Model Number

OBT15-R2-E2-0,2M-V31-L

Laser triangulation sensor with background suppression
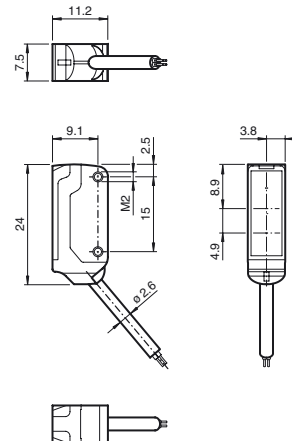
with fixed cable and 4-pin, M8 connector

Features

- 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
- Extremely small light spot for very high switching point accuracy
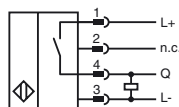- Precision object detection, almost irrespective of the color

Product information

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. The abrasion-resistant lens allows long operating times close to the moving object.
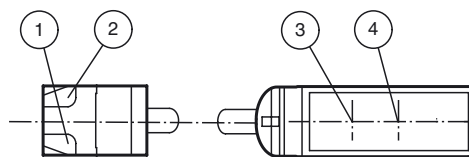
Dimensions

Electrical connection

1	L+
2	n.c.
4	Q
3	L-

Pinout

Wire colors in accordance with EN 60947-5-2

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

Indicators/operating means

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

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

Pepperl+Fuchs Group	USA: +1 330 486 0001	Germany: +49 621 776 1111	Singapore: +65 6779 9091	
www.pepperl-fuchs.com	fa-info@us.pepperl-fuchs.com	fa-info@de.pepperl-fuchs.com	fa-info@sg.pepperl-fuchs.com	**PEPPERL+FUCHS** 1

Technical data

General specifications

Detection range	7 ... 15 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
Repetition rate	approx. 16.6 kHz
max. pulse energy	9.5 nJ
Black/White difference (6 %/90 %)	< 3 % at 15 mm
Diameter of the light spot	approx. 1.5 mm at a distance of 15 mm
Angle of divergence	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: Power on flashing: Short circuit/overload indication
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
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

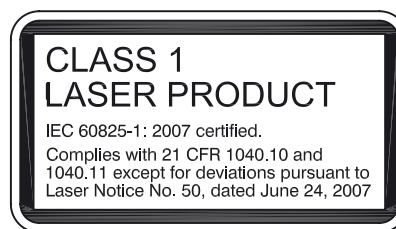|	
Product standard	EN 60947-5-2
Laser safety	EN 60825-1:2007

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

Approvals and certificates

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

Laserlabel

CLASS 1
LASER
PRODUCT

CLASS 1
LASER PRODUCT
IEC 60825-1: 2007 certified.
Complies with 21 CFR
1040.10 and 1040.11 except
for deviations pursuant to
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dated June 24, 2007

CLASS 1
LASER PRODUCT
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Accessories

V31-WM-2M-PUR
Female cordset single-ended, M8, 4-pin, PUR cable

MH-R2-01
Mounting aid for R2 series, Mounting bracket

MH-R2-02
Mounting aid for R2 series, Mounting bracket

MH-R2-03
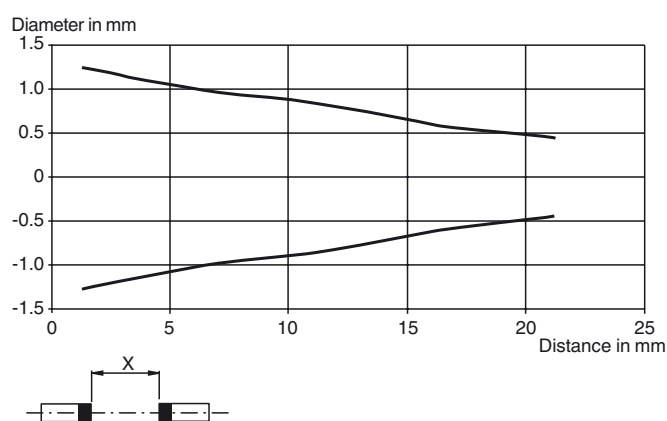Mounting aid for R2 series, Mounting bracket

MH-R2-04
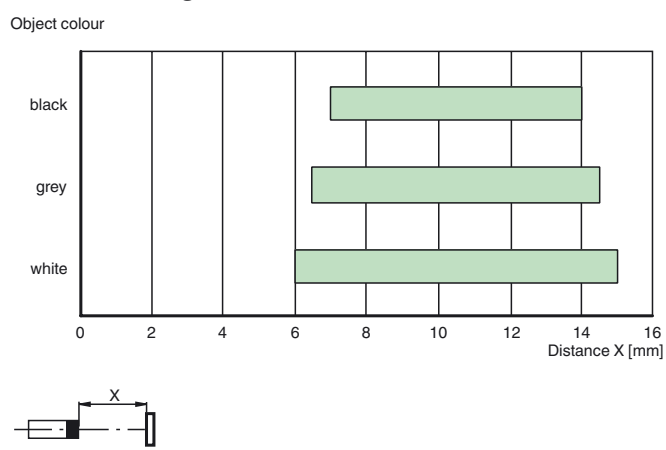Mounting aid for R2 series, Mounting bracket

Other suitable accessories can be found at www.pepperl-fuchs.com

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Curves/Diagrams

Light spot diameter

Diameter in mm

Distance in mm

X

Detection ranges

Object colour

black	
grey	
white	

Distance X [mm]

X

Laser notice laser class 1

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- The warning accompanies the device and should be attached in immediate proximity to the device.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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