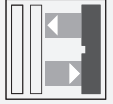




## Triangulation sensor (BGE) OBT300-R200-EP-IO-V3-1T



- Medium design with versatile mounting options
- Secure and gapless detection, even near the surface through background evaluation
- 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 evaluation



### Function

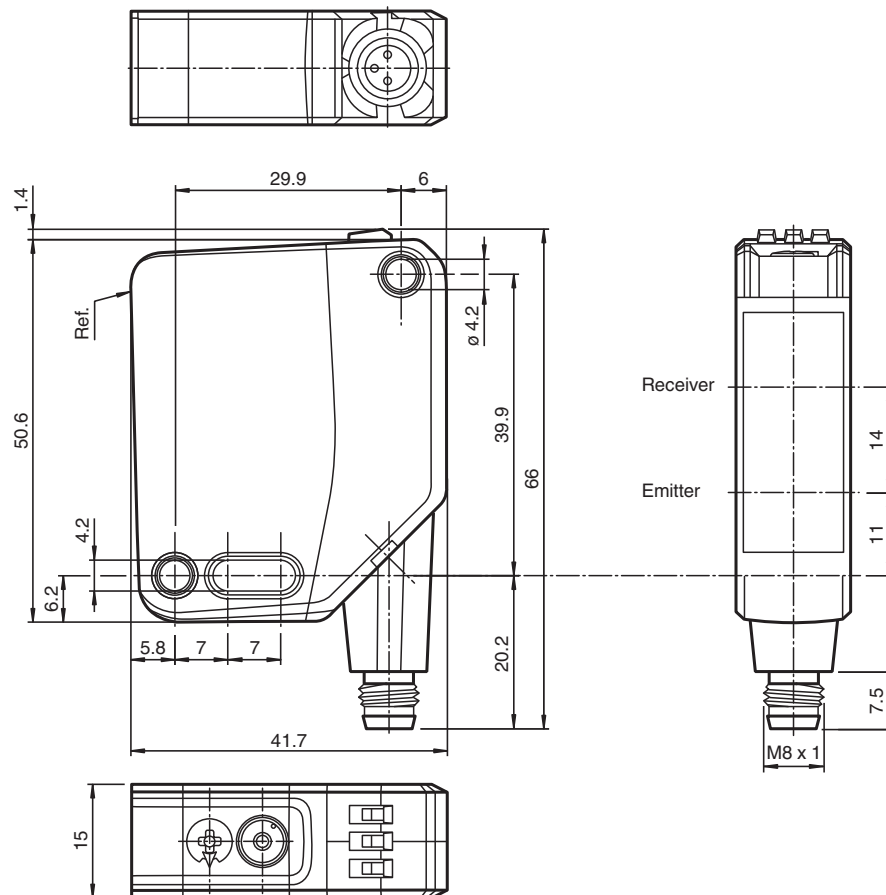
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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.

Multi Pixel Technology (MPT) ensures that the standard sensors are flexible and can be adapted to the application environment.

### Dimensions



## Technical Data

### General specifications

Detection range	30 ... 300 mm
Detection range min.	30 ... 80 mm
Detection range max.	30 ... 300 mm
Adjustment range	80 ... 300 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 %)	< 5 % at 300 mm
Diameter of the light spot	approx. 8 mm x 8 mm at a distance of 300 mm
Opening angle	approx. 1.5 °
Ambient light limit	EN 60947-5-2 : 70000 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 - background detected (object not detected) constantly off - object detected
Control elements	Light-on/dark-on changeover switch
Control elements	Sensing range adjuster

### Electrical specifications

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	< 26 mA at 24 V supply voltage
Protection class		III

### Interface

Interface type	IO-Link ( via C/Q = pin 4 )
IO-Link revision	1.1
Device profile	Identification and diagnosis Smart Sensor type 2.4
Device ID	0x111702 (1120002)
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		The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link
Signal output		1 push-pull (4 in 1) output, 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

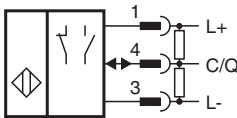
### Conformity

Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100202\_eng.pdf

Technical Data

Communication interface	IEC 61131-9
Product standard	EN 60947-5-2
<b>Approvals and certificates</b>	
UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1
CCC approval	CCC approval / marking not required for products rated ≤36 V
<b>Ambient conditions</b>	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)
<b>Mechanical specifications</b>	
Housing width	15 mm
Housing height	50.6 mm
Housing depth	41.7 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	Connector plug, M8 x 1, 3 pin, rotatable by 90°
<b>Material</b>	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 35 g

Connection



Connection Assignment

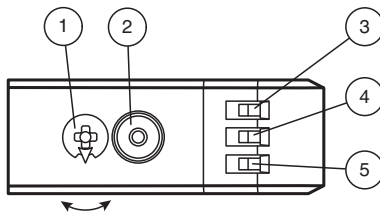


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

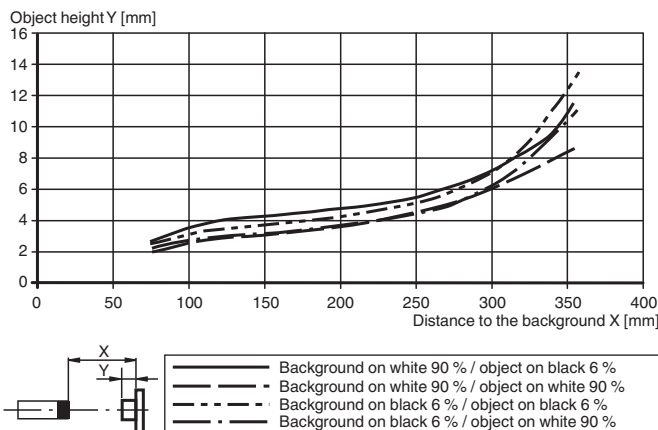
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## Assembly



1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN





## Minimum object height (typical)



## Accessories

	<b>V3-GM-2M-PUR</b>	Female cordset single-ended M8 straight A-coded, 3-pin, PUR cable grey
	<b>OMH-MLV12-HWG</b>	Mounting bracket for series MLV12 sensors
	<b>OMH-R200-01</b>	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-MLV12-HWK</b>	Mounting bracket for series MLV12 sensors
	<b>OMH-R20x-Quick-Mount</b>	Quick mounting accessory
	<b>V3-WM-2M-PUR</b>	Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey
	<b>ICE2-8IOL-G65L-V1D</b>	EtherNet/IP IO-Link master with 8 inputs/outputs
	<b>ICE3-8IOL-G65L-V1D</b>	PROFINET IO IO-Link master with 8 inputs/outputs
	<b>ICE2-8IOL-K45S-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	<b>ICE3-8IOL-K45P-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	<b>ICE3-8IOL-K45S-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal

Accessories

	<b>IO-Link-Master02-USB</b>	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	<b>ICE1-8IOL-G30L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE1-8IOL-G60L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE2-8IOL-K45P-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors

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## Configuration

To unlock the adjustment functions, rotate the sensing range/sensitivity adjuster by more than 180°.

### **Sensing Range/Sensitivity**

To increase the sensing range/sensitivity, rotate the sensing range/sensitivity adjuster clockwise.

To reduce the sensing range/sensitivity, rotate the sensing range/sensitivity adjuster counter-clockwise.

As soon as the end of the adjustment range is reached, the signal indicator flashes at 8 Hz.

### **Configuring Light On/Dark On**

Press the light-on/dark-on changeover switch for more than 1 second (but less than 4 seconds). "Light on/dark on" mode changes and the relevant operating indicator lights up.

If you press the light-on/dark-on changeover switch for longer than 4 seconds, the "light on/dark on" mode will switch back to the original setting. The current status is activated when the light-on/dark-on changeover switch is released.

### **Restoring Factory Settings**

Press the light-on/dark-on changeover switch for more than 10 seconds (but less than 30 seconds) until all LEDs go out. When the light-on/dark-on changeover switch is released, the signal indicator lights up. After 5 seconds, the sensor resumes operation with the factory settings.

The adjustment functions are locked after 5 minutes of inactivity. To unlock the adjustment functions, rotate the sensing range/sensitivity adjuster again by more than 180°.