



Triangulation sensor (BGS) OBT50-R2-E2-0,2M-V31-P-L



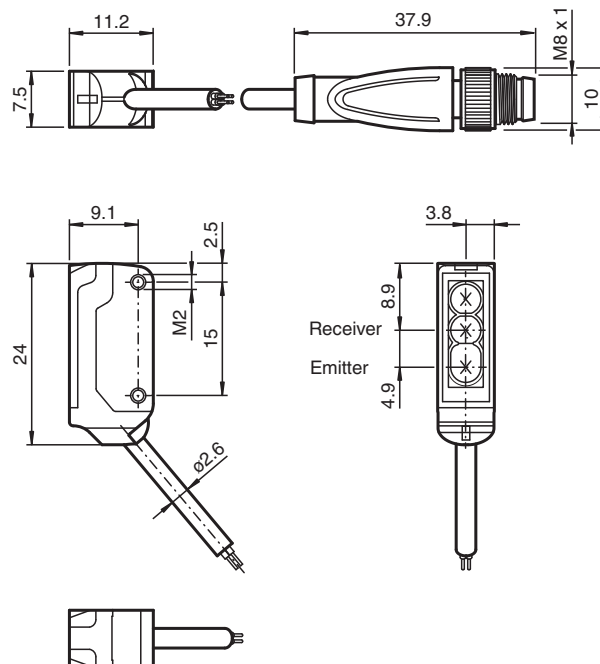
- Ultra-small housing design
- DuraBeam Laser Sensors - durable and employable like an LED
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Precision object detection, almost irrespective of the color

Laser triangulation sensor with background suppression, ultra-small design with M2 mounting, 50 mm sensing range, light on, PNP output, 200 mm fixed cable with plug M8, 4-pin



The R2 series nano sensor has been developed for a broad range of applications. It offers excellent durability and is exceptionally easy to install. The housing is compact and, with its 45° cable outlet, can be installed in the smallest spaces. New functional principles and functionality open up a range of new options. The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

Dimensions



Technical Data

General specifications

Detection range	7 ... 50 mm
Reference target	standard white, 100 mm x 100 mm
Light source	laser diode
Light type	modulated visible red light , 680 nm
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM

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

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Technical Data

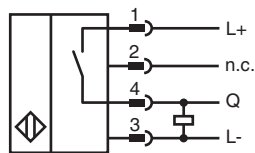
Laser class	1
Wave length	680 nm
Beam divergence	> 5 mrad
Pulse length	approx. 3 µs
Repetition rate	approx. 16.6 kHz
max. pulse energy	9.5 nJ
Black-white difference (6 %/90 %)	< 10 % at 50 mm
Diameter of the light spot	approx. 0.8 mm at a distance of 50 mm
Opening angle	approx. 2 °
Optical face	frontal
Ambient light limit	EN 60947-5-2 : 30000 Lux
Functional safety related parameters	
MTTF _d	800 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %
Indicators/operating means	
Operation indicator	LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	LED yellow ON: lights when object is detected
Electrical specifications	
Operating voltage	U _B 12 ... 24 V
No-load supply current	I ₀ < 10 mA
Protection class	III
Output	
Switching type	NO contact / light-on
Signal output	1 PNP output, short-circuit protected, reverse polarity protected, open collector
Switching voltage	max. 30 V DC
Switching current	max. 50 mA , resistive load
Voltage drop	U _d ≤ 1.5 V DC
Switching frequency	f approx. 2 kHz
Response time	250 µs
Conformity	
Product standard	EN 60947-5-2
Standard conformity	
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 EN 60825-1:2007 UL 60947-5-2: 2014
Approvals and certificates	
EAC conformity	TR CU 020/2011
UL approval	E87056 , cULus Recognized, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤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
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Mechanical specifications	
Housing width	7.5 mm
Housing height	24 mm
Housing depth	11.2 mm
Degree of protection	IP67
Connection	200 mm fixed cable with 4-pin, M8x1 connector
Material	
Housing	PC/ABS and TPU
Optical face	PC
Cable	PUR

Release date: 2022-06-03 Date of issue: 2022-06-03 Filename: 70141910_eng.pdf

Technical Data

Installation	Fixing screws , 2 x M2 allen head screws included with delivery	
Mass		approx. 10 g
Cable length		200 mm

Connection



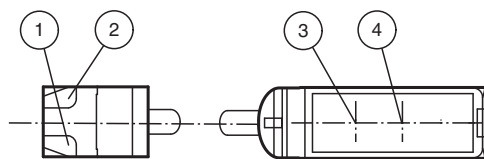
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

Assembly

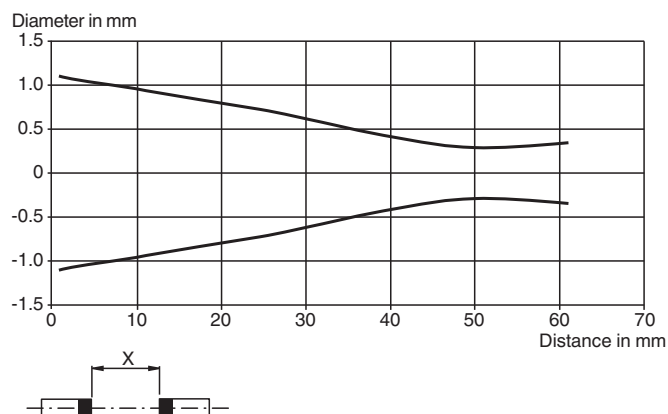


1	Operating display	green
2	Signal display	yellow
3	Emitter	
4	Receiver	

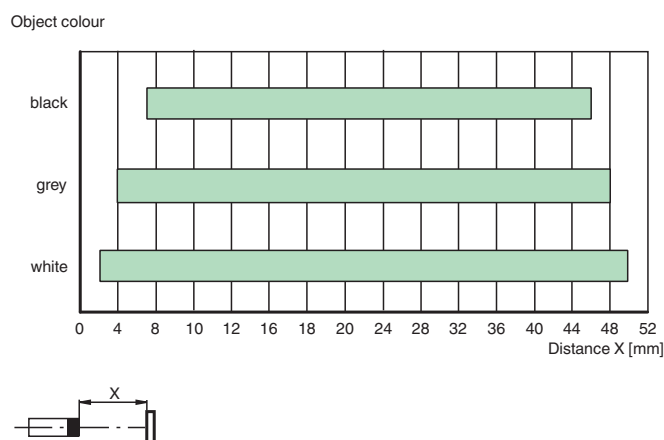
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Characteristic Curve

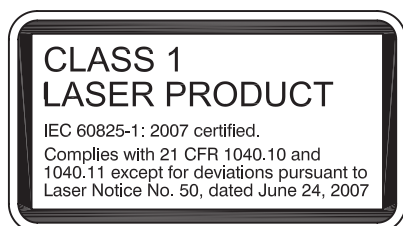
Light spot diameter



Detection ranges



Safety Information



Accessories

	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
	MH-R2-01	Mounting aid for R2 series, Mounting bracket
	MH-R2-02	Mounting aid for R2 series, Mounting bracket
	MH-R2-03	Mounting aid for R2 series, Mounting bracket
	MH-R2-04	Mounting aid for R2 series, Mounting bracket