



### Model Number

**OBT20-R101-2P1-IO-V31-IR**

Triangulation sensor (BGS)  
M8 connector, 4-pin

### Features

- Miniature design with versatile mounting options
- Best background suppressor in its class
- Precision object detection, almost irrespective of the color
- Extended temperature range -40°C ... 60°C
- High degree of protection IP69K
- IO-link interface for service and process data

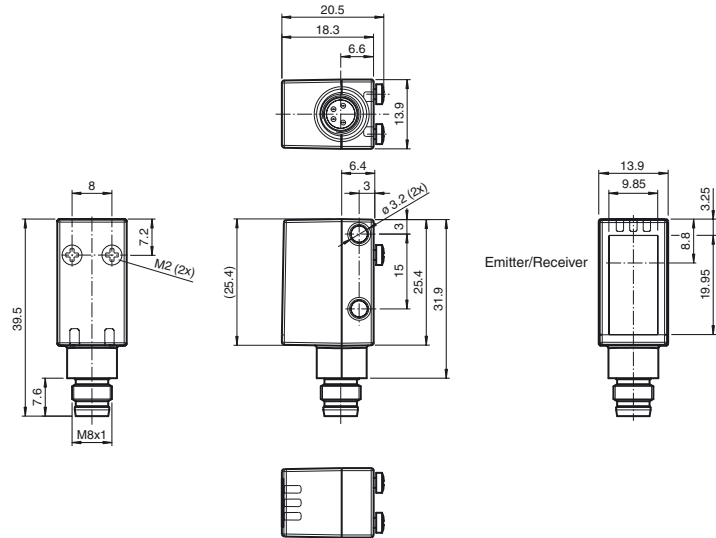
### Product information

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.

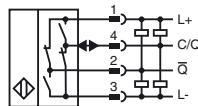
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

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



### Electrical connection



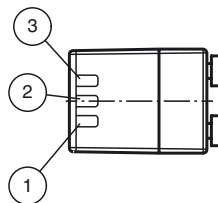
### Pinout

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	Operating indicator / dark on
2	Signal indicator
3	Operating indicator / light on

**Technical data****General specifications**

Detection range	7 ... 20 mm
Detection range max.	5 ... 25 mm
Background suppression	starts from 25 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LED
Light type	modulated infrared light 850 nm
LED risk group labelling	exempt group
Black/White difference (6 %/90 %)	approx. 1 mm
Diameter of the light spot	approx. 1.5 mm at 20 mm
Angle of divergence	approx. 3 °
Ambient light limit	EN 60947-5-2 : 40000 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	LED yellow: constantly on - object detected constantly off - object not detected

**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 = BK )
Device profile	Smart Sensor
Transfer rate	COM 2 (38.4 kBaud)
IO-Link Revision	1.1
Min. cycle time	2.3 ms
Process data width	Process data input 1 Bit Process data output 2 Bit
SIO mode support	yes
Device ID	0x110509 (1115401)
Compatible master port type	A

**Output**

Output	
Switching type	C/Q - Pin4: NPN normally closed / dark-on, PNP normally open / light-on, IO-Link /Q - Pin2: NPN normally open / light-on, PNP normally closed / 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	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

**Mechanical specifications**

Housing width	13.9 mm
Housing height	31.9 mm
Housing depth	18.3 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	M8 x 1 connector, 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 10 g
Cable length	

**Approvals and certificates**

UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
-------------	--

**Accessories****IO-Link-Master02-USB**

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

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



Curves/Diagrams

