

Triangulation sensor (BGS) OBT50-R2-E3-0,2M-V31-P



- Ultra-small housing design
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Highly visible light spot, even on dark materials
- Precision object detection, almost irrespective of the color
- Extremely long detection range paves the way for new applications

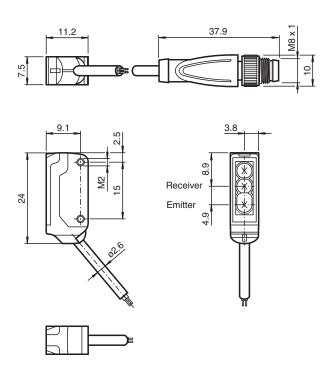
Triangulation sensor with background suppression for standard applications, miniature design, 50 mm detection range, red light, dark on, PNP output, 200 mm fixed cable with plug M8, 4-pin



Function

The 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

Dimensions



Technical Data

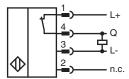
General specifications	
Detection range	3 50 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LED
Light type	modulated visible red light , 630 nm



Electrical specifications Operating voltage U _B 10 30 V DC , class 2 No-load supply current Protection class III Output Switching type NC contact / dark on Signal output Switching voltage Max. 30 V DC Switching voltage Max. 30 V DC Switching voltage Max. 30 V DC Switching current Motage drop W _d Sitching frequency Response time Conformity Product standard EN 60947-5-2 Approvals and certificates UL approval CC approval Ambient conditions Ambient temperature Storage tempe rature Appurousing width Fusion and so with the sitching width Fusion and w	Technical Data		
Angle deviation approx. 2 ° Diameter of the light spot approx. 3.5 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 MTFF₀ 800 a Mission Time (Tw) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means 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 LED yellow ON: lights when object is detected Volends upply current 1₀ < 10 mA Protection class III Output NC contact / dark on Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage max. 30 V DC Switching requency f approx. 800 Hz Response time 600 μs Contomity EN 60947-5-2 Product standard EN 60947-5-2 Approvals and certifica	Black-white difference (6 %/90 %)		< 15 % at 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 % Indicator/soperating means LED green, statically lit Power on , short-circuit: LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED green, statically lit Power on , short-circuit : LED	Angle deviation		approx. 2 °
Optical face frontal Ambient light limit EN 60947-5-2: 30000 Lux Functional safety related parameters Functional safety related parameters MITF _G 800 a Mission Time (T _M) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means Use (ED yellow ON: lights when object is detected to indicator LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz, ED) yellow ON: lights when object is detected to	Diameter of the light spot		approx. 3.5 mm at a distance of 50 mm
Ambient light limit EN 60947-5-2 : 30000 Lux Functional safety related parameters 800 a MTTF₀ 800 a Mission Time (T₀) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means Use Digreen, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz. Euchtoin indicator Electrical specifications LED yellow ON: lights when object is detected Electrical specifications Use To mA Operating voltage Use To mA Protection class III Output Switching type Switching type NC contact / dark on Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage max. 30 V DC Switching current max. 30 V DC Switching frequency f approx. 800 Hz Response time 60 µs Conformity EN 60947-5-2 Approvals and certificates EN 60947-5-2 Approvals and certificates EN 60947-5-2 Ambient conditions CCC approval EN 756, cULus Recognized, Class 2 Power Source <	Opening angle		approx. 2 °
Functional safety related parameters MTTFd 800 a Mission Time (T _M) 20 a Diagnostic Coverage (DC) 0 % Indicator/soperating means Operation indicator LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz. LED yellow ON: lights when object is detected Electrical specifications LED yellow ON: lights when object is detected Operating voltage U _B 10 30 V DC , class 2 No-load supply current I _B < 10 mA	Optical face		frontal
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Indicators/operating means Operation indicator LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz) LED yellow ON: lights when object is detected Electrical specifications UB 10 30 V DC , class 2 No-load supply current Ig < 10 mA	Mission Time (T _M)		20 a
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Function indicator LED yellow ON: lights when object is detected Electrical specifications UB 10 30 V DC , class 2 No-load supply current Ib < 10 mA Protection class III Output Switching type NC contact / dark 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 Ug ≤ 1.5 V DC Switching frequency f approx. 800 Hz Response time 600 μs Conformity Product standard EN 60947-5-2 Approvals and certificates UL approval E87056 , cULus Recognized, Class 2 Power Source CC approval E87056 , cULus Recognized, Class 2 Power Source CC approval cC approval / marking not required for products rated ≤36 V Ambient conditions Ambient temperature -25 60 °C (-13 140 °F) Storage temperature -30 70 °C (-22 158 °F) Mechanical specifications Housing width 7.5 mm	Indicators/operating means		
Electrical specifications Operating voltage U _B 10 30 V DC , class 2 No-load supply current I ₀ < 10 mA	Operation indicator		LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz)
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No-load supply current I₀ < 10 mA	Electrical specifications		
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Output Switching type NC contact / dark 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. 800 Hz Response time 600 μs Conformity Product standard EN 60947-5-2 Approvals and certificates UL approval E87056 , cULus Recognized, Class 2 Power Source CCC approval CCC approval / marking not required for products rated ≤36 V Ambient conditions Ambient temperature -25 60 °C (-13 140 °F) Storage temperature -30 70 °C (-22 158 °F) Mechanical specifications Housing width 7.5 mm Housing height 24 mm	No-load supply current	I ₀	< 10 mA
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Switching current $max. 50 mA$, resistive load Voltage drop $U_d \le 1.5 \text{ V DC}$ Switching frequency f approx. 800 Hz Response time $600 \mu s$ Conformity Product standard $EN 60947-5-2$ Approvals and certificates UL approval $E87056$, cULus Recognized, Class 2 Power Source CCC approval CCC approval $CCCC$ approval $CCCCC$ approval $CCCCCC$ approval $CCCCCCC$ approval $CCCCCCCCCC$ approval $CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC$	Signal output		1 PNP output, short-circuit protected, reverse polarity protected, open collector
Voltage drop U_d ≤ 1.5 V DC Switching frequency f approx. 800 Hz Response time $600 \mu s$ Conformity Product standard $EN 60947-5-2$ Approvals and certificates UL approval $E87056$, cULus Recognized, Class 2 Power Source CCC approval CCC approval $CCCC$ approval CCC approval $CCCC$ approval $CCCCC$ approval $CCCC$ approval $CCCCC$ approval $CCCCC$ approval $CCCCC$ approval $CCCCC$ approval $CCCCC$ approval $CCCCC$ approval $CCCCCC$ approval $CCCCCCC$ approval $CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC$	Switching voltage		max. 30 V DC
Switching frequencyfapprox. 800 HzResponse time600 μsConformityFroduct standardEN 60947-5-2Approvals and certificatesEN 60947-5-2UL approvalE87056 , cULus Recognized, Class 2 Power SourceCCC approvalCCC approval / marking not required for products rated ≤36 VAmbient conditions-25 60 °C (-13 140 °F)Storage temperature-30 70 °C (-22 158 °F)Mechanical specificationsHousing width7.5 mmHousing height24 mm	Switching current		max. 50 mA , resistive load
Response time 600 μs Conformity EN 60947-5-2 Product standard EN 60947-5-2 Approvals and certificates E87056 , cULus Recognized, Class 2 Power Source CCC approval CCC approval / marking not required for products rated ≤36 V Ambient conditions -25 60 °C (-13 140 °F) Storage temperature -30 70 °C (-22 158 °F) Mechanical specifications Housing width 7.5 mm Housing height 24 mm	Voltage drop	U_d	≤ 1.5 V DC
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Mechanical specificationsHousing width7.5 mmHousing height24 mm	Ambient temperature		-25 60 °C (-13 140 °F)
Housing width 7.5 mm Housing height 24 mm	Storage temperature		-30 70 °C (-22 158 °F)
Housing height 24 mm	Mechanical specifications		
	Housing width		7.5 mm
	Housing height		24 mm
Housing depth 11.2 mm	Housing depth		11.2 mm
Degree of protection IP67	Degree of protection		IP67
Connection 200 mm fixed cable with 4-pin, M8x1 connector	Connection		200 mm fixed cable with 4-pin, M8x1 connector
Material	Material		
Housing PC/ABS and TPU	Housing		PC/ABS and TPU
Optical face PC	Optical face		PC
Cable PUR	Cable		PUR
Installation Fixing screws , 2 x M2 allen head screws included with delivery	Installation		Fixing screws , 2 x M2 allen head screws included with delivery
Mass approx. 20 g	Mass		approx. 20 g
Cable length 200 mm	Cable length		200 mm

5PEPPERL+FUCHS

Connection



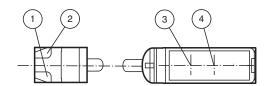
Connection Assignment



Wire colors in accordance with EN 60947-5-2

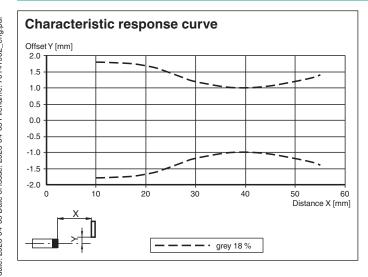
1 BN (brown)
2 WH (white)
3 BU (blue)
4 BK (black)

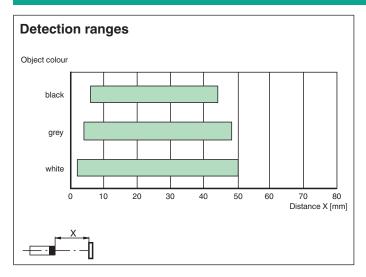
Assembly



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

Characteristic Curve





Accessories

	MH-R2-01	Mounting aid for R2 series, Mounting bracket
1319	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
61	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
61	V31-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey