Triangulation sensor (BGS)

OBT22-R102-2P1-IO-0,3M-V31

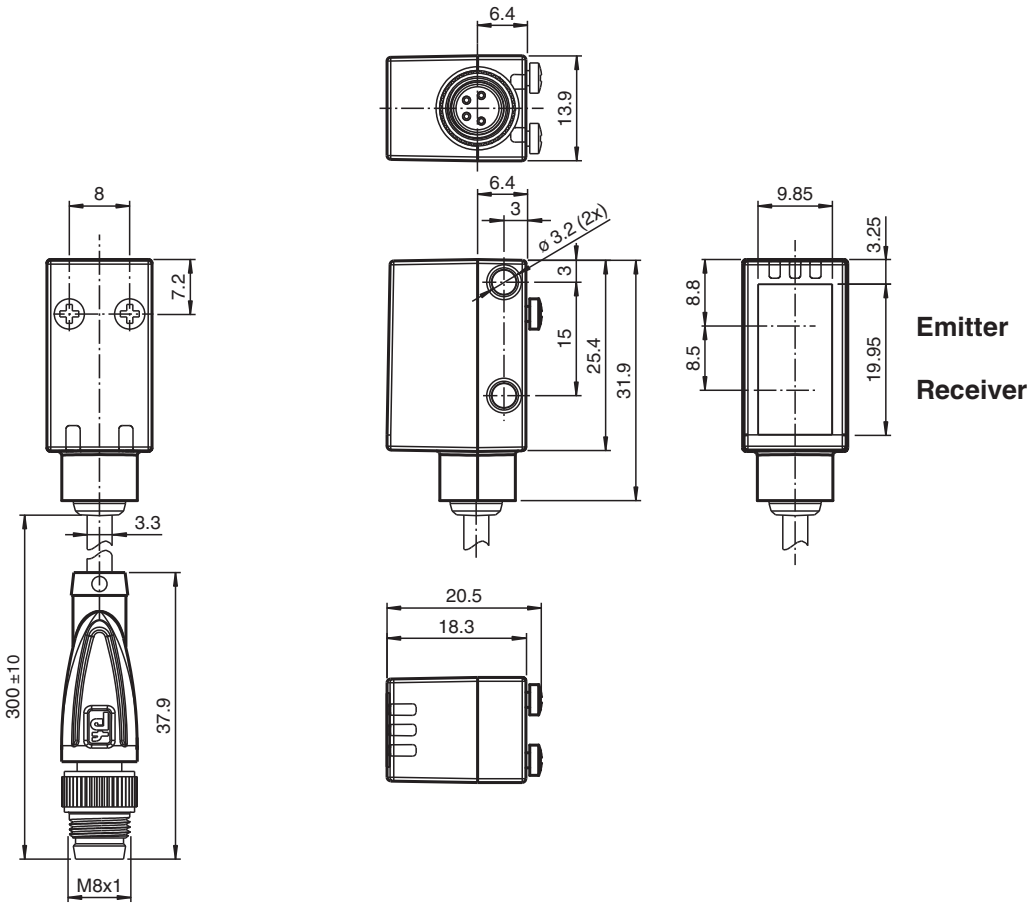
- Miniature design with versatile mounting options
- Best background suppressor in its class
- Precision object detection, almost irrespective of the color
- Extended temperature range
  -40 °C ... 60 °C
- High degree of protection IP69K
- IO-Link interface for service and process data

Triangulation sensor with background suppression

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 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



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Technical Data

General specifications		
Detection range		With the device at an inclination angle of approx. - 6°: on white (90 %): 10 ... 21 mm , on black (6 %): 10 ... 20 mm
Detection range max.		With the device at an inclination angle of approx. - 6°: 5 ... 22 mm
Background suppression		With the device at an inclination angle of approx. - 6°: starts from 22 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. 1.5 mm at 20 mm
Opening angle		approx. 3 °
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 18 ... 30 V (IO-Link)
Ripple		max. 10 %
No-load supply current	I_0	max. 25 mA (at 24 V)
Protection class		III
Interface		
Interface type		IO-Link
IO-Link revision		1.1
Device profile		Identification and Diagnosis - I&D Smart Sensor - SSP 0
Process data		Input 1 Bit - switching signal 1 Bit Output 2 Bit - Emitter deactivation 1 Bit - evaluation control function 1 Bit
Vendor ID		1 (0x0001)
Device ID		1115424 (0x110520)
Transfer rate		COM2 (38.4 kBit/s)
Min. cycle time		2.3 ms
SIO mode support		yes
Compatible master port type		Class 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	1000 Hz
Response time		0.5 ms

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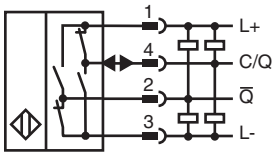
Technical Data

Conformity		
Communication interface		IEC 61131-9 / IO-Link V1.1.2
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		-40 ... 60 °C (-40 ... 140 °F) , cable, fixed installation -25 ... 60 °C (-13 ... 140 °F) , movable cable not appropriate for conveyor chains
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
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		Float glass
Mass		approx. 17 g
Dimensions		
Height		31.9 mm
Width		13.9 mm
Depth		18.3 mm
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)

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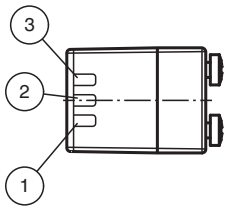
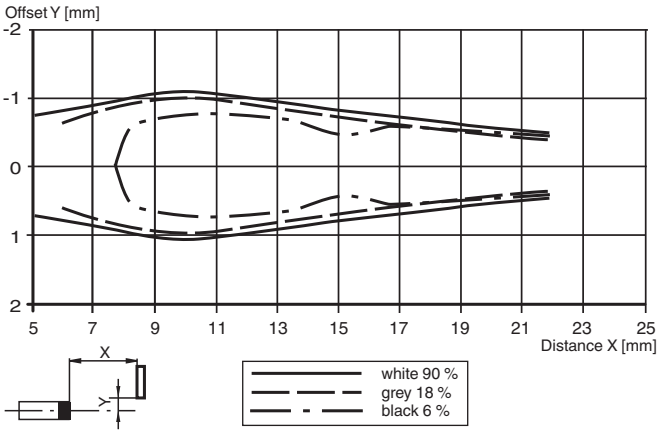
Assembly



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

Characteristic Curve

Characteristic response curve



Detection ranges