



## Retroreflective sensor for glass detection



ML100-55-G/103/115

- 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

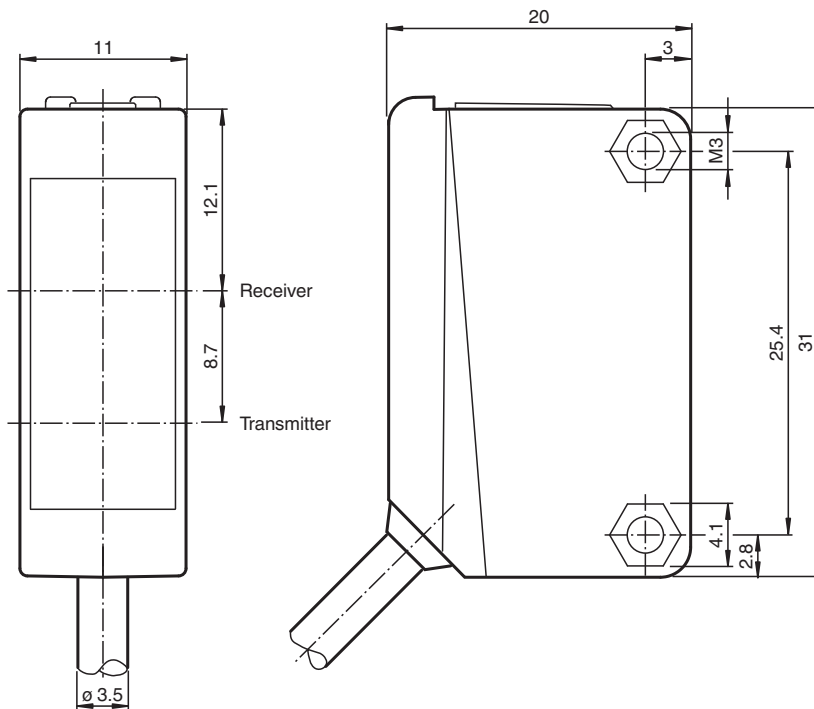
Retroreflective sensor for glass detection, plastic housing, detection range: 2.5 m, red light, teach-in, light/dark on, PNP output, fixed cable



### 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



### Technical Data

#### General specifications

Effective detection range	0 ... 2.5 m
Reflector distance	0.05 ... 2.5 m
Threshold detection range	2.5 m

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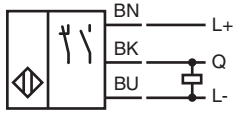
## Technical Data

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 60947-5-2:2007+A1:2012
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>		860 a
Mission Time (T <sub>M</sub> )		20 a
Diagnostic Coverage (DC)		0 %
<b>Indicators/operating means</b>		
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
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	< 20 mA
<b>Output</b>		
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 <sub>d</sub>	≤ 1.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms
<b>Conformity</b>		
Product standard		EN 60947-5-2
<b>Approvals and certificates</b>		
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
<b>Ambient conditions</b>		
Ambient temperature		-30 ... 60 °C (-22 ... 140 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP67
Connection		2 m fixed cable
Material		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 50 g
Tightening torque, fastening screws		0.6 Nm
Dimensions		
Height		31 mm
Width		11 mm

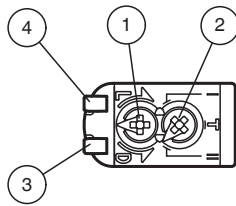
**Technical Data**

Depth	20 mm
Cable length	2 m

**Connection**

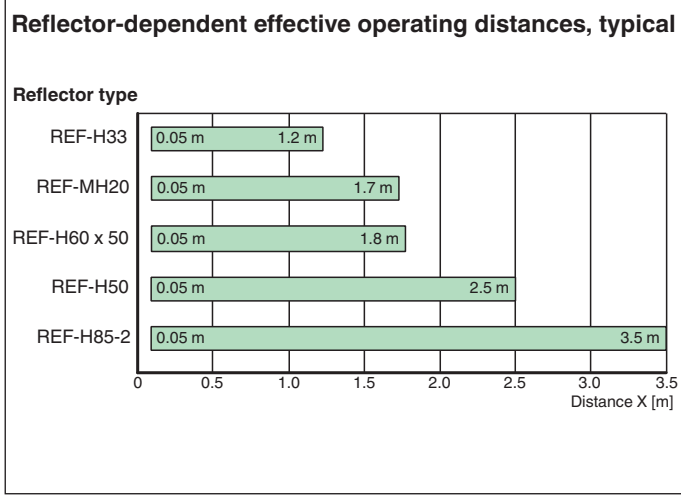
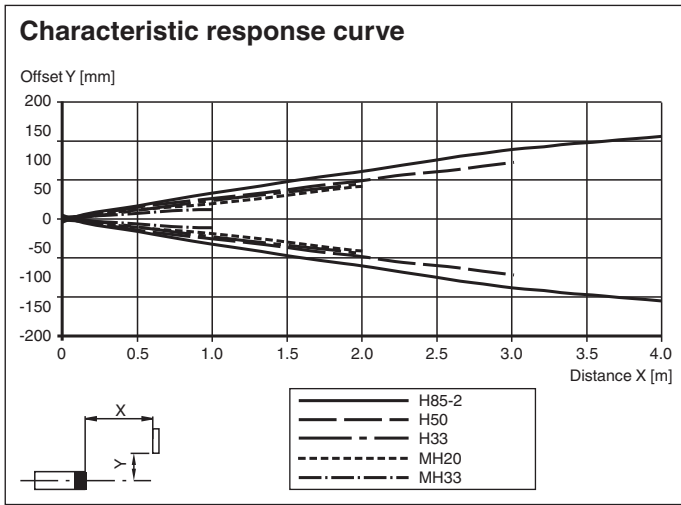


**Assembly**



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

**Characteristic Curve**



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