Model Number

OBT40-R102-2P1-IO-V31

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
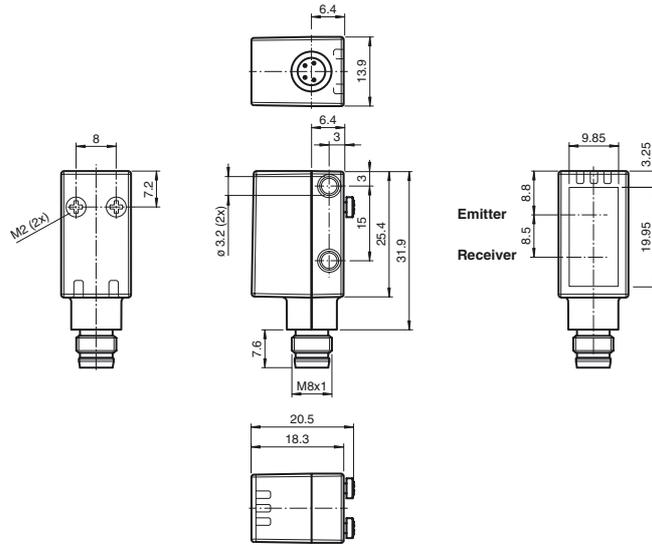- IO-link interface for service and process data

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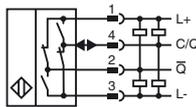
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

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.
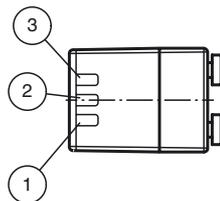
Dimensions

Electrical connection

1	L+
4	C/Q
2	Q̄
3	L-

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

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

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Technical data

General specifications

Detection range	10 ... 40 mm
Detection range max.	10 ... 50 mm
Background suppression	starts from 50 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LED
Light type	modulated visible red light
LED risk group labelling	exempt group
Black/White difference (6 %/90 %)	approx. 1 mm
Diameter of the light spot	approx. 3 mm at 40 mm
Angle of divergence	approx. 5 °
Ambient light limit	EN 60947-5-2 : 40000 Lux

Functional safety related parameters

$MTTF_d$	600 a
Mission Time (T_M)	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_B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I_0	< 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 witdh	Process data input 1 Bit Process data output 2 Bit
SIO mode support	yes
Device ID	0x110513 (1115411)
Compatible master port type	A

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_d	≤ 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

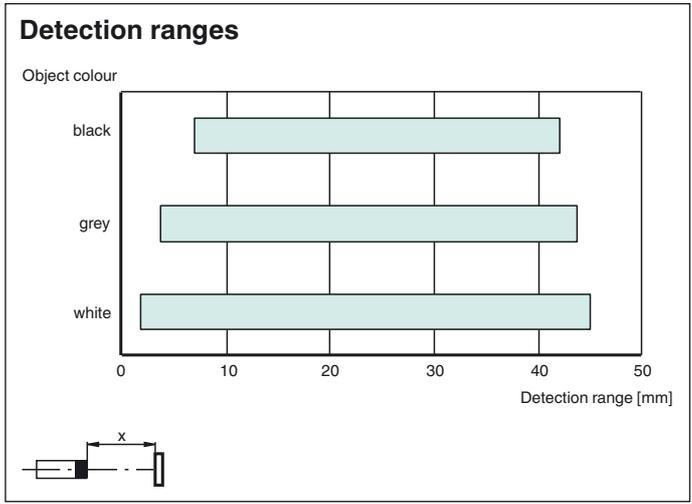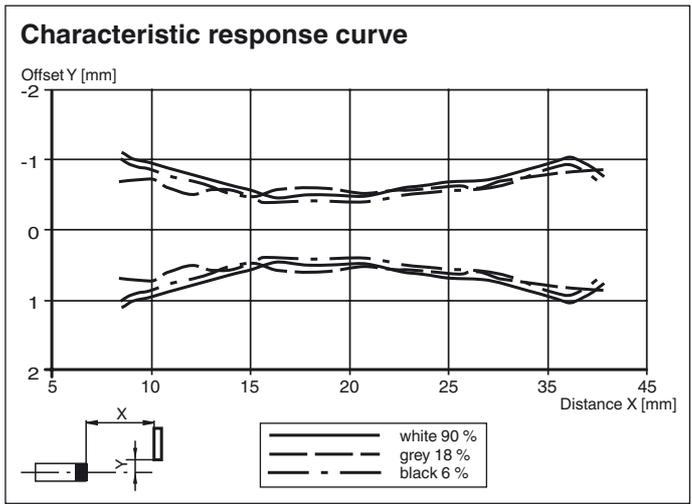|	
Housing width	13.9 mm
Housing height	31.9 mm
Housing depth	18.3 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	M8 x 1 connector, 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	Float glass
Mass	approx. 10 g
Cable length	

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

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Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [mm]

white 90 %
grey 18 %
black 6 %

Detection ranges

Object colour

black

grey

white

Detection range [mm]

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