**Dimensions** 





### **Model Number**

## OBT300-R100-2EP-IO-0,3M-V31-L

Triangulation sensor (BGS) with fixed cable and 4-pin, M8 connector

#### **Features**

- Miniature design with versatile • mounting options
- DuraBeam Laser Sensors durable ٠ and employable like an LED
- Extended temperature range • -40°C ... 60°C
- High degree of protection IP69K
- IO-link interface for service and process data

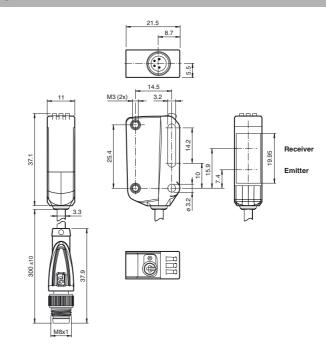
### **Product information**

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.

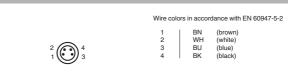
The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.



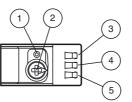
### **Electrical connection**



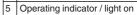
Pinout



# Indicators/operating means



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



Refer to "General Notes Relating to Pepperl+Fuchs Product Information" Pepperl+Fuchs Group www.pepperl-fuchs.com

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Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com



Laserlabel

#### **Technical data**

General specifications Detection range Detection range min. Detection range max Adjustment range Reference target Light source Light type Laser nominal ratings Note Laser class Wave length Beam divergence Pulse length Repetition rate max. pulse energy Black/White difference (6 %/90 %) Diameter of the light spot Angle of divergence Ambient light limit Functional safety related parameters MTTF<sub>d</sub> Mission Time (T<sub>M</sub>) Diagnostic Coverage (DC) Indicators/operating means Operation indicator

Function indicator

Control elements Control elements **Electrical specifications** Operating voltage Ripple No-load supply current Protection class Interface Interface type Device profile Transfer rate **IO-Link Revision** Min. cycle time Process data witdh

SIO mode support Device ID Compatible master port type

Output Switching type

Signal output

Switching voltage Switching current Usage category

Voltage drop Switching frequency

Response time Conformity Communication interface

Product standard Laser safety Ambient conditions

Ambient temperature

Storage temperature Mechanical specifications Housing width

7 ... 300 mm 7 ... 25 mm 7 ... 300 mm 25 ... 300 mm standard white, 100 mm x 100 mm laser diode modulated visible red light

LASER LIGHT , DO NOT STARE INTO BEAM

680 nm >5 mrad d63 < 1 mm in the range of 150 mm ... 250 mm 3μs approx. 13 kHz 10.4 nJ < 5 % at 150 mm approx. 1 mm at a distance of 200 mm approx. 0.3 ° EN 60947-5-2 : 40000 Lux

560 a

UB

 $I_0$ 

20 a

0%

LED green: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode LED vellow: constantly on - object detected constantly off - object not detected Light-on/dark-on changeover switch Sensing range adjuster

10 ... 30 V DC max. 10 % < 20 mA at 24 V supply voltage Ш

IO-Link (via C/Q = pin 4) Smart Sensor COM 2 (38.4 kBaud) 1.1 2.3 ms Process data input 1 Bit Process data output 2 Bit yes 0x110602 (1115650)

A

Ud

The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link /Q - Pin2: NPN normally closed / dark-on, PNP normally open / light-on 2 push-pull (4 in 1)outputs, short-circuit protected, reverse polarity protected, overvoltage protected max. 30 V DC max. 100 mA , resistive load DC-12 and DC-13  $\leq$  1.5 V DC 1650 Hz 300 µs IEC 61131-9 EN 60947-5-2 EN 60825-1:2014 -40 ... 60 °C (-40 ... 140 °F) , fixed cable -25 ... 60 °C (-13 ... 140 °F) , movable cable not appropriate for conveyor chains

-40 ... 70 °C (-40 ... 158 °F)

CLASS 1 I ASER PRODUCT CLASS 1 LASER PRODUCT IEC 60825-1: 2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50. dated June 24, 2007 CLASS 1

LASER PRODUCT IEC 60825-1: 2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

#### Accessories

IO-Link-Master02-USB IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

### OMH-R10X-01

Mounting bracket

OMH-R10X-02 Mounting bracket

OMH-R10X-04 Mounting bracket

OMH-R10X-10 Mounting bracket

OMH-ML100-03

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

OMH-ML100-031 Mounting aid for round steel ø 10 ... 14 mm or sheet 1 mm ... 5 mm

V31-GM-2M-PUR Female cordset, M8, 4-pin, PUR cable

V31-WM-2M-PUR V31-WM-2M-PUR Female cordset, M8, 4-pin, PUR cable Other suitable accessories can be found at 2

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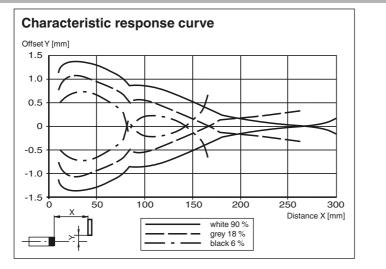
2

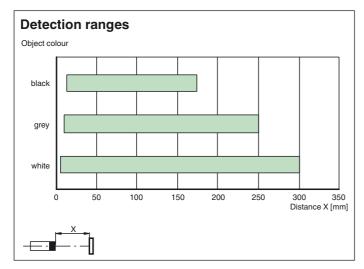
Housing height	37.1 mm
Housing depth	21.5 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	fixed cable 300 mm with M8 x 1 male connector; 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 17 g
Cable length	0.3 m

#### Approvals and certificates

UL approval FDA approval  $\mathsf{E87056}$  ,  $\mathsf{cULus}\ \mathsf{Listed}$  , class 2 power supply , type rating 1 IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

# **Curves/Diagrams**





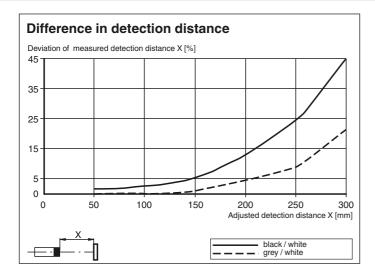
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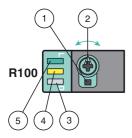
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#### **Functions and Operation**



- 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 /sensitivity 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 counter clockwise 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 default 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.

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