the taught-in threshold.

An unsuccessful teach-in is indicated by rapidly alternating flashing (8 Hz) of the yellow and green LEDs. After an unsuccessful teach-in, the sensor continues to operate with the previous valid setting after the relevant visual fault signal is issued.

Every taught-in switching threshold can be re-taught (overwritten) by pressing the "TI" button again.

Note: To ensure that the device functions reliably in Contrast mode, the device must be powered on at least 30 s before Teach-in.

## Setting the Device to Maximum Sensitivity

Use the rotary switch to select the Normal mode (N) position.

Press the "TI" button for > 4 s. The yellow and green LEDs will go out.

Release the "TI" button.

The settings will be reset to maximum sensitivity. After successfully resetting, the yellow and green LEDs will flash alternately (2.5 Hz).

## Switching between light on/dark on

Use the rotary switch to select the light on/dark on (L/D) position.

Press the "TI" button for > 1 s.



The respective operating indicator LED (L/D) will illuminate green and the switching type will change.

To reset the switching type, press the "TI" button for > 4 s.

The respective operating indicator LED (L/D) will illuminate green and the operating indicator will be reset to the most recently active switching type.

### Reset to Default Settings

Use the rotary switch to select the O position.

Press the "TI" button for > 10 s. The yellow and the green LEDs will both switch off.

Release the "TI" button. The yellow LED is on.

After resetting, the sensor will operate with the following default settings:

- Normal mode (N)
- Maximum sensitivity adjustment
- Dark on
- Pin 2 (white core): antivalent switching output