Model Number

ML100-6-IR/95/103

Retroreflective sensor
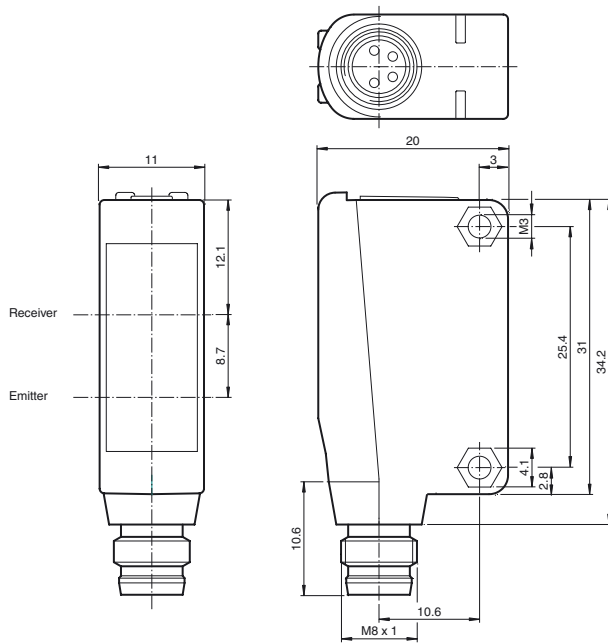with 4-pin, M8 x 1 connector

Features

- User-friendliest photoelectric sensor series for standard applications
- Miniature design
- Not sensitive to ambient light
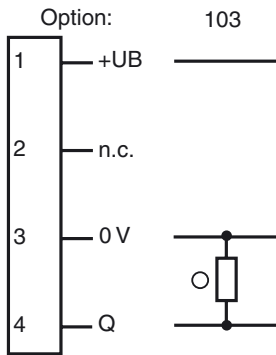- Metal-reinforced fastening holes
- Version with infrared light

Product information

The ML100 series comprises a complete family of photoelectric sensors which are ideally suited for applications where long ranges and a high level of reliability are required. Due to their miniature design, the ML100 series sensors are also suitable for use in extremely confined areas. During operation, the ML 100 miniature sensors are characterized by a high performance Infrared-LED, extremely low power consumption and insensitivity to ambient lighting. The status LEDs, which are highly visible from all sides, provide clear information regarding reliable operation. Secure mounting is ensured by the threaded metal bushing. This means that the threading is more durable and enables maximum tightening torque.
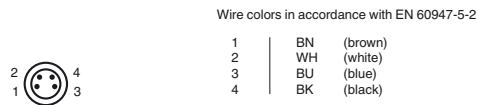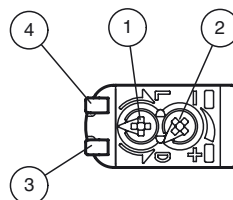
Dimensions

Electrical connection

Option: 103

○ = 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	Light-Dark-switching	
2	Sensitivity adjuster	
3	Signal display	yellow
4	Operating display	green

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

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Technical data

General specifications

Effective detection range	0 ... 5 m
Reflector distance	0.01 ... 5 m
Threshold detection range	7 m
Reference target	H50 reflector
Light source	IRED
Light type	modulated infrared light
Polarization filter	no
Diameter of the light spot	approx. 500 mm at a distance of 7 m
Angle of divergence	approx. 4 °
Optical face	frontal
Ambient light limit	EN 60947-5-2:2007+A1:2012

Functional safety related parameters

$MTTF_d$	860 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green: power on
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
Control elements	sensitivity adjustment
Control elements	Light-on/dark-on changeover switch

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I_0	< 20 mA

Output

Switching type		The switching type of the sensor is adjustable. The default setting is: light on
Signal output		1 PNP output, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 100 mA , resistive load
Voltage drop	U_d	≤ 1.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms

Ambient conditions

Ambient temperature	-30 ... 60 °C (-22 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Degree of protection	IP67
Connection	connector M8 x 1 , 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 10 g
Tightening torque, fastening screws	0.6 Nm

Compliance with standards and directives

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

Approvals and certificates

UL approval	cULus Listed, Class 2 Power Source or listed Power Supply with a limited voltage output with (maybe integrated) fuse (max. 3.3 A according UL248), Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V
UN/ECE Regulation No. 10 (E1)	Type-approval number: 047350

Accessories

OMH-ML100-03
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-ML100-04
Mounting aid for ML100 series, Mounting bracket

OMH-ML100-05
Mounting aid for ML100 series, Mounting bracket

OMH-ML100-08
Mounting aid for ML100 series, Snap-in

OMH-F10-ML100
Mounting aid for ML100 series

OMH-10
Mounting aid

REF-H33
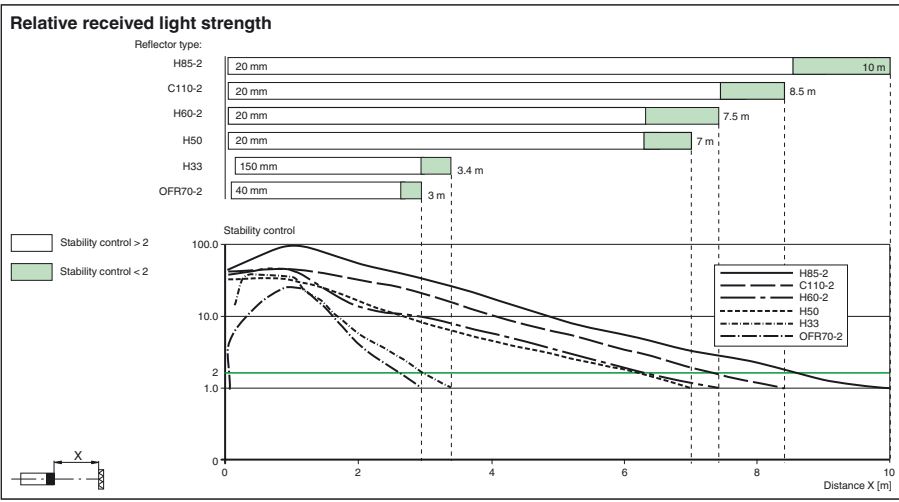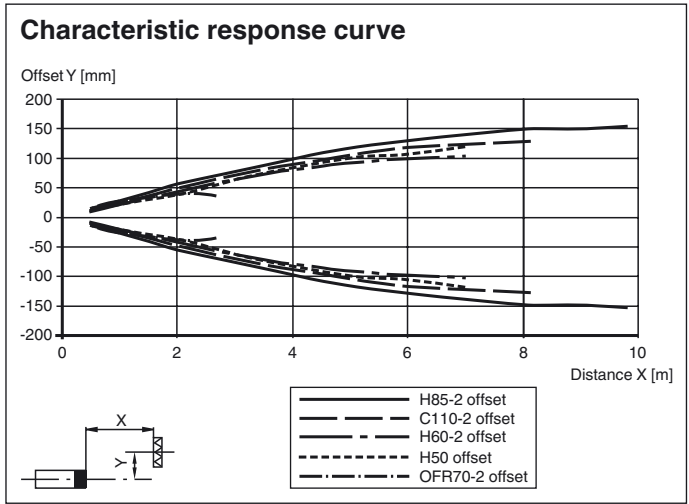Reflector with screw fixing

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

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Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Distance X [m]

- —— H85-2 offset
- – – – C110-2 offset
- –·–·– H60-2 offset
- ······ H50 offset
- –··–··– OFR70-2 offset

Relative received light strength

Reflector type:

H85-2	20 mm	10 m
C110-2	20 mm	8.5 m
H60-2	20 mm	7.5 m
H50	20 mm	7 m
H33	150 mm	3.4 m
OFR70-2	40 mm	3 m

☐ Stability control > 2
▨ Stability control < 2

Stability control

- —— H85-2
- – – – C110-2
- –·–·– H60-2
- ······ H50
- –··–··– H33
- –··–··– OFR70-2

Distance X [m]

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