Retroreflective sensor for glass detection

ML100-55-G-8523/103
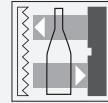
- Miniature design
- Detects transparent materials
- Teach-in switch for setting the contrast detection levels
- Automatic adjustment in case of soiling in contrast detection mode
- Very bright, highly visible light spot
- Full metal thread mounting

Retroreflective sensor for glass detection, plastic housing, detection range: 2.5 m, red light, teach-in, light/dark on, PNP output, cable with 4-pin Molex connector

CE   cULus LISTED   UKCA

Function

The optical sensors of this series are suitable for both standard and demanding applications.
The series features a miniature housing design, two M3 metal-threaded mounting holes and a highly visible LED status indicator.
Each device is equipped with a sensitivity adjuster and a light-on/dark-on changeover switch for increased flexibility.
A wide variety of versions are available in both infrared light and red light with PowerBeam for easy alignment.
Special versions with BlueBeam are suitable for challenging applications like those in the solar and battery industries.

Dimensions

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

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 1111   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com   fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

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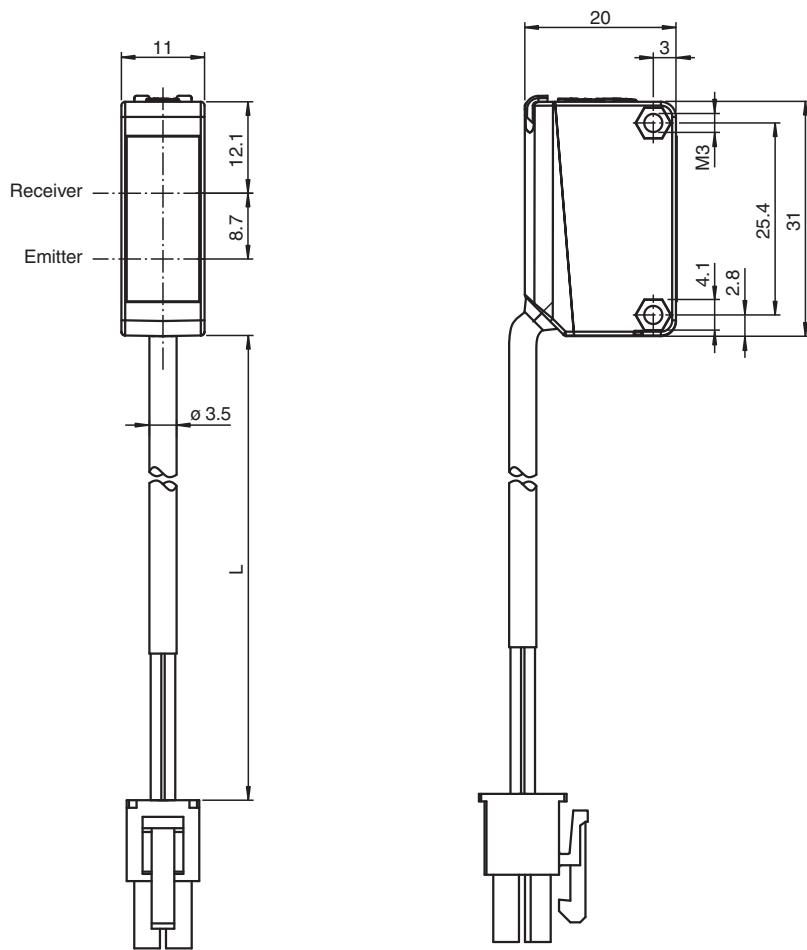
Technical Data

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
Opening angle	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 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

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

Degree of protection	IP67
Connection	cable with 4-pin Molex connector
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Cable	

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www.pepperl-fuchs.com fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com fa-info@sg.pepperl-fuchs.com

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Technical Data

Length	L	150 mm
Mass		approx. 10 g
Tightening torque, fastening screws		0.6 Nm
Dimensions		
Height		31 mm
Width		11 mm
Depth		20 mm

Connection
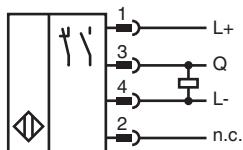
Connection

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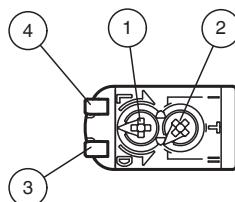
1	Light/dark changeover switch	
2	Teach-in and mode selection potentiometer	
	T Teach-in mode	
	I 18% contrast mode	
	II 40% contrast mode	
3	Signal indicator	yellow
4	Operating indicator	green

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

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Characteristic Curve

Characteristic response curve

Offset Y [mm]

Legend:
- —— H85-2
- – – H50
- –·– H33
- ···· MH20
- –··– MH33
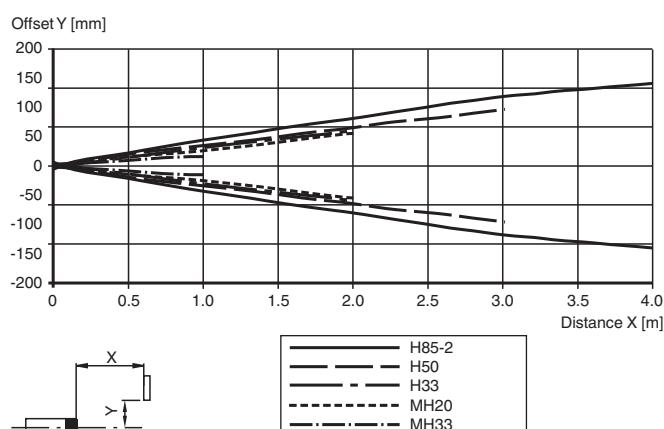
Distance X [m]

Reflector-dependent effective operating distances, typical

Reflector type

Reflector type	Range
REF-H33	0.05 m – 1.2 m
REF-MH20	0.05 m – 1.7 m
REF-H60 x 50	0.05 m – 1.8 m
REF-H50	0.05 m – 2.5 m
REF-H85-2	0.05 m – 3.5 m

Distance X [m]

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