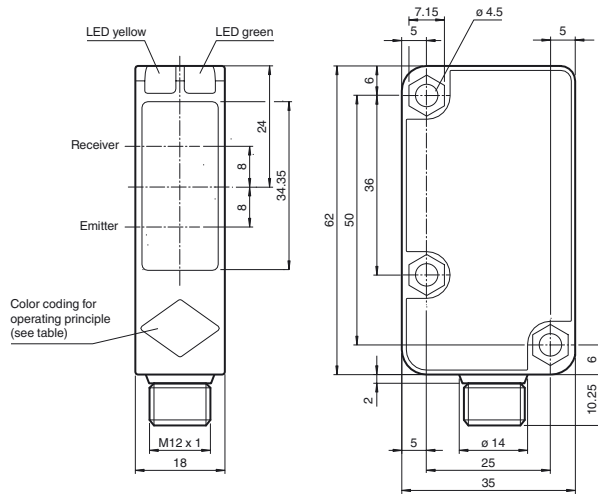## Model Number

RL31-54/73c/136

Retroreflective sensor
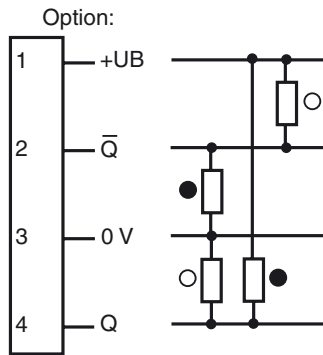with 4-pin, M12 x 1 connector

Features

- Compact and stable housing
- Glare protected with polarization filter
- Highly visible LED
- Powerful push-pull output
- Protection class II

Dimensions

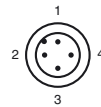| Operating principle	color
Retroreflective sensor with polarisation filter	green
Retroreflective sensor	blue
Diffusive mode sensor	white
Thru-beam sensor	grey
Diffusive mode sensor with background suppression	red

LED yellow   LED green

Receiver

Emitter

Color coding for operating principle (see table)

M12 x 1
18

7.15
5
ø 4.5
5

6
24
8
34.35
8
36
50
62
6
10.25
2

5
25
35
ø 14

Electrical connection

Option:

1 — +UB

2 — Q̄

3 — 0 V

4 — Q

○ = Light on
● = Dark on

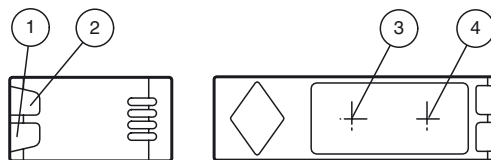## Pinout

Wire colors in accordance with EN 60947-5-2

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

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

Effective detection range	0 ... 9000 mm
Reflector distance	20 ... 9000 mm
Threshold detection range	12 m
Reference target	reflector C110-2
Light source	LED
Light type	modulated visible red light , 630 nm
Polarization filter	yes
Diameter of the light spot	approx. 200 mm at a distance of 6 m
Angle of divergence	3 °
Ambient light limit	50000 Lux ; according EN 60947-5-2

Functional safety related parameters

$MTTF_d$	920 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

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	≤ 20 mA

Output

Switching type		dark 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	≤ 500 Hz
Response time		≤ 1 ms

Ambient conditions

Ambient temperature	-30 ... 55 °C (-22 ... 131 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Degree of protection	IP67
Connection	4-pin, M12 x 1 connector
Material	
Housing	plastic
Optical face	PMMA
Mass	24 g

Compliance with standards and directives

Directive conformity	EMC Directive 2004/108/EC
Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

EAC conformity	TR CU 020/2011
Protection class	II , rated insulation 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

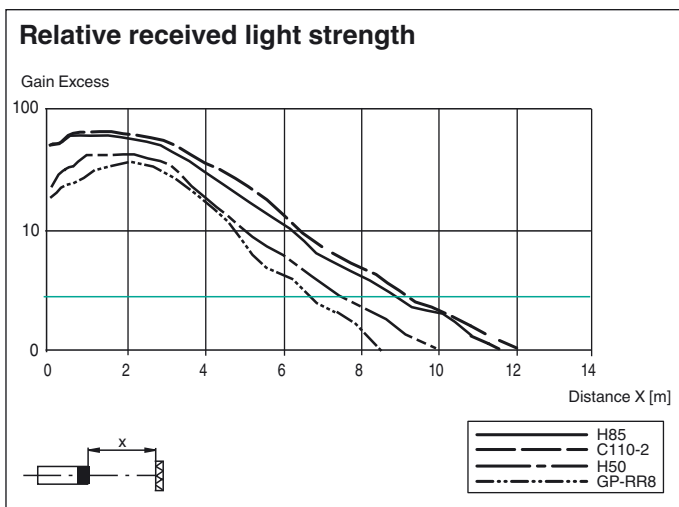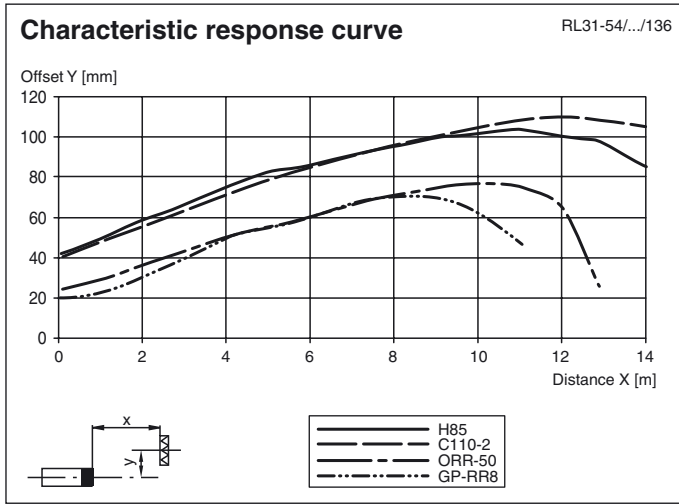**OMH-RL31-05**
Mounting bracket with M10 threaded rod

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

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

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

2 | Pepperl+Fuchs Group <br> www.pepperl-fuchs.com | USA: +1 330 486 0001 <br> fa-info@us.pepperl-fuchs.com | Germany: +49 621 776 4411 <br> fa-info@de.pepperl-fuchs.com | Singapore: +65 6779 9091 <br> fa-info@sg.pepperl-fuchs.com |

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Curves/Diagrams

Characteristic response curve

RL31-54/.../136

Offset Y [mm]

Distance X [m]

———	H85
— — —	C110-2
—·—·—	ORR-50
—··—··—	GP-RR8

Relative received light strength

Gain Excess

Distance X [m]

———	H85
— — —	C110-2
—·—·—	H50
—··—··—	GP-RR8

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