



**Model Number**

**ML71-8-200/25/102/143**

Diffuse mode sensor  
with 4-pin, M8 x 1 connector

**Features**

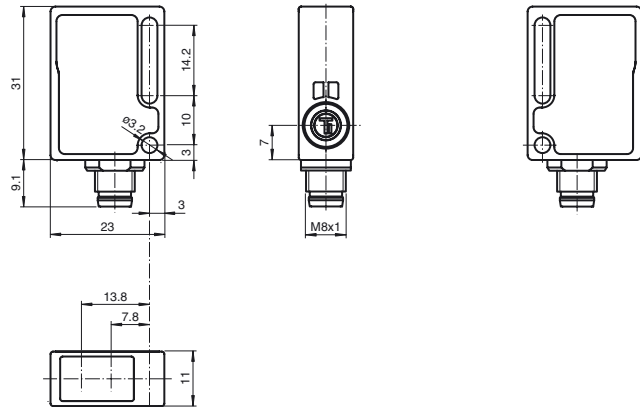
- Miniature design with front optical face
- Automatic adjustment of sensitivity via TEACH-IN
- Clearly visible function indicators
- Flashing power on LED in case of short-circuit
- Not sensitive to ambient light
- Protected against mutual interference (no cross-talk)

**Product information**

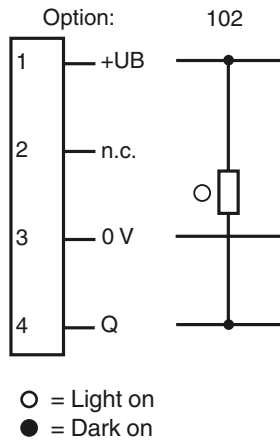
Small, robust, effective, and reliable - these are the properties of the ML7 sensor series. Due to their small size, number of versions, and two different lens positions, they are particularly suited for installation in tight spaces. The robust design and high quality of Pepperl+Fuchs mean they can also be used under harsh environmental conditions. The efficient technology, switching frequencies up to 1000 Hz, high resistance to ambient light, and 4-in-1 output make the series suitable for non-contact object detection.

Release date: 2012-09-05 17:33 Date of issue: 2012-09-05 12:47:78\_eng.xml

**Dimensions**



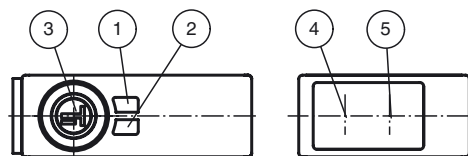
**Electrical connection**



**Pinout**



**Indicators/operating means**



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

**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 <sub>d</sub>	1610 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Indicators/operating means**

Operating display	LED green, flashes in case of short-circuit
Function display	LED yellow, lights up with receiver lit
Controls	TEACH-IN key

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC , class 2
Ripple		max. 10 %
No-load supply current	I <sub>0</sub>	< 20 mA

**Output**

Switching type	light on	
Signal output	1 NPN output, short-circuit protected, reverse polarity protected, open collector	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Voltage drop	U <sub>d</sub>	≤ 1.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms

**Ambient conditions**

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

**Mechanical specifications**

Protection degree	IP67 / IP69K
Connection	4-pin, M8 plastic connector
Material	
Housing	PC (glass-fiber-reinforced Makrolon)
Optical face	PMMA
Mass	approx. 10 g

**Compliance with standards and directives**

Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007
Standards	EN 50178, UL 508

**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	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

**Accessories**

**OMH-ML7-01**  
Mounting bracket

**OMH-ML7-02**  
Mounting bracket

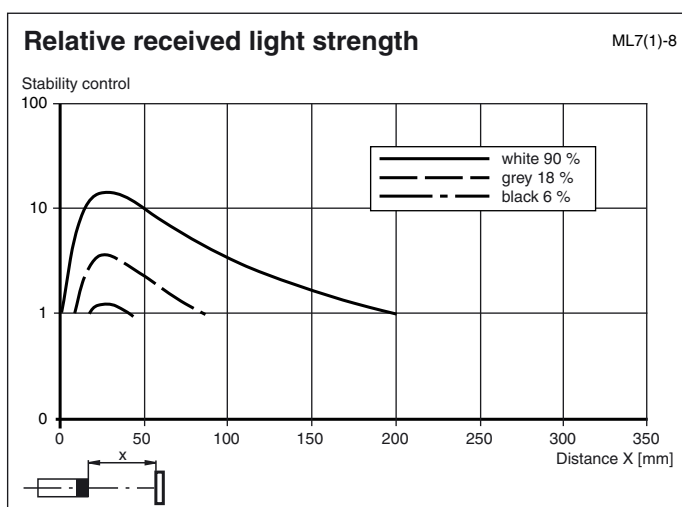
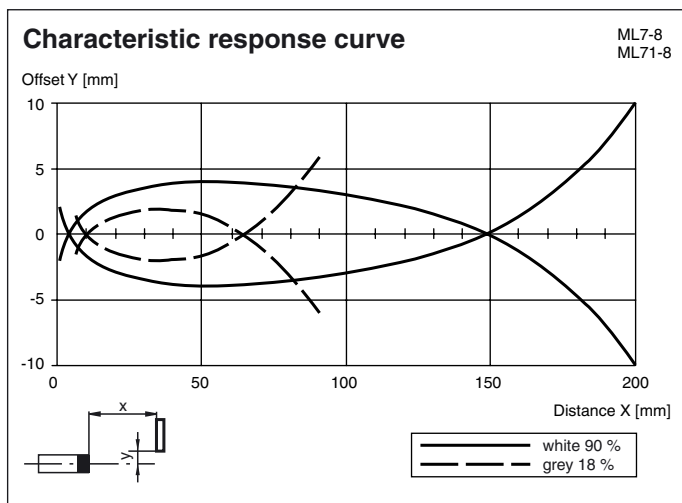
**OMH-ML7-03**  
Fixing plate

**V31-WM-2M-PUR**  
4-pin, M8 socket, PUR cable

**V31-GM-2M-PUR**  
4-pin, M8 socket, PUR cable

Suitable cable sockets can be found in the Internet

## Curves/Diagrams



## 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 taught 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.