Model Number

ML100-55/103/115b

Retroreflective sensor
with fixed cable and M12 connector, 4-pin

Features

- Miniature design
- Easy to use
- Clearly visible LEDs for Power ON, switching state and stability control
- Full metal thread mounting
- Very bright, highly visible light spot
- Not sensitive to ambient light

Product information

The ML100 series is characterized by its miniature housing with integral, all-metal threaded bushings. All versions are equipped with a visible red transmitter LED. This greatly simplifies installation and commissioning. The switching states are easily visible from all directions thanks to the highly visible LEDs.
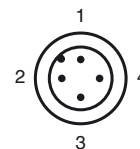
Dimensions

Receiver

Emitter
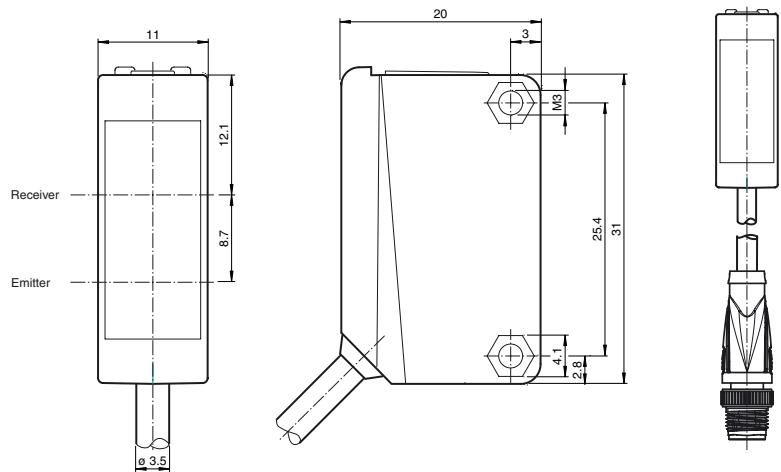
Electrical connection

Option: 103

1	+UB
2	n.c.
3	0 V
4	Q
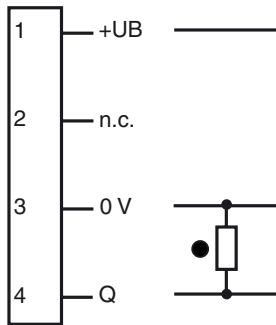
○ = Light on
● = Dark on

Pinout

Indicators/operating means
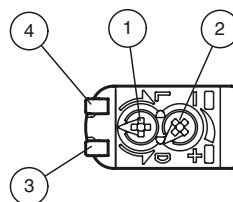
1	Light-Dark-switching	
2	Sensitivity adjuster	
3	Signal display	yellow
4	Operating display	green

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

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1

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	LED
Light type	modulated visible red light
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

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/Dark switch

Electrical specifications

Operating voltage	U_B	10 ... 30 V DC , class 2
Ripple		max. 10 %
No-load supply current	I_0	< 20 mA

Output

Switching type		light/dark on, switchable
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

Protection degree	IP67
Connection	300 mm fixed cable with 4-pin, M12 x 1 connector
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 20 g
Cable length	0.3 m

Compliance with standards and directives

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2
Standard conformity	
Standards	UL 508

Approvals and certificates

UL approval	cULus Listed, Class 2 Power Source, Type 1 enclosure
CCC approval	CCC approval / marking not required for products rated ≤36 V
Approvals	CE, cULus Listed 57M3 (Only in association with UL Class 2 power supply; Type 1 enclosure)

Accessories

OMH-F10-ML100
Mounting aid for ML100 series

OMH-ML100-01
Mounting bracket

OMH-ML100-02
Mounting bracket

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

OMH-ML100-04
Mounting bracket

OMH-ML100-05
Mounting bracket

OMH-10
Mounting aid

REF-H85-2
Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

REF-C110-2
Reflector, round ø 84 mm, central mounting hole

REF-H60-2
Reflector with mounting holes

REF-H50
Reflector, rectangular 51 mm x 51 mm, mounting holes, fixing strap

REF-H33
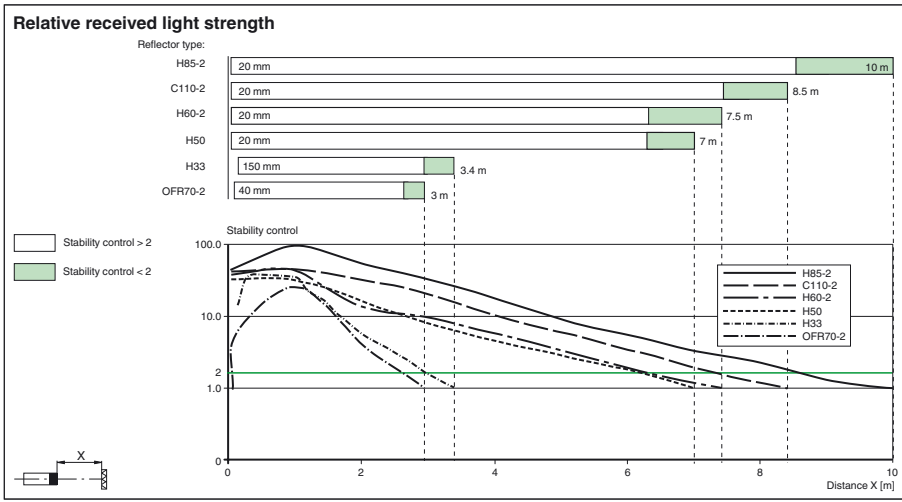Reflector with screw fixing

OFR-70-2
Reflective tape 70 mm x 70 mm

OMH-ML100-S1
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 [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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