Dimensions

Model Number

OBT50-R2-E0

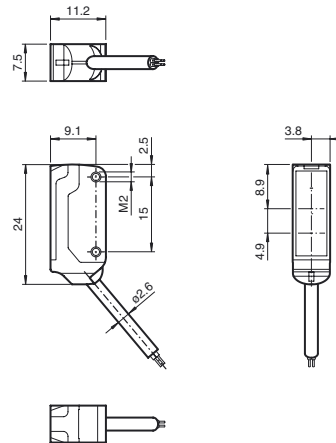Background suppression sensor
with 2 m fixed cable

Features

- Ultra-small housing design
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Improvement in machine availability with abrasion-resistant, antistatic glass front
- 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
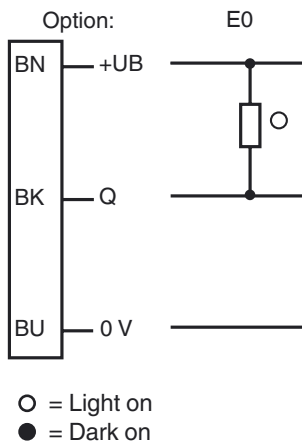
Product information

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

Electrical connection

Option: E0

○ = Light on
● = Dark on

Indicators/operating means
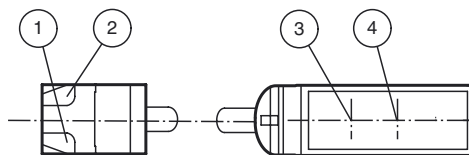
1	Operating display	green
2	Signal display	yellow
3	Emitter	
4	Receiver	

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

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1

Technical data

General specifications

Detection range	3 ... 50 mm
Background suppression	starts from 70 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LED
Light type	modulated visible red light , 630 nm
Black/White difference (6 %/90 %)	< 15 % at 50 mm
Angle deviation	approx. 2 °
Diameter of the light spot	approx. 3.5 mm at a distance of 50 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, 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	10 ... 30 V DC , class 2
No-load supply current	I_0	< 10 mA

Output

Switching type		NO contact
Signal output		1 NPN 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

Ambient conditions

Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)

Mechanical specifications

Protection degree	IP67
Connection	2 m fixed cable
Material	
Housing	PC/ABS and PBT
Optical face	glass
Cable	PUR
Installation	Fixing screws , 2 x M2 allen head screws included with delivery
Mass	approx. 20 g
Cable length	2 m

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007

Approvals and certificates

UL approval	cULus Recognized, Class 2 Power Source
CCC approval	CCC approval / marking not required for products rated ≤36 V

Accessories
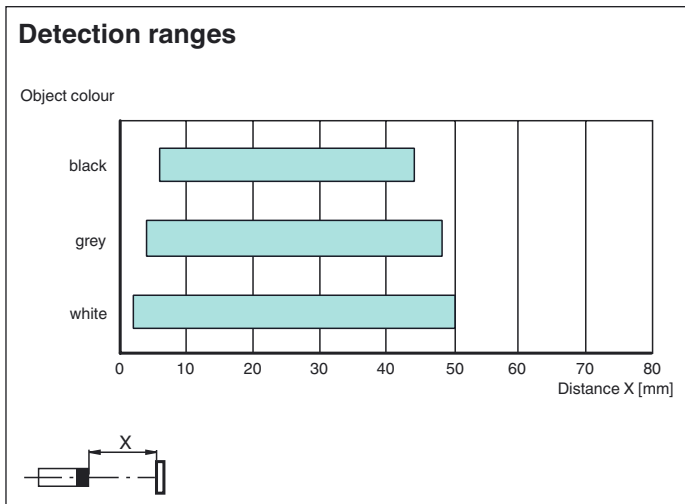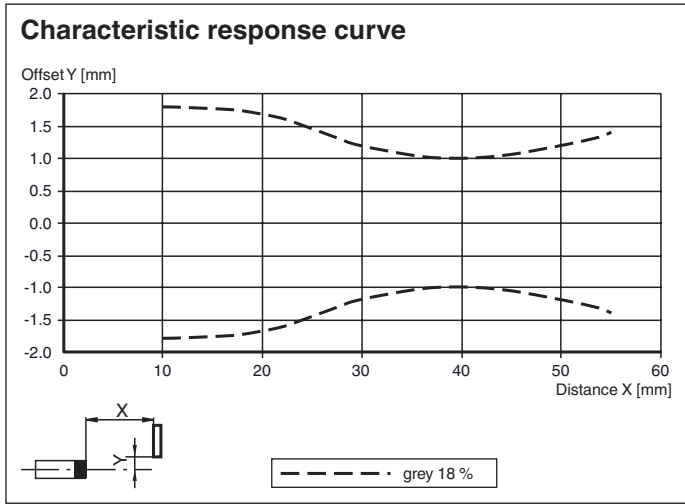
MH-R2-01
Mounting bracket

MH-R2-02
Mounting bracket

MH-R2-03
Mounting bracket

MH-R2-04
Mounting bracket

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

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

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Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [mm]

- - - - · grey 18 %

Detection ranges

Object colour

Distance X [mm]

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

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