Dimensions

Operating principle	color
Retroreflective sensor with polarisation filter	green
Retroreflective sensor	blue
Diffusive mode sensor	white
Thru-beam sensor	grey
Diffusive mode sensor with background suppression	red

LED yellow   LED green

24
8
34.35

Color coding for operating principle (see table)

M12 x 1
18

3
2
4
1

7.15
5
ø 4.5
5

6
36
50
62

2
10.25
6

5
25
ø 14
35

Model Number
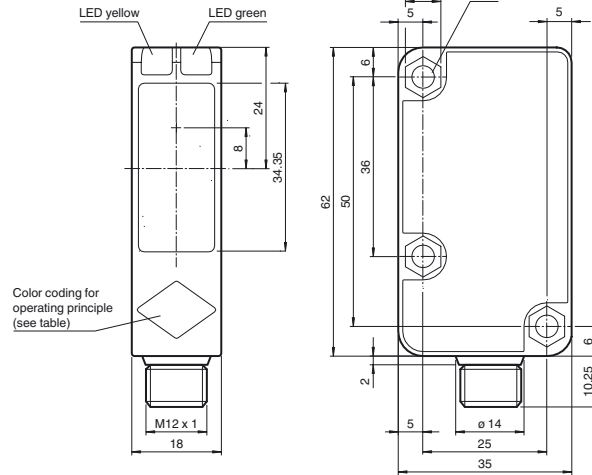
LD31/LV31/25/73c/76a/136
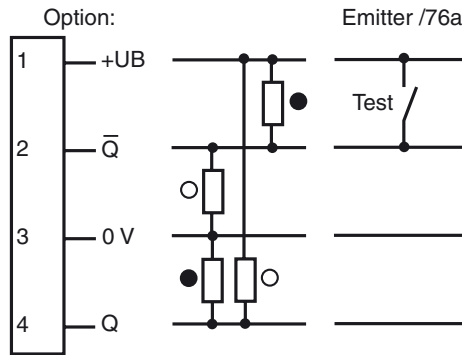
Thru-beam sensor
with 4-pin, M12 x 1 connector

Features

- Highly visible LED
- Powerful push-pull output
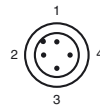- Compact and stable housing
- Protection class II

Electrical connection

Option: Emitter /76a

1 — +UB

2 — $\overline{Q}$ Test

3 — 0 V

4 — Q

○ = Light on
● = Dark on

Pinout

Wire colors in accordance with EN 60947-5-2

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

1
2 ◯ 4
3

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

System components		
Emitter		LD31/73c/76a
Receiver		LV31/25/73c/136
General specifications		
Effective detection range		0 ... 30 m
Threshold detection range		43 m
Light source		LED
Light type		modulated visible red light , 630 nm
Alignment aid		LED yellow: 1. LED illuminates: Sufficient light signal received, emitter and receiver alignment is correct 2. LED flashes: Reaching switching point 3. LED off: Light beam is interrupted or the alignment is out
Diameter of the light spot		approx. 800 mm at a distance of 30 m
Angle of divergence		Emitter: 1.5 ° , Receiver: 1.5 °
Ambient light limit		50000 Lux ; according EN 60947-5-2
Functional safety related parameters		
$MTTF_d$		750 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		90 %
Indicators/operating means		
Operation indicator		LED green: power on
Function indicator		LED yellow: 1. LED lit constantly: signal > 2 x switching point (function reserve) 2. LED flashes: signal between 1 x switching point and 2 x switching point 3. LED off: signal < switching point
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I_0	Emitter: ≤ 18 mA Receiver: ≤ 18 mA
Input		
Test input		emitter deactivation at $+U_B$
Output		
Switching type		light on
Signal output		2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected
Switching voltage		max. 30 V DC
Switching current		max. 100 mA
Voltage drop	U_d	≤ 1.5 V
Switching frequency	f	≤ 250 Hz
Response time		≤ 2 ms
Conformity		
Product standard		EN 60947-5-2
Ambient conditions		
Ambient temperature		-30 ... 55 °C (-22 ... 131 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Housing width		18 mm
Housing height		62 mm
Housing depth		35 mm
Degree of protection		IP67
Connection		4-pin, M12 x 1 connector
Material		
Housing		Polycarbonate
Optical face		PMMA
Mass		Emitter: 24 g Receiver: 24 g
Approvals and certificates		
EAC conformity		TR CU 020/2011
Protection class		II , rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit basis insulation of input circuit according to EN 50178, rated insulation voltage 240 V AC
UL approval		cULus Listed, Class 2 Power Source, Type 1 enclosure
CCC approval		CCC approval / marking not required for products rated ≤36 V

Accessories

OMH-RL31-01
Mounting bracket

OMH-RL31-02
Mounting bracket narrow

OMH-RL31-03
Mounting bracket narrow

OMH-RL31-04
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-RL31-05
Mounting bracket for mounting on flat surfaces with 2 M4 screws

OMH-RL31-06
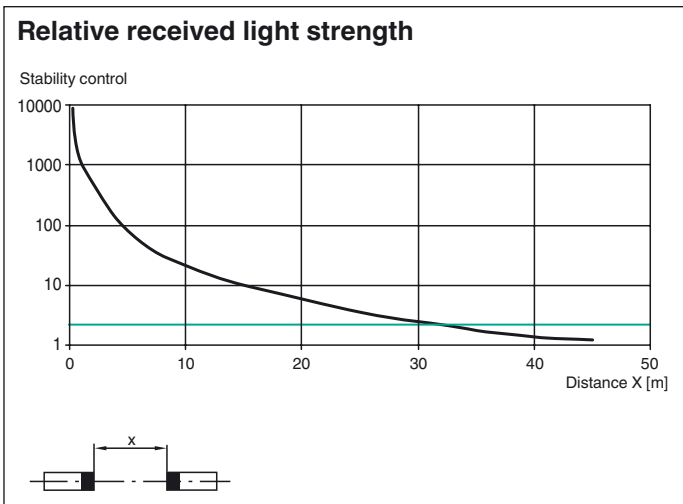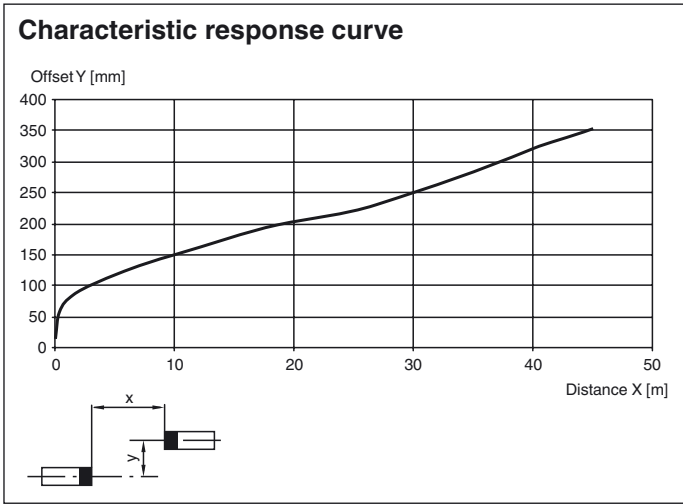Stainless steel mounting bracket with adjustable half clamp on the side

V1-G-2M-PUR
Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PUR
Female cordset, M12, 4-pin, PUR cable

Additional accessories can be found in the Internet.

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

PEPPERL+FUCHS

Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [m]

Relative received light strength

Stability control

Distance X [m]

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