



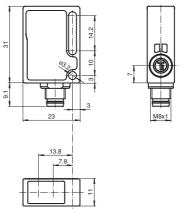


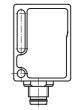
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## **Dimensions**





## **Model Number**

#### ML71-6/59/102/143

Retroreflective sensor with 4-pin, M8 x 1 connector

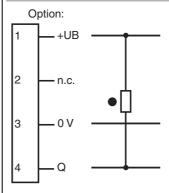
#### **Features**

- Reliable sensor for standard applicati-
- Miniature design with front optical
- Automatic adjustment of sensitivity via TEACH-IN
- Resistant against noise: reliable operation under all conditions
- Certified by ECOLAB

## **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.

### **Electrical connection**

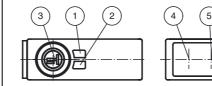


- O = Light on
- = Dark on

# **Pinout**



## Indicators/operating means



	1	Operating display	greer
	2	Signal display	yellov
-	3	TEACH-IN button	
J	4	Emitter	
	5	Receiver	

Technical data		
General specifications		
Effective detection range		0 3 m
Reflector distance		0.02 3 m
Threshold detection range		3.5 m
Reference target		H85-2 reflector
Light source		LED
Light type		modulated visible red light
Diameter of the light spot		approx. 180 mm at a distance of 3.5 m
Angle of divergence		approx. 3 °
Ambient light limit		40000 Lux
Functional safety related para	ameters	
MTTF <sub>d</sub>		1530 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 when light beam is free, flashes when falling short of the stability control
Controls		TEACH-IN key
Electrical specifications		
Operating voltage	$U_B$	10 30 V DC , class 2
Ripple	_	max. 10 %
No-load supply current	I <sub>0</sub>	< 20 mA
Output		
Switching type		dark 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	$U_d$	≤ 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		Plastic connector M8 x 1 , 4-pin
Material		, ,
Housing		PC (glass-fiber-reinforced Makrolon)
Optical face		PMMA
Mass		approx. 10 g
Compliance with standards a	and direct	
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 $\leq$ 250 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval		cULus

## **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

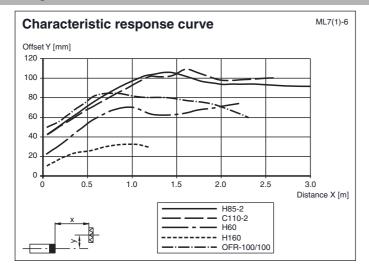
Suitable reflectors and cable sockets can be found in the Internet

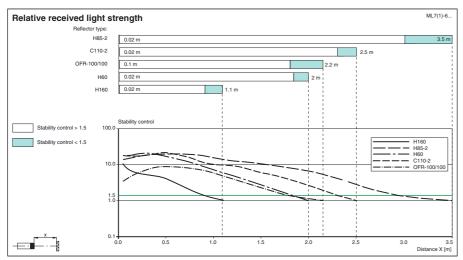
**EPPERL+FUCHS** 

CCC approval

CCC approval / marking not required for products rated  $\leq$ 36 V

# **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 teached values.

Mount suitable reflector opposite light beam switch.

- Adjust the unit to the reflector.
- Press the Teach-In button as an acknowledgement the green LED will quickly turn off one time.
- Press the Teach-In button until both LEDs green and yellow are blinking in parallel (2Hz). Release the Teach-In button now.
- While the green and yellow LEDs are blinking alternating (2 Hz) 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 (4 Hz) for approx. 5 seconds. Afterwards the sensor returns to max. sensitivity setting. Please retry the Teach-In procedure beginning by step 1.