

Retroreflective sensor (glass) OBG5000-R101-2EP-IO-0,3M-V1



- Miniature design with versatile mounting options
- Detects transparent objects, i.e., clear glass, PET and transparent
- 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











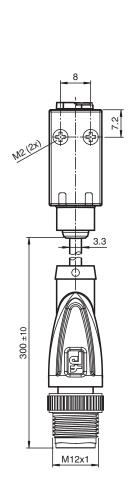
Function

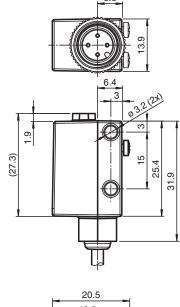
The miniature optical sensors are the first devices of their kind to offer an end-to- end solution in a small single standard design — from thru-beam sensor through to a distance measurement device. As a result of this design, the sensors are able to perform practically all standard automation

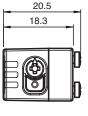
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

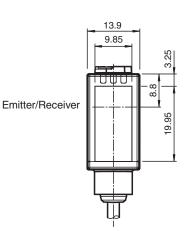
The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.

Dimensions









Refer to "General Notes Relating to Pepperl+Fuchs Product Information"

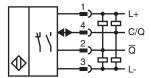
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Technical Data

General specifications 0 ... 3.5 m in TEACH mode; 0 ... 5 m at switch position "N" Effective detection range Reflector distance 0 ... 3.5 m in TEACH mode; 0 ... 5 m at switch position "N" Threshold detection range 6 m Reference target H85-2 reflector LED Light source Light type modulated visible red light LED risk group labelling exempt group Diameter of the light spot approx. 170 mm at a distance of 3.5 m Opening angle approx. 5° Ambient light limit EN 60947-5-2 Functional safety related parameters 600 a $MTTF_d$ Mission Time (T_M) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means LED green: Operation indicator 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 10 % - clean, water filled PET bottles Contrast detection levels 18 % - clear glass bottles 40 % - colored glass or opaque materials Adjustable via rotary switch **Electrical specifications** 10 ... 30 V DC Operating voltage U_B Ripple max. 10 % No-load supply current I_0 < 25 mA at 24 V supply voltage Protection class Interface Interface type IO-Link (via C/Q = pin 4) IO-Link revision Device ID 0x110A01 (1116673) Transfer rate COM2 (38.4 kBit/s) Min. cycle time 2.3 ms Process data width Process data input 2 Bit Process data output 2 Bit SIO mode support ves Compatible master port type Α Output 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 Switching type Signal output 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage protected max. 30 V DC Switching voltage Switching current max. 100 mA, resistive load Usage category DC-12 and DC-13 Voltage drop U_{d} ≤ 1.5 V DC Switching frequency f 500 Hz Response time 1 ms Conformity

Technical Data	
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	-20 60 °C (-4 140 °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
Connection	300 mm fixed cable with M12 x 1, 4-pin connector
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 17 g
Cable length	0.3 m

Connection



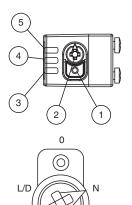
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

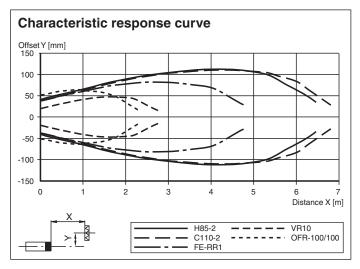
Assembly



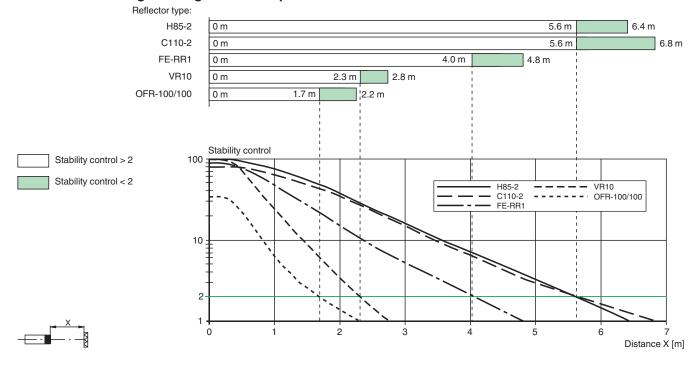
1	Teach-in button
2	Mode rotary switch
3	Operating indicator / dark on
4	Signal indicator
5	Operating indicator / light on

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

Characteristic Curve



Relative received light strength in switch position "N"



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: