Diffuse mode sensor

ML7-8-200/25/103/143

- Miniature design
- Automatic adjustment of sensitivity via TEACH-IN
- Clearly visible function indicators
- Flashing power on LED in case of short-circuit
- Not sensitive to ambient light
- Protected against mutual interference (no cross-talk)

Diffuse mode sensor, miniature design, 200 mm adjustable detection range, red light, light on, PNP output, M8 plug

Function

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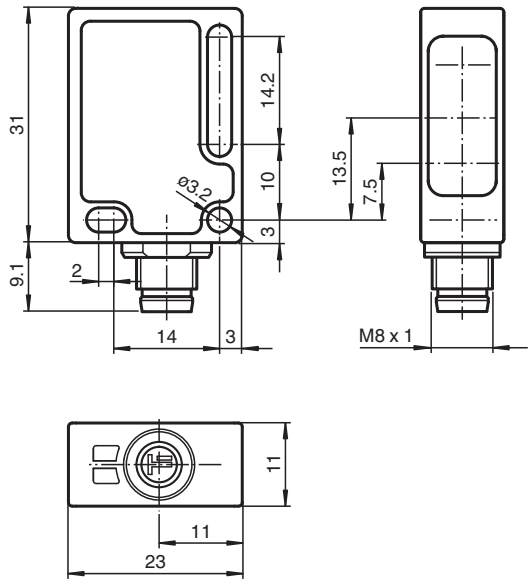
Dimensions



Technical Data

General specifications		
Detection range		20 ... 200 mm
Adjustment range		60 ... 200 mm
Reference target		standard white, 100 mm x 100 mm
Light source		LED
Light type		modulated visible red light
Diameter of the light spot		approx. 15 mm at a distance of 200 mm
Angle of divergence		approx. 4.5 °
Ambient light limit		40000 Lux
Functional safety related parameters		
$MTTF_d$		1610 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green, flashes in case of short-circuit
Function indicator		LED yellow, lights up with receiver lit
Control elements		Teach-In key
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , class 2
Ripple		max. 10 %
No-load supply current	I_0	< 20 mA
Output		

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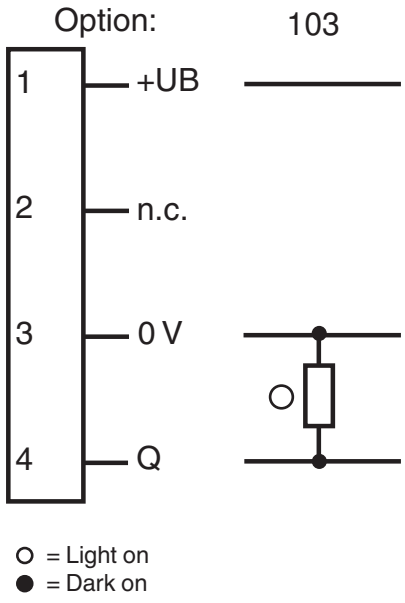
Technical Data

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
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		
Protection class		II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval		cULus
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-40 ... 75 °C (-40 ... 167 °F)
Mechanical specifications		
Housing width		23 mm
Housing height		31 mm
Housing depth		11 mm
Degree of protection		IP67 / IP69K
Connection		M8 x 1 connector, 4-pin
Material		
Housing		PC (glass-fiber-reinforced Makrolon)
Optical face		PMMA
Connector		plastic
Mass		approx. 10 g

Connection Assignment



○ = Light on
● = Dark on

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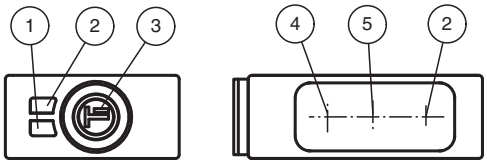
Connection Assignment

Wire colors in accordance with EN 60947-5-2

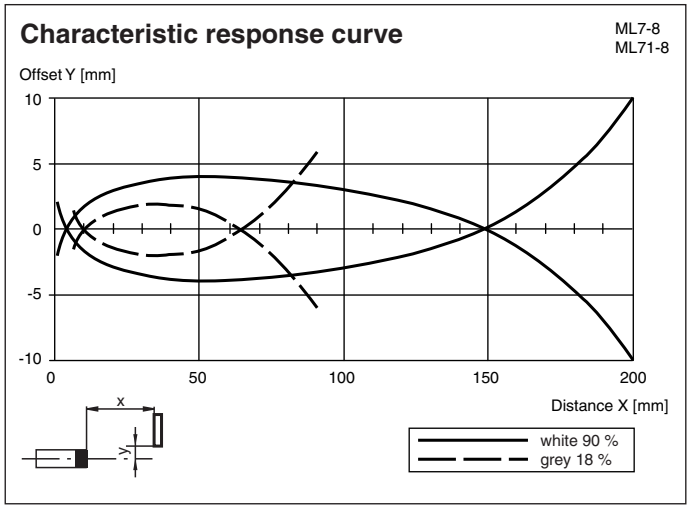
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Assembly



1	Operating display	green
2	Signal display	yellow
3	TEACH-IN button	
4	Emitter	
5	Receiver	

Characteristic Curve



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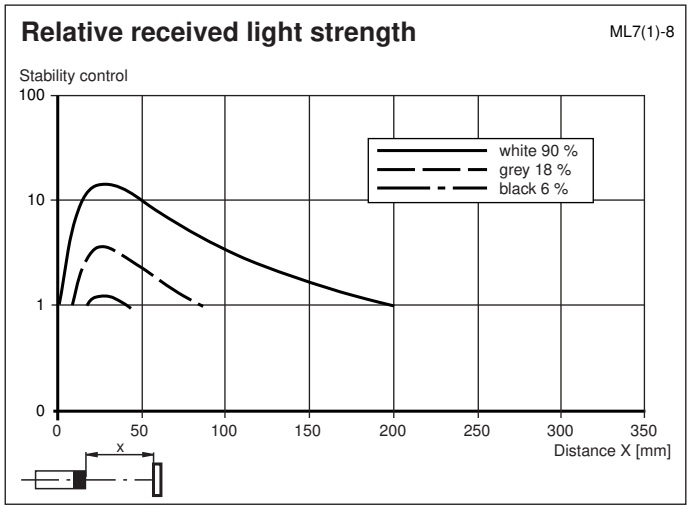

Accessories

	**OMH-ML7-01**	Mounting aid for ML7 and ML8 series, Mounting bracket
	**V31-WM-2M-PUR**	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
	**V31-GM-2M-PUR**	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey

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TEACH-IN

Connect the sensor to operating voltage, the LED green lights up constantly. The sensor operates at max. sensitivity (delivery status) or with the last teached values.

- Adjust the unit to the target.
- Press the TEACH-IN button - as an acknowledge the green LED will switch off shortly for one time.
- Press the TEACH-IN button until both LED's green and yellow are blinking in parallel (2Hz). Release the TEACH-IN button now.
- While the green and yellow LEDs are blinking alternating (2Hz) the unit is in the internal set up procedure.
- **TEACH-IN successful:** Both LEDs green and yellow are on. The unit is ready to use and in switching mode now.
- **TEACH-IN not successful:** Both LEDs are flashing alternating (4Hz) for approx. 5 seconds. Afterwards the sensor returns to max. sensitivity setting. Please retry the TEACH-IN procedure beginning by step 1.

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