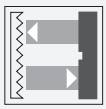
Retroreflective sensor with polarization filter



ML100-54/59/82a/103/115a/154

- Miniature design
- Stability control warning
- Clearly visible LEDs for Power ON, switching state and weak signal indication
- No controls
- Very bright, highly visible light spot
- Full metal thread mounting

Retroreflective sensor with polarization filter

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.
With the additional health output (stability alarm), an insufficient operating reserve of the sensor is indicated and can be used for predictive maintenance. That saves costs and time.

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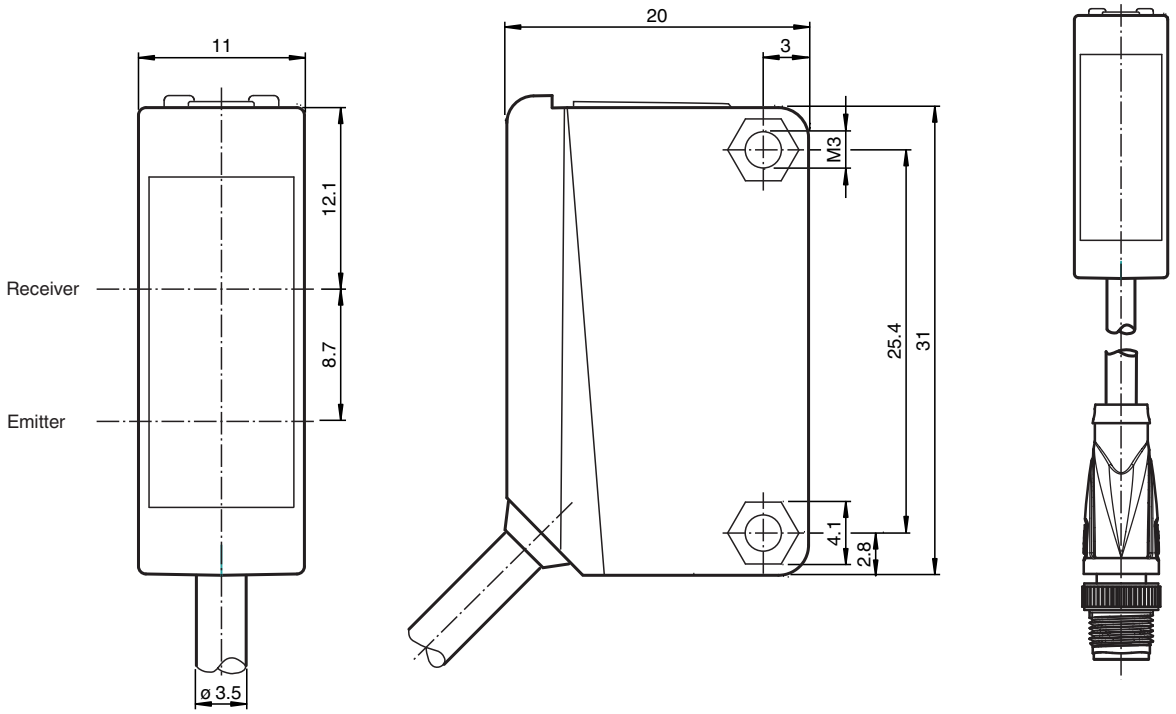
Dimensions



Technical Data

General specifications		
Effective detection range		0 ... 3.5 m
Reflector distance		0.01 ... 3.5 m
Threshold detection range		4.5 m
Reference target		H50 reflector
Light source		LED
Light type		modulated visible red light
Polarization filter		yes
Diameter of the light spot		approx. 350 mm at a distance of 4.5 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
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
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC
Ripple		max. 10 %

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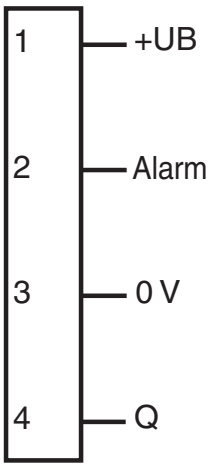
Technical Data

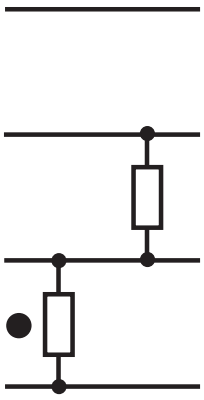
No-load supply current	I_0	< 20 mA
Output		
Pre-fault indication output		1 PNP, active when falling short of the stability control
Switching type		dark on
Signal output		1 PNP output, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 30 V DC
Switching current		max. 100 mA , resistive load ; Pre-fault output max. 50 mA
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		
Housing width		11 mm
Housing height		31 mm
Housing depth		20 mm
Degree of protection		IP67
Connection		300 mm fixed cable with M8 connector, 4-pin
Material		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 20 g
Tightening torque, fastening screws		0.6 Nm
Cable length		0.3 m

Option:



○ = Light on
● = Dark on

/82b



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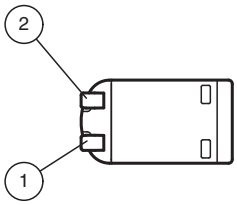
Connection Assignment

Wire colors in accordance with EN 60947-5-2

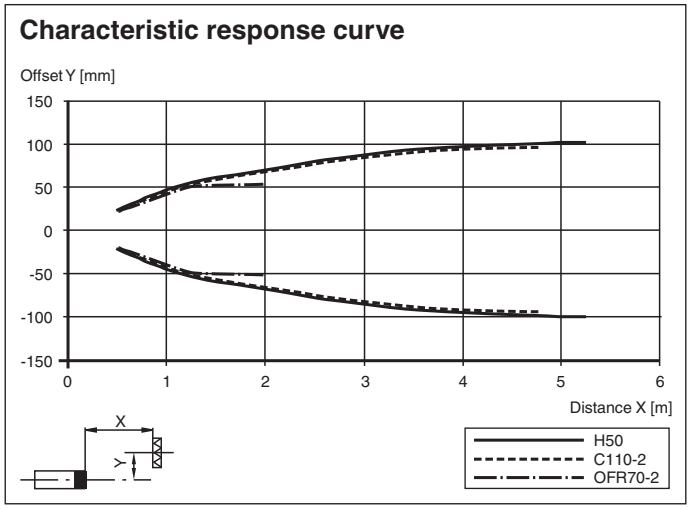
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Assembly



1	Signal display	yellow
2	Operating display	green

Characteristic Curve



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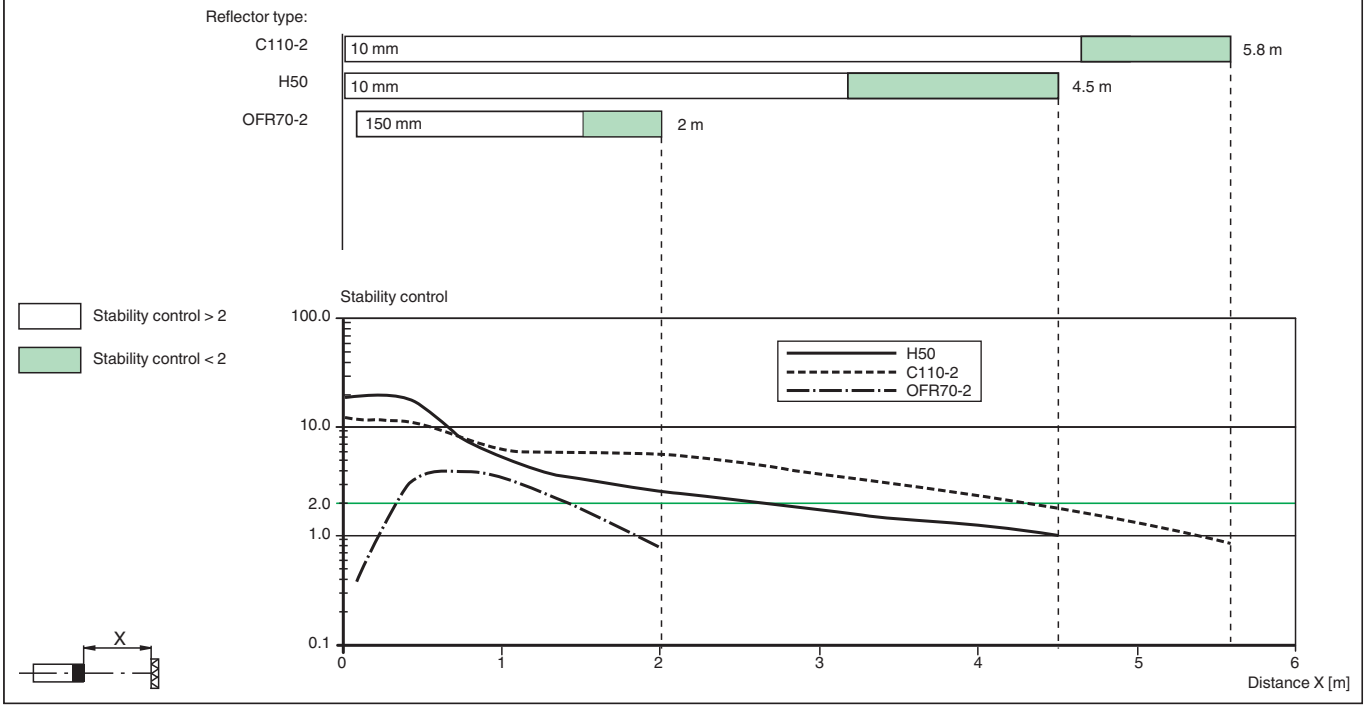
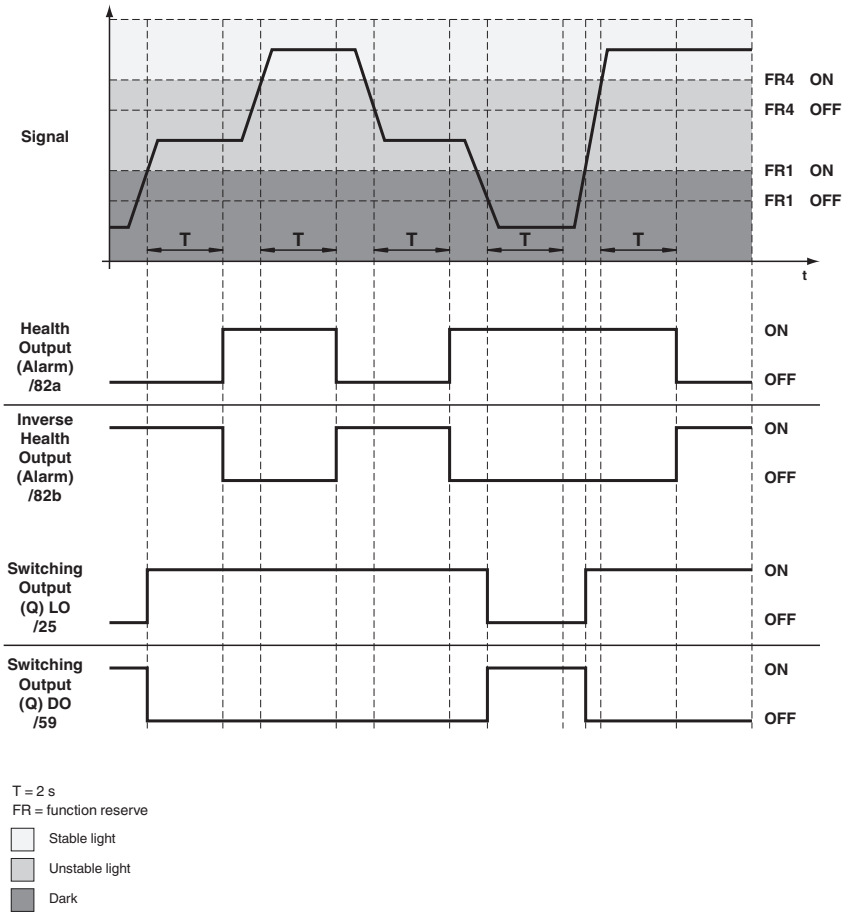
Relative received light strength



Characteristic Curve



T = 2 s
FR = function reserve

- Stable light
- Unstable light
- Dark

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Accessories

	OMH-ML100-09	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	OMH-ML100-01	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-02	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-03	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
	OMH-ML100-04	Mounting aid for ML100 series, mounting bracket
	OMH-ML100-05	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 ø 84 mm, central mounting hole
	REF-H60-2	Reflector with mounting holes
	REF-H50	Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap
	REF-H33	Reflector with screw fixing
	OFR-70-2	Reflective tape 70 mm x 70 mm

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