



## Retroreflective sensor (glass) OBG5000-R100-2EP-IO-V31



- Miniature 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

Retroreflective sensor with polarization filter for clear object detection



### Function

The R100 series 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 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.

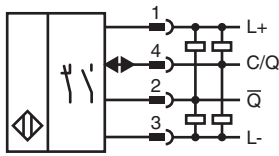
The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.



## Technical Data

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	
<b>Electrical specifications</b>		
Operating voltage	$U_B$	10 ... 30 V DC
Ripple	max. 10 %	
No-load supply current	$I_0$	< 25 mA at 24 V supply voltage
Protection class	III	
<b>Interface</b>		
Interface type	IO-Link ( via C/Q = pin 4 )	
IO-Link revision	1.1	
Device ID	0x110A01 (1116673)	
Transfer rate	COM2 (38.4 kBaud)	
Min. cycle time	2.3 ms	
Process data width	Process data input 2 Bit Process data output 2 Bit	
SIO mode support	yes	
Compatible master port type	A	
<b>Output</b>		
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	$U_d$	$\leq 1.5$ V DC
Switching frequency	$f$	500 Hz
Response time	1 ms	
<b>Conformity</b>		
Communication interface	IEC 61131-9	
Product standard	EN 60947-5-2	
<b>Approvals and certificates</b>		
EAC conformity	TR CU 020/2011	
UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)	
<b>Mechanical specifications</b>		
Housing width	11 mm	
Housing height	44.5 mm	
Housing depth	21.5 mm	
Degree of protection	IP67 / IP69 / IP69K	
Connection	M8 x 1 connector, 4-pin	
<b>Material</b>		
Housing	PC (Polycarbonate)	
Optical face	PMMA	
Mass	approx. 10 g	

## Connection



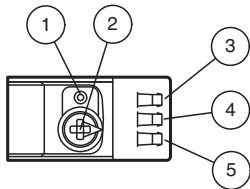
## Connection Assignment



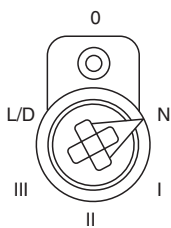
Wire colors in accordance with EN 60947-5-2

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

## Assembly



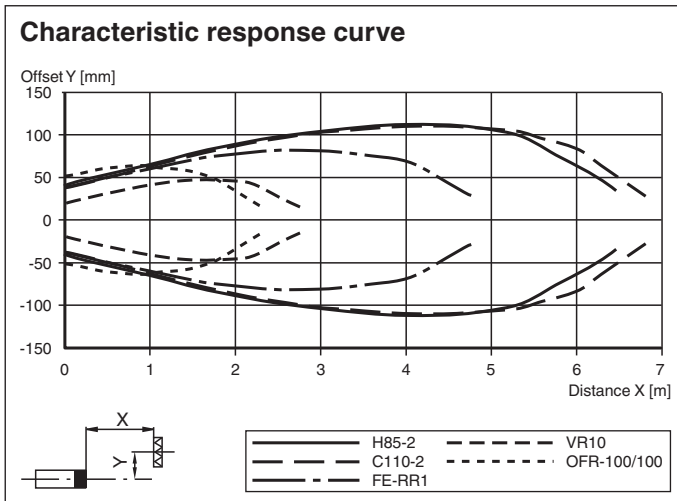
1	Teach-in button
2	Mode rotary switch
3	Operating indicator / dark on
4	Signal indicator
5	Operating indicator / light on



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

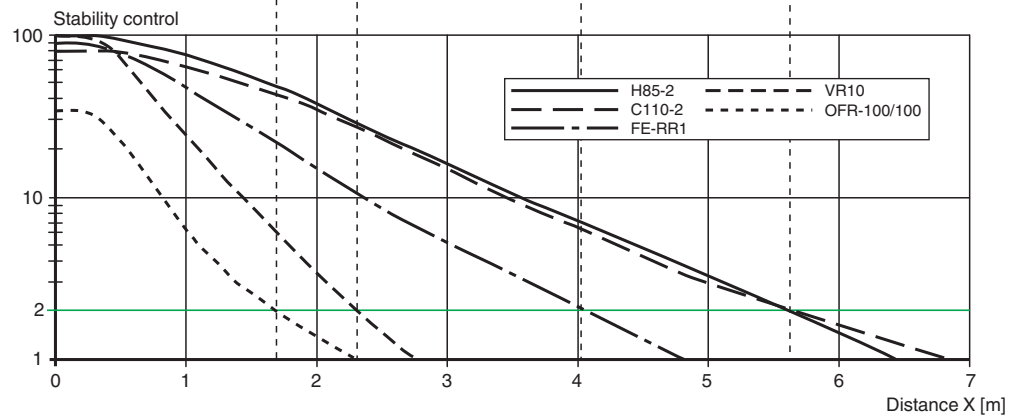
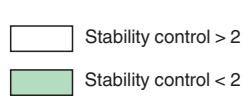
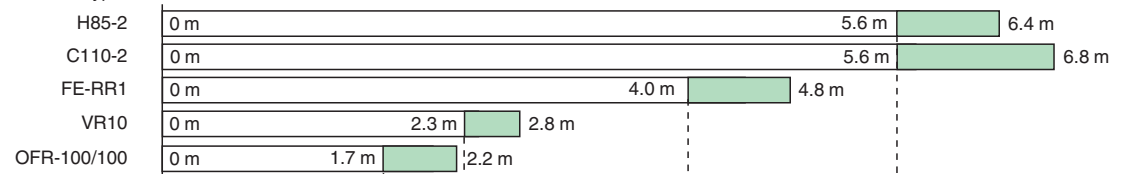
Release date: 2021-09-07 Date of issue: 2021-09-07 Filename: 267075-100028\_eng.pdf

## Characteristic Curve



### Relative received light strength in switch position "N"

Reflector type:



## Commissioning

### 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:

## Accessories

	<b>OMH-ML100-09</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
	<b>REF-ORR50G-2</b>	
	<b>REF-H85-2</b>	Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes
	<b>REF-H50</b>	Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap
	<b>REF-H33</b>	Reflector with screw fixing
	<b>OFR-100/100</b>	Reflective tape 100 mm x 100 mm
	<b>IO-Link-Master02-USB</b>	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	<b>OMH-R10X-01</b>	Mounting bracket
	<b>OMH-R10X-02</b>	Mounting bracket
	<b>OMH-R10X-04</b>	Mounting bracket
	<b>OMH-R10X-10</b>	Mounting bracket
	<b>OMH-ML100-03</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-ML100-031</b>	Mounting aid for round steel $\varnothing$ 10 ... 14 mm or sheet 1 mm ... 5 mm
	<b>REF-H32G-2</b>	
	<b>V31-GM-2M-PUR</b>	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey
	<b>V31-WM-2M-PUR</b>	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey