CE   c𝕌𝕃US

Model Number

OBR1000-R3-E2-0,2M-V31

Retroreflective sensor with polarization filter

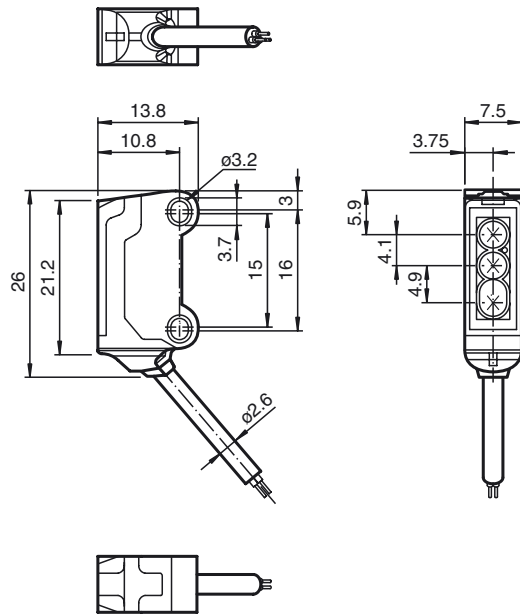with fixed cable and 4-pin, M8 connector

Features

- 45° cable outlet for maximum mounting freedom under extremely tight space constraints

- Improvement in machine availability with abrasion-resistant, antistatic glass front

- Integrated polarization filter allows the detection of reflective objects

- Extremely long detection range paves the way for new applications
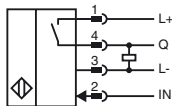
Product information

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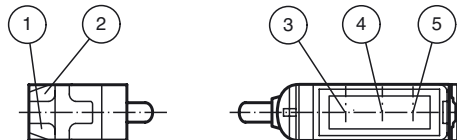
Dimensions

Electrical connection

1	L+
4	Q
3	L-
2	IN

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 1	
5	Receiver 2	

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

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 4411   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
SENSING YOUR NEEDS

1

Technical data

General specifications

Effective detection range	0 ... 1 m
Reflector distance	40 ... 1000 mm
Threshold detection range	1.4 m
Reference target	H40 reflector
Light source	LED
Light type	modulated visible red light , 630 nm
Polarization filter	yes
Angle deviation	approx. 2 °
Diameter of the light spot	approx. 60 mm at a distance of 800 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: lights up when receiving the light beam ; flashes when falling short of the stability control; OFF when light beam is interrupted

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC , class 2
No-load supply current	I_0	< 10 mA

Input

Test input	Test of switching function at 0 V

Output

Switching type		NO 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

Ambient conditions

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

Mechanical specifications

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. 20 g
Cable length	200 mm

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-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

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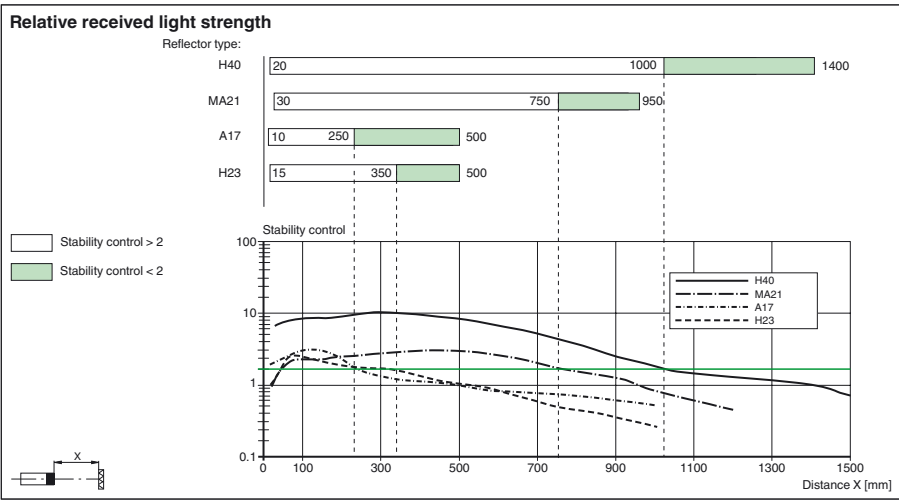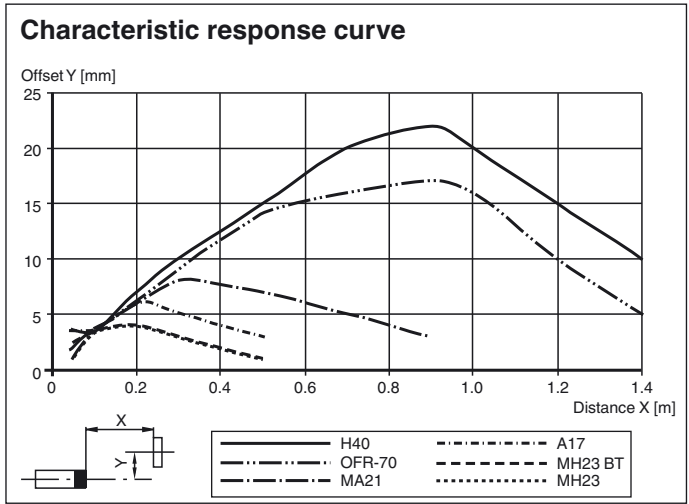Mounting aid for sensors from the R3 series, mounting bracket

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

V31-GM-2M-PUR
Female cordset, M8, 4-pin, PUR cable

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

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 4411
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS
SENSING YOUR NEEDS

Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [m]

—— H40	—·— A17
—··— OFR-70	– – – MH23 BT
—·— MA21	······ MH23

Relative received light strength

Reflector type:

H40	20 1000	1400
MA21	30 ...... 750 ... 950	
A17	10 ... 250 ... 500	
H23	15 ... 350 ... 500	

☐ Stability control > 2
▨ Stability control < 2

Stability control

—— H40	—·— A17
—·— MA21	– – – H23

Distance X [mm]

PEPPERL+FUCHS
SENSING YOUR NEEDS