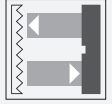




## Retroreflective sensor

ML100-55/25/103/115b/154



- No controls
- Miniature design
- Easy to use
- Clearly visible LEDs for Power ON, switching state and weak signal indication
- Very bright, highly visible light spot
- Full metal thread mounting
- Not sensitive to ambient light

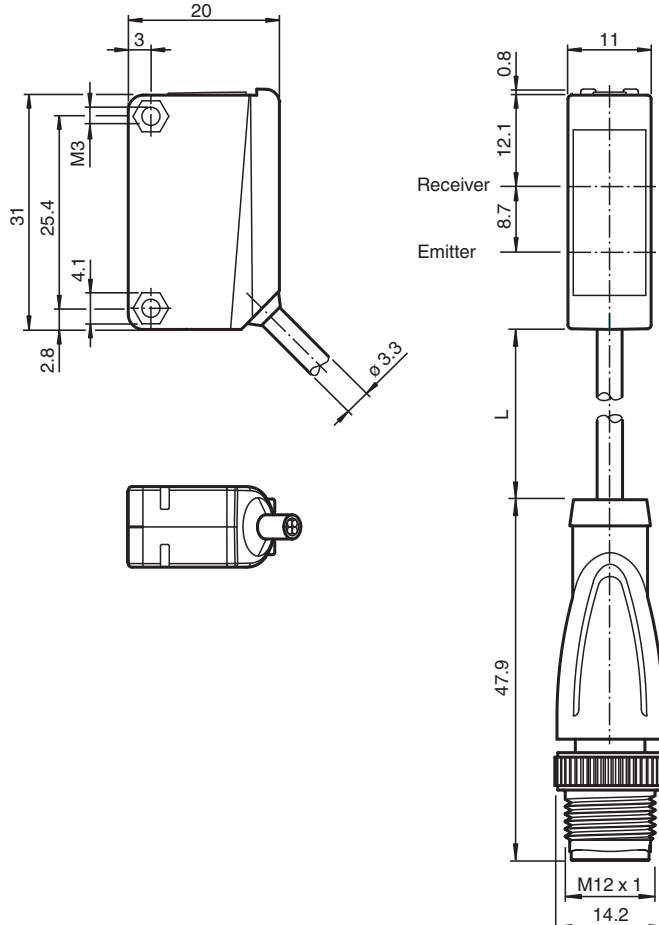
Retroreflective sensor with polarization filter, plastic housing, 5 m detection range, red light, light on, DC version, PNP output, no controls, fixed cable with M12 plug



### 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



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## Technical Data

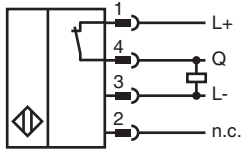
General specifications			
Effective detection range			0 ... 5 m
Reflector distance			0.02 ... 5 m
Threshold detection range			7 m
Reference target			H50 reflector
Light source			LED
Light type			modulated visible red light
Polarization filter			yes
Diameter of the light spot			approx. 500 mm at a distance of 7 m
Opening angle			approx. 4 °
Optical face			frontal
Ambient light limit			EN 60947-5-2:2007+A1:2012
Functional safety related parameters			
MTTF <sub>d</sub>			860 a
Mission Time (T <sub>M</sub> )			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 operating reserve; OFF when light beam is interrupted
Electrical specifications			
Operating voltage	U <sub>B</sub>		10 ... 30 V DC
Ripple			max. 10 %
No-load supply current	I <sub>0</sub>		< 20 mA
Output			
Switching type			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
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			300 mm fixed cable with 4-pin, M12 x 1 connector
Material			
Housing			PC (Polycarbonate)
Optical face			PMMA
Cable			
Length	L		300 mm
Mass			approx. 20 g
Tightening torque, fastening screws			0.6 Nm
Dimensions			
Height			31 mm
Width			11 mm

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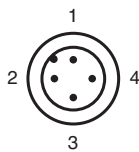
## Technical Data

Depth	20 mm
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## Connection



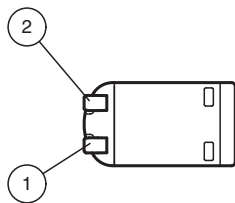
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

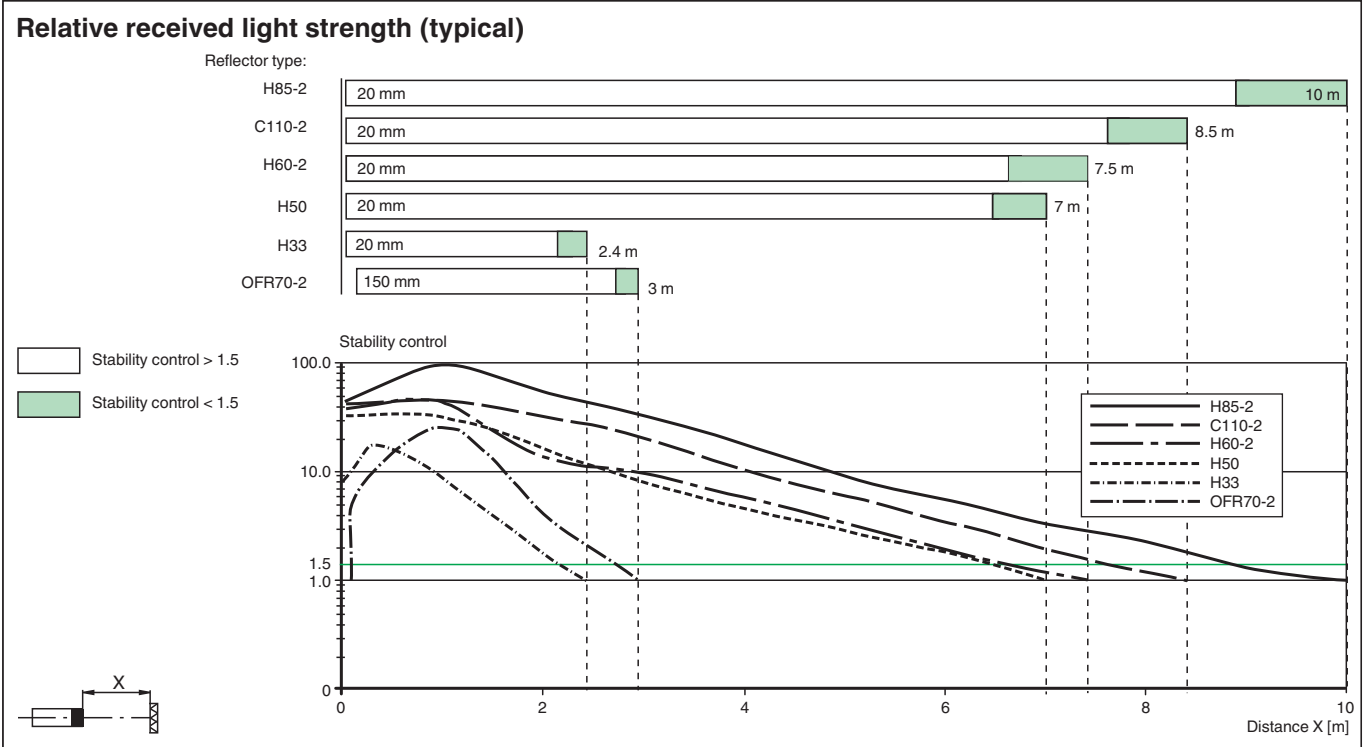
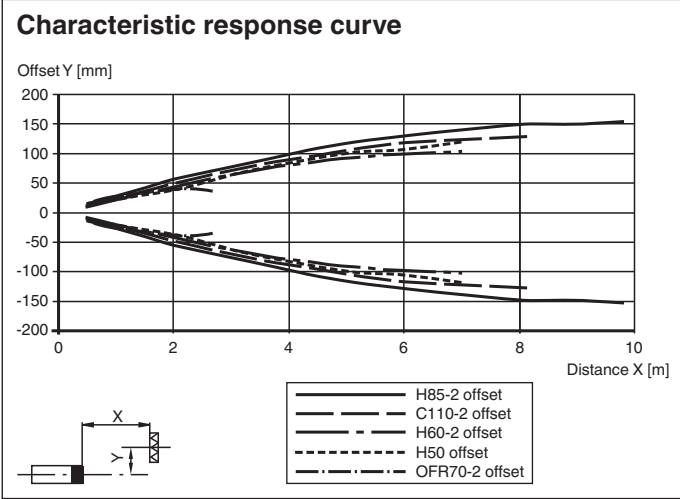
## Indication



1	Signal display	yellow
2	Operating display	green

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**Characteristic Curve**



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