



Model Number

ML4.2-8-H-20-IR/DS/40b/95/110

Background suppression sensor
with 4-pin, M8 x 1 connector

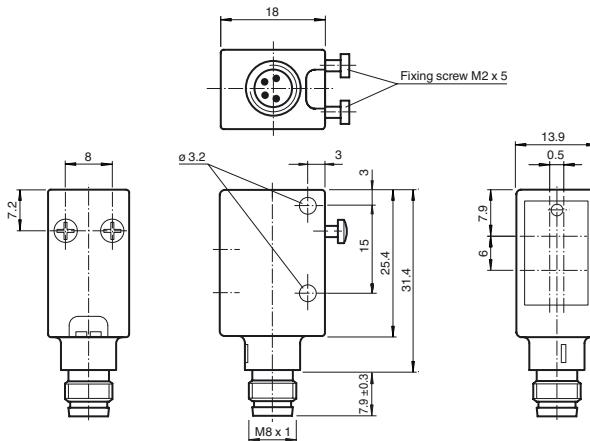
Features

- Dual sensor with two Light spots
- Light spot signals internally "OR" connected
- Precise background suppression
- Very small black-white difference
- Metal-reinforced fastening holes
- Tamper-proof version with no adjustments
- Push-pull output

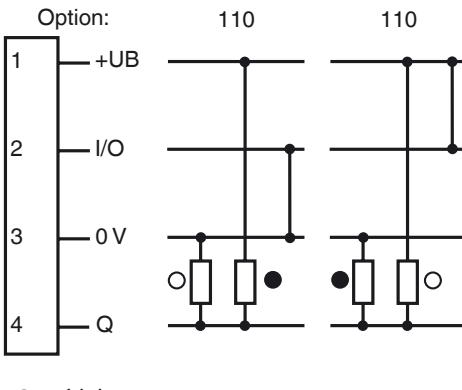
Product information

The ML4.2 series is characterized by a robust, powerful and standard design in a miniature housing. The housing offers IP67/ IP69K degree of protection, a scratch- and chemical-resistant lens, highly visible LEDs and robust all-metal bushings for mounting. Adjustable and tamper-proof sensors are available with a universal push-pull output and an electrical light ON/dark ON switch. The sensors have a high ambient light limit. Reflections from the background are suppressed. The unusually small, sharp light spot and the quick response time offer maximum switching precision on object edges. Both red and infrared light sources are available. A high-performance fixed focus background suppressor is a useful feature. The sensors are suitable for precise object detection and open up a wide range of application fields.

Dimensions



Electrical connection



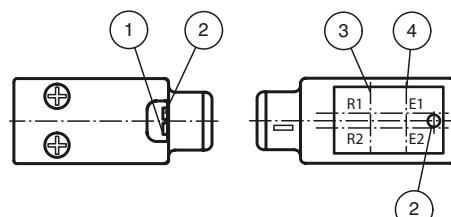
Pinout

Wire colors in accordance with EN 60947-5-2



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

Indicators/operating means



1	operating display	green
2	indication of the switching state	yellow
3	receiver axis	
4	emitter axis	

Technical data

General specifications

Detection range	7 ... 20 mm
Detection range max.	5 ... 25 mm
Background suppression	starts from 25 mm
Light source	2 IRED
Light type	modulated infrared light , 880 nm
Black/White difference (6 %/90 %)	approx. 1 mm
Diameter of the light spot	2 light spots: size 2.5 mm distance 5 mm at 20 mm
Angle of divergence	approx. 5 °
Ambient light limit	
Continuous light	40000 Lux
Modulated light	5000 Lux

Functional safety related parameters

MTTF _d	1940 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	LEDs yellow: light up when object is detected

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I ₀	< 20 mA

Output

Switching type	light/dark on electrically switchable
Signal output	1 push-pull (4 in 1) output, short-circuit protected, reverse polarity protected
Switching voltage	max. 30 V DC
Switching current	max. 100 mA
Voltage drop	U _d ≤ 2.5 V DC
Switching frequency	f 500 Hz
Response time	1 ms

Conformity

Product standard	EN 60947-5-2
------------------	--------------

Ambient conditions

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

Mechanical specifications

Housing width	13.9 mm
Housing height	31.4 mm
Housing depth	18 mm
Degree of protection	IP67 / IP69K
Connection	M8 x 1 connector, 4-pin
Material	
Housing	ABS
Optical face	glass pane
Mass	approx. 10 g

Compliance with standards and directives

Standard conformity	
Shock and impact resistance	IEC / EN 60068. half-sine, 40 g in each X, Y and Z directions
Vibration resistance	IEC / EN 60068-2-6. Sinus. 10 -150 Hz, 5 g in each X, Y and Z directions

Approvals and certificates

CE conformity	yes
UL approval	cULus Listed
CCC approval	CCC approval / marking not required for products rated ≤36 V

Accessories

OMH-4.1

Mounting Clamp

OMH-ML6

Mounting bracket

OMH-ML6-U

Mounting bracket

OMH-ML6-Z

Mounting bracket

V31-GM-2M-PVC

Female cordset single-ended, M8, 4-pin, PVC cable

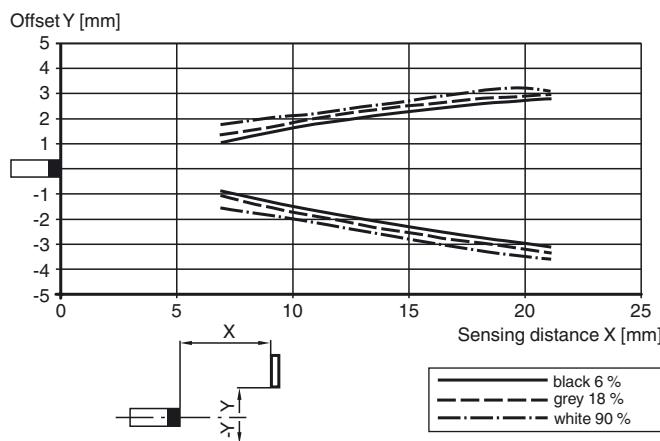
V31-WM-2M-PVC

Female cordset single-ended, M8, 4-pin, PVC cable

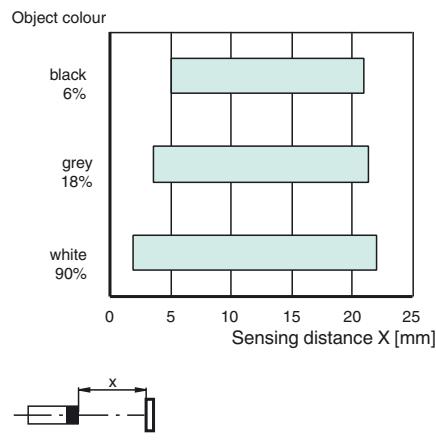
Other suitable accessories can be found at www.pepperl-fuchs.com

Curves/Diagrams

Characteristic response curve

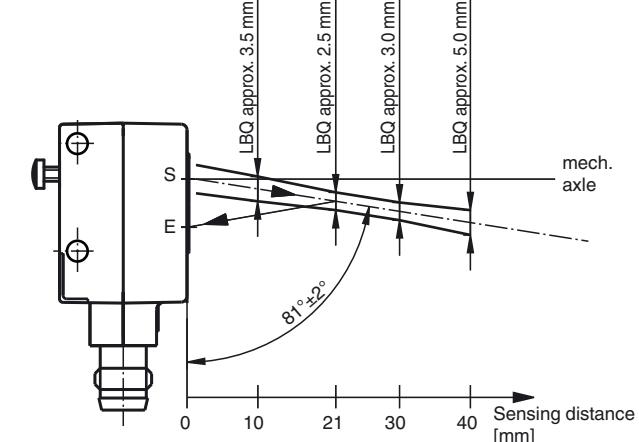


Detection ranges



Curves/Diagrams

Emitting characteristics



Emitting characteristics