

Laser triangulation sensor with background suppression



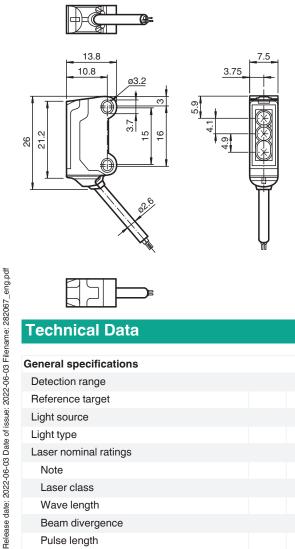
OBT80-R3-E2-0,2M-V31-L

- High-performance miniature photoelectric sensors
- 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, 80 mm sensing range, PNP output, 200 mm fixed cable with plug M8, 4-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	
•	00 00
Detection range	20 80 mm
Reference target	standard black, 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

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

Technical Data

max. pulse energy

Black-white difference (6 %/90 %)

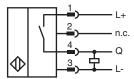
Diack-write difference (0 /0/30 /0)		13 /6 at 60 mm
Diameter of the light spot		approx. 2 mm at a distance of 80 mm
Opening angle		approx. 2 °
Optical face		frontal
Ambient light limit		EN 60947-5-2 : 30000 Lux
Functional safety related parameters		
MTTF _d		800 a
Mission Time (T _M)		20 a
Diagnostic 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
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
Laser safety		EN 60825-1:2007
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 4-pin, M8x1 connector
Material		
Housing		PC/ABS and TPU
Optical face		glass
Cable		PUR
Mass		approx. 10 g
Cable length		200 mm

approx. 16.6 kHz

< 15 % at 80 mm

9.5 nJ

Connection



Connection Assignment

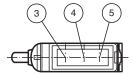


Wire colors in accordance with EN 60947-5-2

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

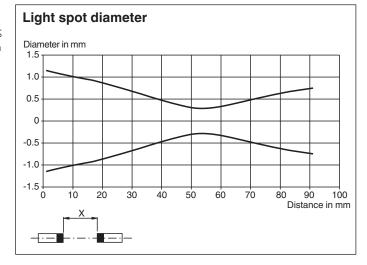
Assembly



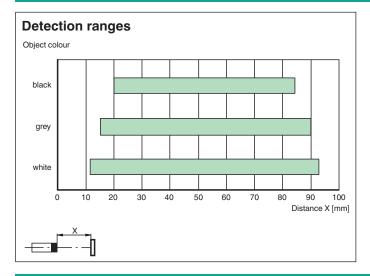


1	Operating display	green
2	Signal display	yellow
3	Emitter	
4	Receiver 1	
5	Receiver 2	

Characteristic Curve



Characteristic Curve



Safety Information



CLASS 1 LASER PRODUCT IEC 60825-1: 2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

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Accessories

	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
11000	MH-R3-01	Mounting aid for sensors from the R3 series, mounting bracket
110000	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

Accessories



MH-R3-04

Mounting aid for sensors from the R3 series, mounting bracket