



Laser triangulation sensor with background suppression

OBT50-R3-E2-0,2M-V3-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
- Improvement in machine availability with abrasion-resistant, antistatic glass front
- Precision object detection, almost irrespective of the color

Laser triangulation sensor with background suppression, ultra-small design with M3 mounting, 50 mm sensing range, PNP output, 200 mm fixed cable with plug M8, 3-pin



The R3 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
Laser class	1
Wave length	680 nm
Beam divergence	> 5 mrad
Pulse length	approx. 3 µs

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

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Technical Data

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: 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	
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	26 mm	
Housing depth	13.8 mm	
Degree of protection	IP67	
Connection	200 mm fixed cable with 3-pin, M8 x 1 connector	
Material		
Housing	PC/ABS and TPU	
Optical face	glass	
Cable	PUR	
Mass	approx. 10 g	
Cable length	200 mm	

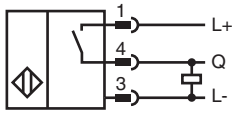
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Connection



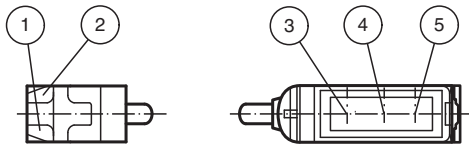
Connection Assignment



Wire colors in accordance with EN 60947-5-2

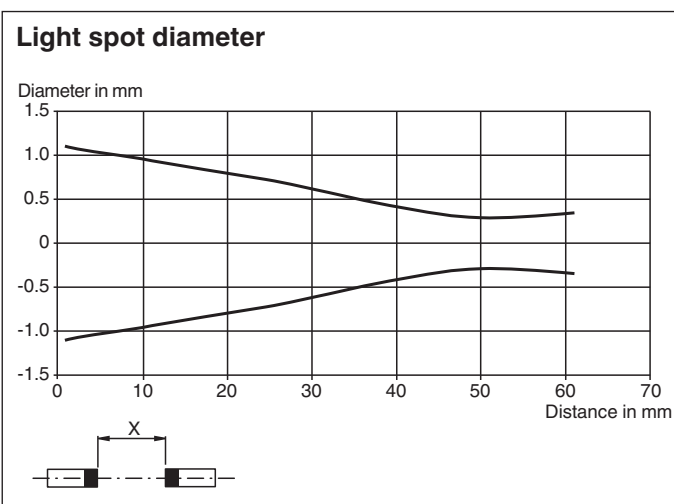
1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Assembly



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

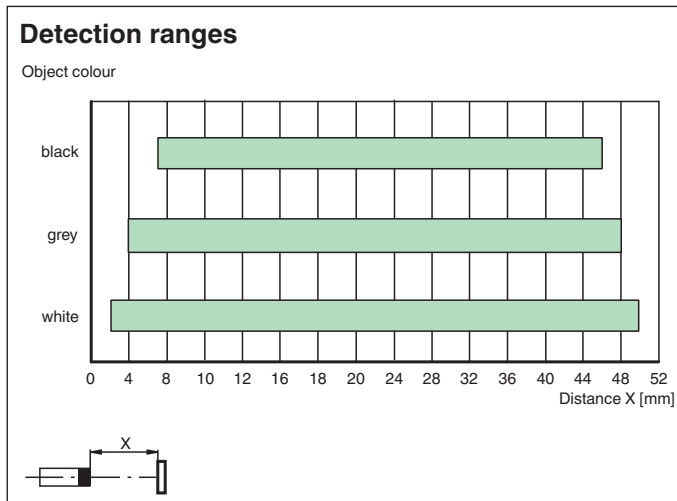
Characteristic Curve



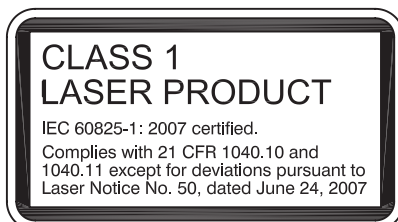
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Characteristic Curve



Safety Information



Accessories

	V3-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey
	MH-R3-01	Mounting aid for sensors from the R3 series, mounting bracket
	MH-R3-02	Mounting aid for sensors from the R3 series, mounting bracket
	MH-R3-03	Mounting aid for sensors from the R3 series, mounting bracket

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Accessories

	MH-R3-04	Mounting aid for sensors from the R3 series, mounting bracket
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