



Retroreflective sensor for glass detection

ML100-55-G/95/103



- Miniature design
- Detects transparent materials
- TEACH-IN switch for setting the contrast detection levels
- Automatic adjustment in case of soiling in contrast detection mode
- Very bright, highly visible light spot
- Full metal thread mounting

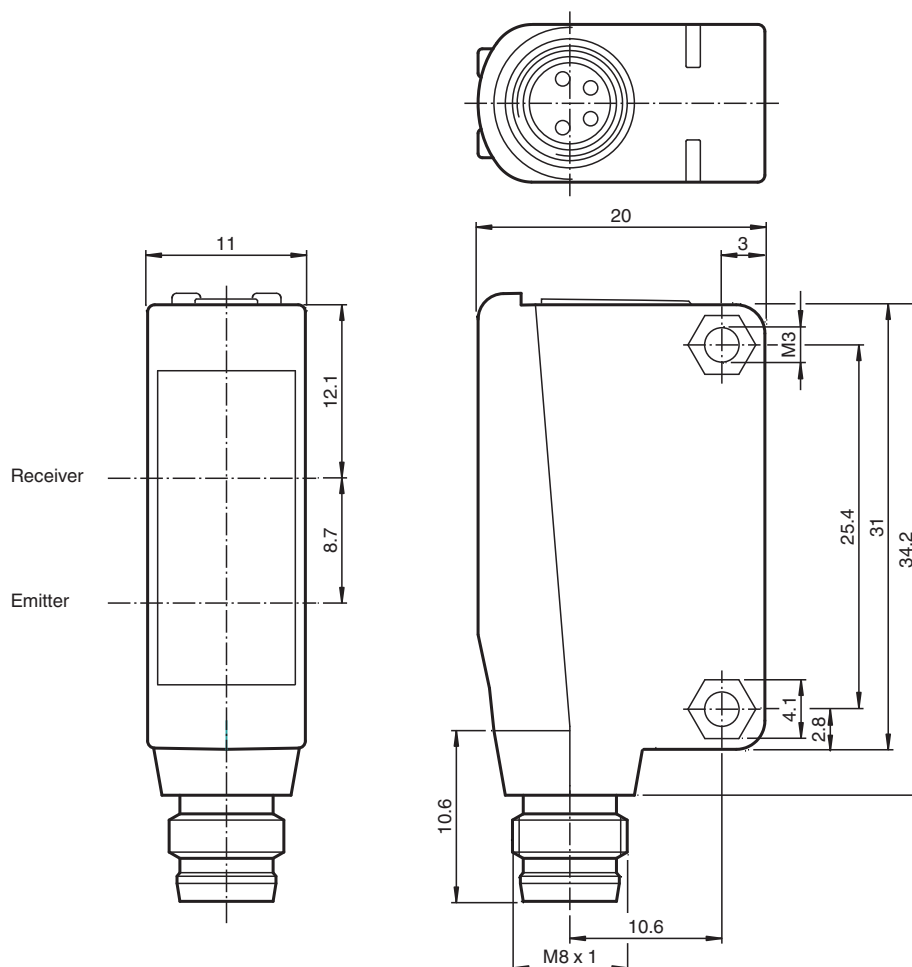
Retroreflective sensor for glass detection, plastic housing, detection range: 2.5 m, red light, teach-in, light/dark on, PNP output, M8 plug



Function

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



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

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Technical Data

General specifications

Effective detection range	0 ... 2.5 m
Reflector distance	0.05 ... 2.5 m
Threshold detection range	2.5 m
Reference target	H50 reflector
Light source	LED
Light type	modulated visible red light
Polarization filter	yes
Diameter of the light spot	approx. 180 mm at a distance of 2.5 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 Teach-In : LED yellow/green; equiphase flashing; 2,5 Hz Teach Error: LED green/yellow non equiphase flashing; 8.0 Hz
Function indicator	LED yellow: lights up when receiving the light beam OFF when light beam is interrupted
Control elements	Teach-In rotary switch
Control elements	Light-on/dark-on changeover switch preset to light on
Contrast detection levels	18 % - clear glass bottles 40 % - colored glass or opaque materials adjustable due to Teach-In 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

Conformity

Product standard	EN 60947-5-2
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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

Ambient conditions

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

Mechanical specifications

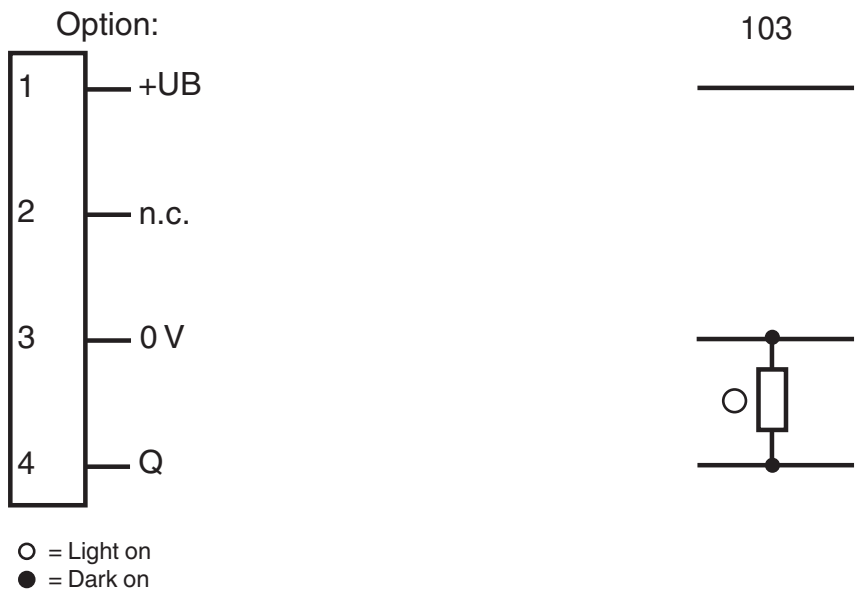
Housing width	11 mm
Housing height	31 mm
Housing depth	20 mm
Degree of protection	IP67
Connection	Connector M8 x 1 , 4-pin
Material	

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Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 10 g
Tightening torque, fastening screws	0.6 Nm

Connection Assignment



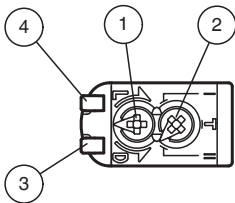
Connection Assignment



Wire colors in accordance with EN 60947-5-2

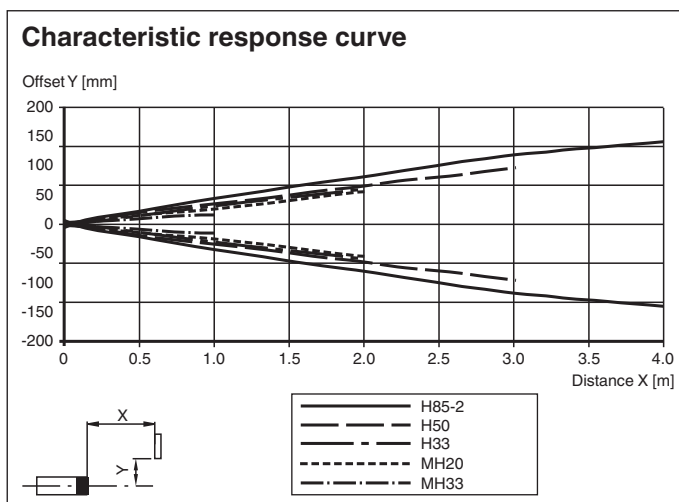
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Assembly

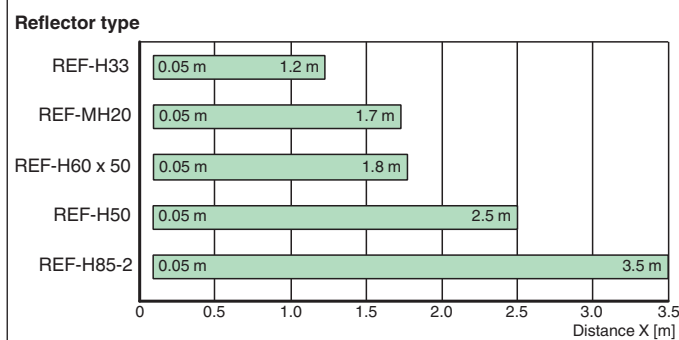


1	Light/dark changeover switch	
2	Teach-in and mode selection potentiometer T Teach-in mode I 18% contrast mode II 40% contrast mode	
3	Signal indicator	yellow
4	Operating indicator	green









Characteristic Curve



Reflector-dependent effective operating distances, typical





Accessories

	OMH-ML100-09	Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm
	OMH-ML100-01	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-03	Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm
	OMH-ML100-04	Mounting aid for ML100 series, mounting bracket
	REF-H85-2	Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes
	REF-C110-2	Reflector, round \varnothing 84 mm, central mounting hole
	REF-H33	Reflector with screw fixing
	OFR-70-2	Reflective tape 70 mm x 70 mm

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Accessories

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

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