



# Triangulation sensor (BGS)

## OBT600-R200-2EP-IO-V31-L



- Medium design with versatile mounting options
- DuraBeam Laser Sensors - durable and employable like an LED
- Extended temperature range  
-40 °C ... 60 °C
- High degree of protection IP69K
- IO-Link interface for service and process data

Laser diffuse mode sensor with adjustable background suppression



### Function

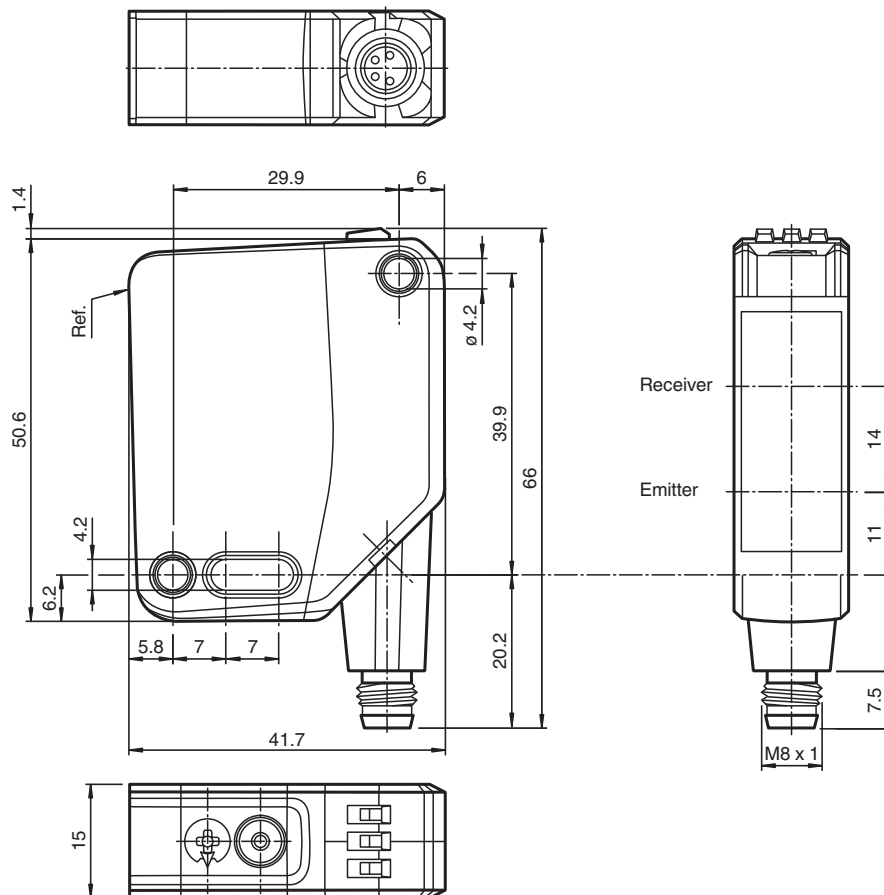
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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



Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**pf** PEPPERL+FUCHS

## Technical Data

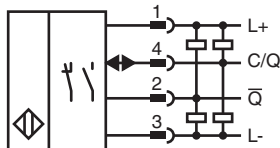
General specifications	
Detection range	40 ... 600 mm
Detection range min.	40 ... 90 mm
Detection range max.	40 ... 600 mm
Adjustment range	90 ... 600 mm
Reference target	standard white, 100 mm x 100 mm
Light source	laser diode
Light type	modulated visible red light
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1
Wave length	680 nm
Beam divergence	> 5 mrad, d63 < 2,8 mm in the range of 350 mm ... 800 mm
Pulse length	3 µs
Repetition rate	approx. 13 kHz
max. pulse energy	10.4 nJ
Black-white difference (6 %/90 %)	< 5 % at 300 mm
Diameter of the light spot	approx. 2.5 mm at a distance of 600 mm
Opening angle	approx. 0.3 °
Ambient light limit	EN 60947-5-2 : 70000 Lux
Functional safety related parameters	
MTTF <sub>d</sub>	560 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
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> < 15 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	0x111603 (1119747)
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 / light-on, PNP normally closed / dark-on, IO-Link /Q - Pin2: NPN normally closed / dark-on, PNP normally open / light-on
Signal output	2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage protected

Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

## Technical Data

Switching voltage		max. 30 V DC
Switching current		max. 100 mA , resistive load
Usage category		DC-12 and DC-13
Voltage drop	$U_d$	$\leq 1.5$ V DC
Switching frequency	$f$	1650 Hz
Response time		300 $\mu$ s
<b>Conformity</b>		
Communication interface		IEC 61131-9
Product standard		EN 60947-5-2
Laser safety		EN 60825-1:2014
<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 $\leq 36$ V
FDA approval		IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
<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		4-pin, M8 x 1 connector, 90° rotatable
Material		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 35 g

## Connection



## Connection Assignment



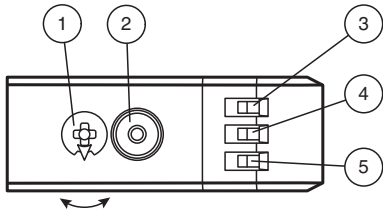
Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

## Connection Assignment

Wire colors in accordance with EN 60947-5-2

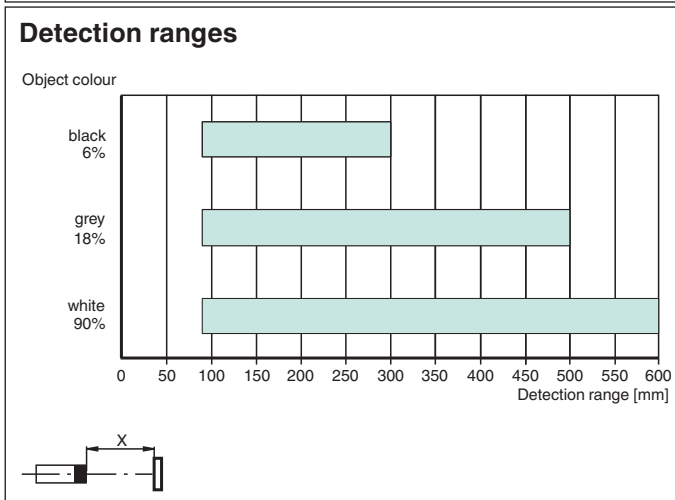
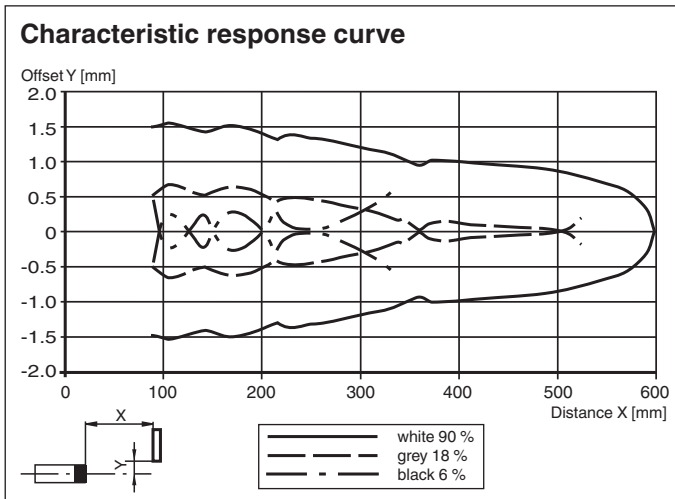
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

## Assembly



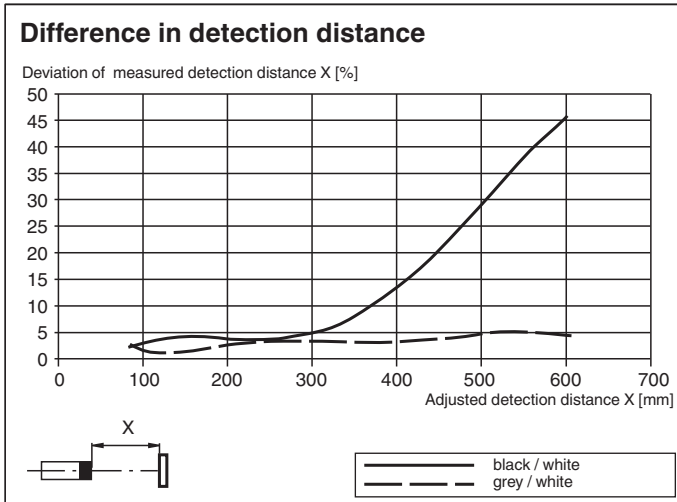
1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

## Characteristic Curve



Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

## Characteristic Curve







## Safety Information














Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

## Accessories

	<b>V31-GM-2M-PUR</b>	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey
	<b>V31-WM-2M-PUR</b>	Female cordset single-ended M8 angled A-coded, 4-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 $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm

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

**Accessories**

	<b>OMH-MLV12-HWK</b>	Mounting bracket for series MLV12 sensors
	<b>OMH-R20x-Quick-Mount</b>	Quick mounting accessory
	<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
	<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

Release date: 2023-01-24 Date of issue: 2023-01-24 Filename: 295670-100225\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

## 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°.