



Triangulation sensor (BGS) OBT40-R102-2P1-IO-V31-IR



- 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



IO-Link

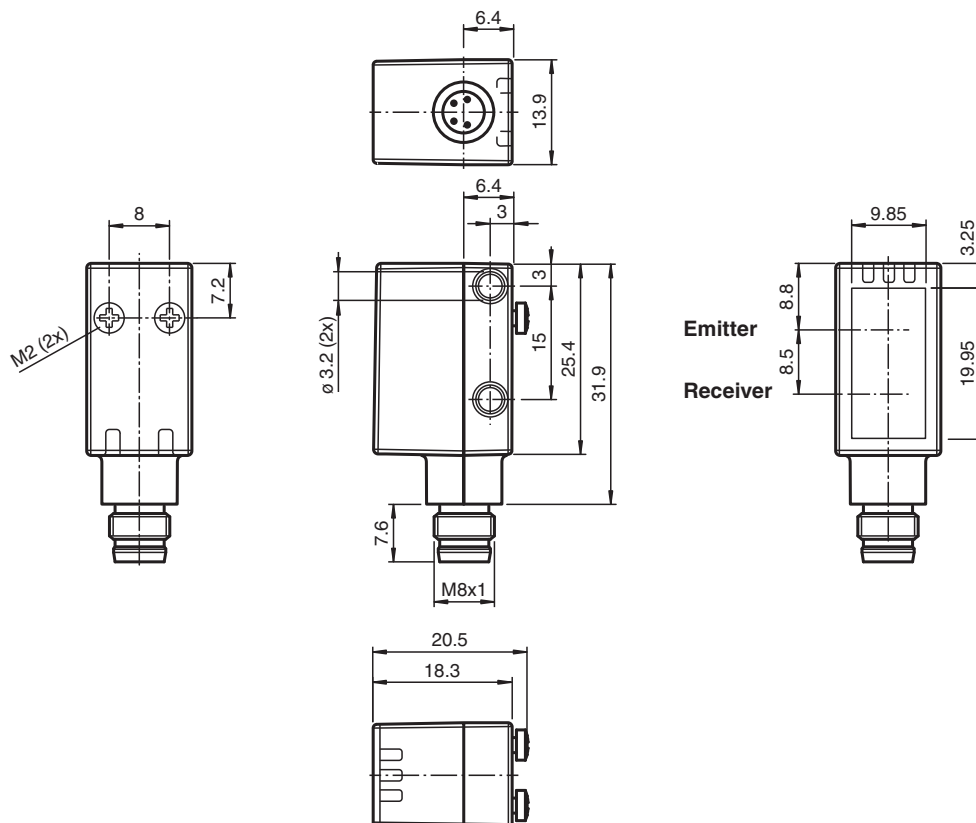
Function

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



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 infrared light 850 nm
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
Opening angle	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)
IO-Link revision	1.1
Device profile	Smart Sensor
Device ID	0x11051A (1115418)
Transfer rate	COM2 (38.4 kBit/s)
Min. cycle time	2.3 ms
Process data width	Process data input 1 Bit Process data output 2 Bit
SIO mode support	yes
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

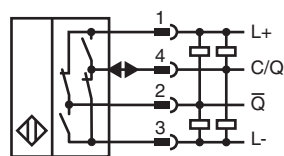
Approvals and certificates

Release date: 2022-08-03 Date of issue: 2022-08-03 Filename: 267075-100553_eng.pdf

Technical Data

EAC conformity	TR CU 020/2011
UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
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

Connection



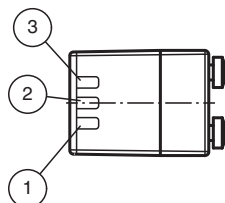
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

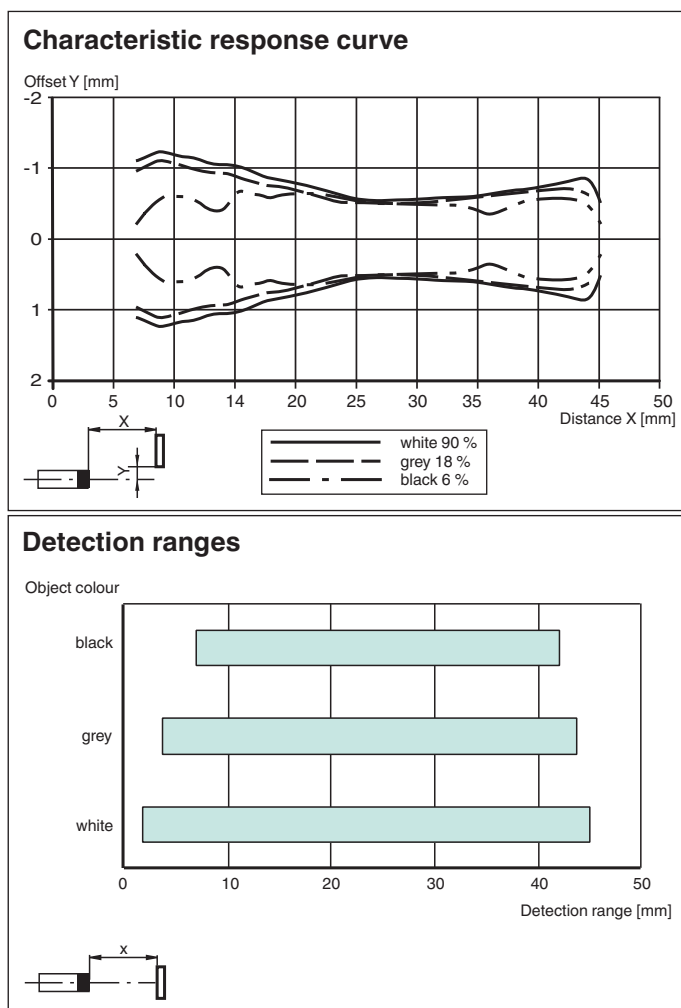
Assembly



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

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Characteristic Curve



Accessories

	V31-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey
	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
	ICE2-8IOL-G65L-V1D	EtherNet/IP IO-Link master with 8 inputs/outputs
	ICE3-8IOL-G65L-V1D	PROFINET IO IO-Link master with 8 inputs/outputs
	ICE1-8IOL-G30L-V1D	Ethernet IO-Link module with 8 inputs/outputs
	ICE1-8IOL-G60L-V1D	Ethernet IO-Link module with 8 inputs/outputs
	ICE2-8IOL-K45P-RJ45	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors
	ICE2-8IOL-K45S-RJ45	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal

Accessories

	ICE3-8IOL-K45P-RJ45	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	ICE3-8IOL-K45S-RJ45	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	IO-Link-Master02-USB	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection