



**Model Number**

**ML4.2-P-20m-LAS/40b/76a/95/110**

Thru-beam sensor  
with 4-pin, M8 x 1 connector

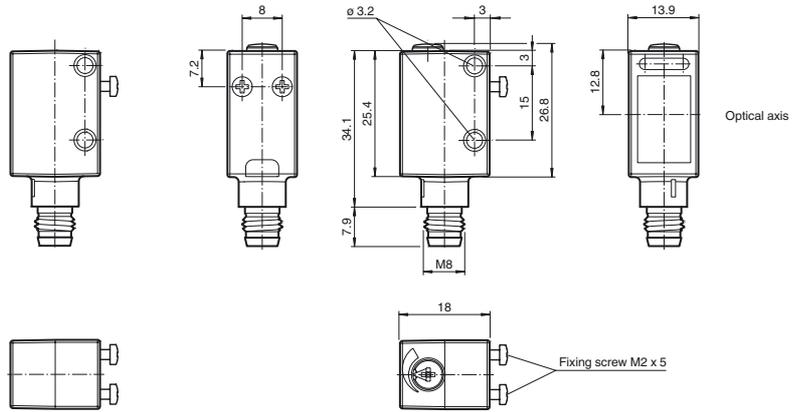
**Features**

- Miniature design
- Small light beam diameter for detection of small parts
- Very short response time
- Red laser as the light emitter
- Test input
- Not sensitive to ambient light, even with switched energy saving lamps
- Protected against mutual interference (no cross-talk)
- Metal-reinforced fastening holes

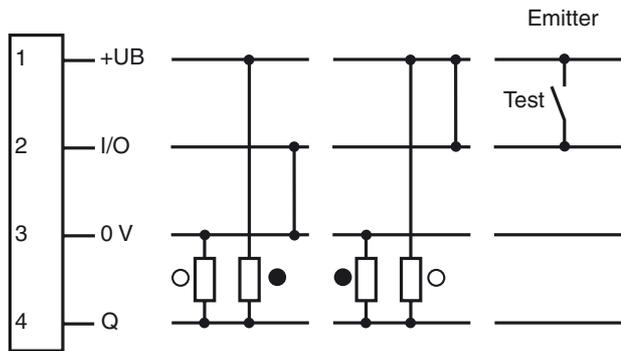
**Dimensions**

Transmitter

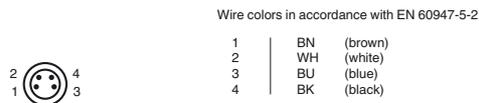
Receiver



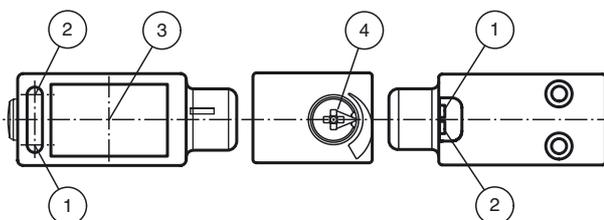
**Electrical connection**



**Pinout**



**Indicators/operating means**



1	Operating display	green
2	Signal display (only Receiver)	yellow
3	Optical axis	
4	Sensitivity adjustment (only Receiver)	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

**Technical data****System components**

Emitter	ML4.2-T-20m-LAS/76a/95
Receiver	ML4.2-R-LAS/40b/95/110

**General specifications**

Effective detection range	0 ... 20 m
Threshold detection range	30 m
Light source	Laser
Light type	modulated visible red light
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1
Wave length	680 nm
Beam divergence	1.5 mrad
Pulse length	1 µs
Repetition rate	approx. 33 kHz
max. pulse energy	< 8.3 nJ
Target size	min. 7 mm
Diameter of the light spot	40 mm at detection range 20 m
Angle of divergence	approx. 0.1 °
Ambient light limit	
Continuous light	40000 Lux
Modulated light	5000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	550 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	60 %

**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	LED yellow, lights up with receiver lit flashes when falling short of the stability control
Control elements	sensitivity adjustment

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		< 10 %
No-load supply current	I <sub>0</sub>	< 15 mA at 24 V DC

**Input**

Test input	emitter deactivation at +U <sub>B</sub>
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**Output**

Switching type	light/dark on electrically switchable	
Signal output	Push-pull output, short-circuit protected, reverse polarity protected	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Voltage drop	U <sub>d</sub>	≤ 2.5 V DC
Switching frequency	f	4000 Hz
Response time		125 µs

**Conformity**

Product standard	EN 60947-5-2
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**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	15 g (device)

**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 -2000 Hz, 10 g in each X, Y and Z directions
Laser class	IEC 60825-1:2007 EN 60825-1:2007

**Approvals and certificates**

CE conformity	yes
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**Accessories****OMH-4.1**

Mounting Clamp

**OMH-ML6**

Mounting bracket

**OMH-ML6-U**

Mounting bracket

**OMH-ML6-Z**

Mounting bracket

**OMH-11-02 Aperture-V-H 0.5 mm**

Slit diaphragm can be affixed for detecting very small parts

**OMH-11-04 Aperture-V-H 1.0 mm**

Slit diaphragm can be affixed for detecting very small parts

**OMH-11-06 Aperture-V-H 1.5 mm**

Slit diaphragm can be affixed for detecting very small parts

**OMH-11-08 Aperture-V-H 2.0 mm**

Slit diaphragm can be affixed for detecting very small parts

**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

**V31-GM-5M-PUR**

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

**V31-WM-5M-PUR**

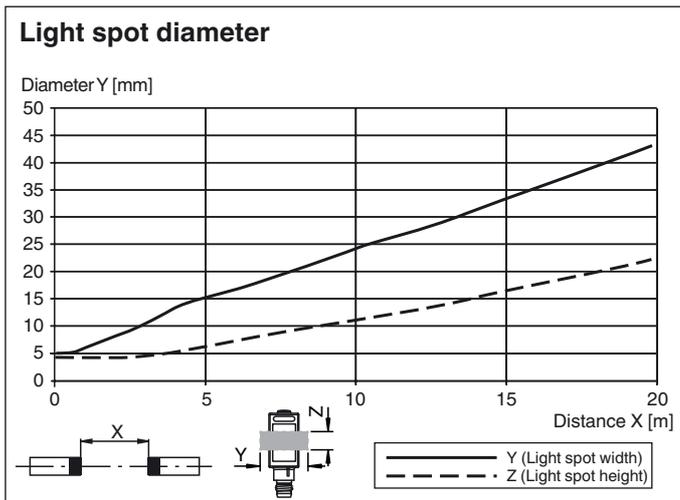
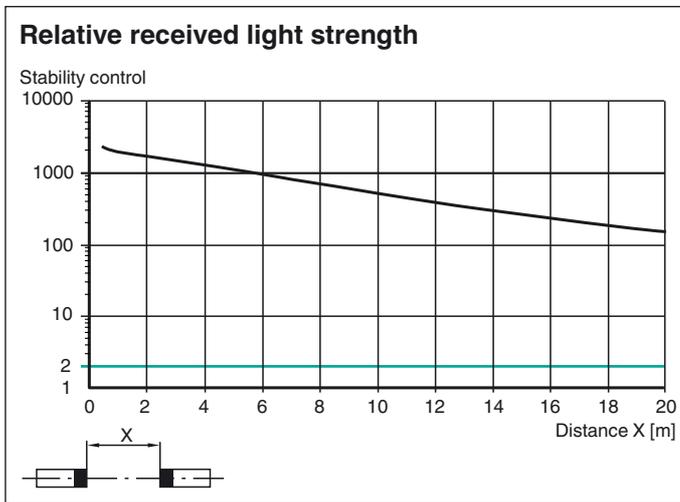
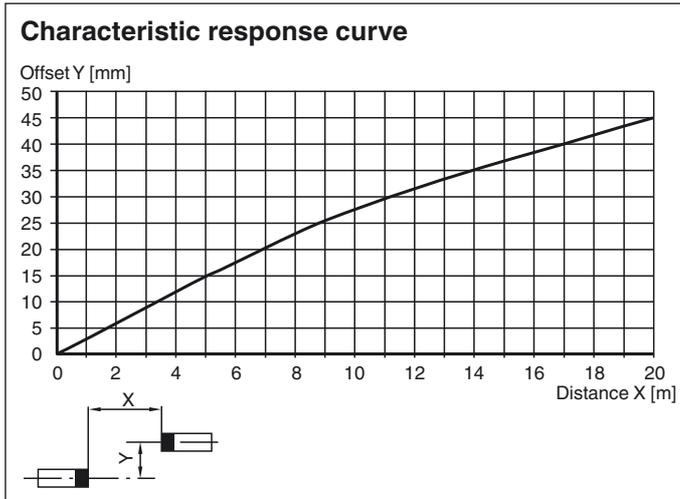
Female cordset single-ended, M8, 4-pin, PUR cable

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

UL approval  
CCC approval

cULus Listed  
CCC approval / marking not required for products rated ≤36 V

Curves/Diagrams

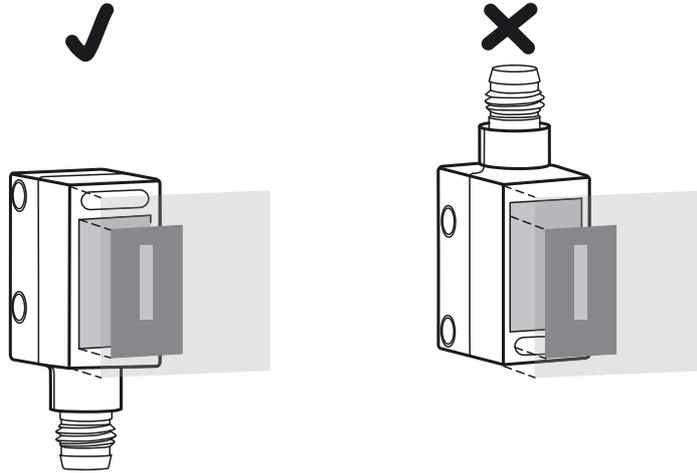


Aperture alignment

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When attaching the aperture, make sure that the sensor lens is aligned exactly with the black aperture.



### Laser notice laser class 1

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- The warning accompanies the device and should be attached in immediate proximity to the device.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.