



Model Number

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

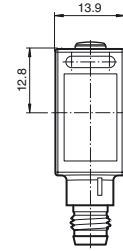
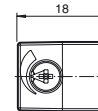
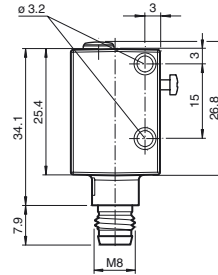
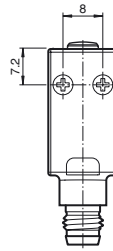
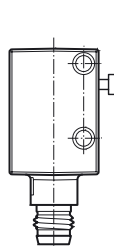
Thru-beam sensor
with 4-pin, M8 x 1 connector

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

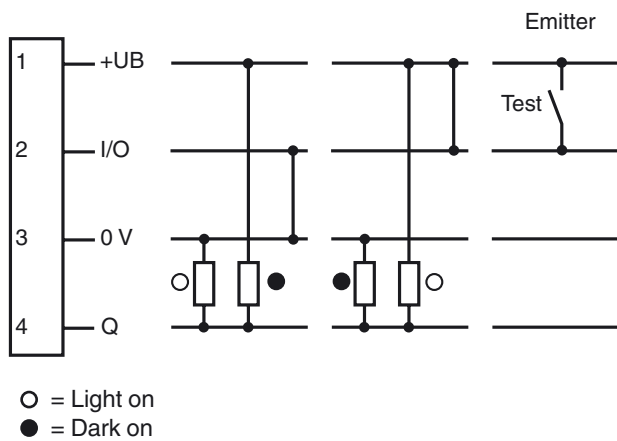
Transmitter



Optical axis

Fixing screw M2 x 5

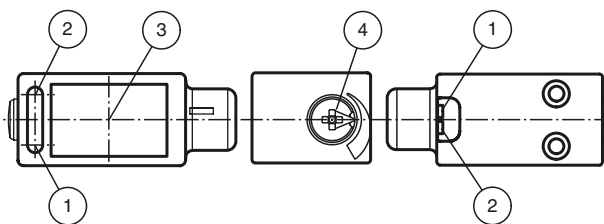
Electrical connection



Pinout



Indicators/operating means



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

Technical data		
System components		
Emitter		ML4.2-T-20m-LAS/76a/95
Receiver		ML4.2-R-20m-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 _d		550 a
Mission Time (T _M)		20 a
Diagnostic Coverage (DC)		60 %
Indicators/operating means		
Operating display		LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function display		LED yellow, lights up with receiver lit flashes when falling short of the stability control
Controls		sensitivity adjustment
Electrical specifications		
Operating voltage	U _B	10 ... 30 V DC
Ripple		< 10 %
No-load supply current	I ₀	< 15 mA at 24 V DC
Input		
Test input		emitter deactivation at +U _B
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 _d	≤ 2.5 V DC
Switching frequency	f	4000 Hz
Response time		125 µs
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-20 ... 75 °C (-4 ... 167 °F)
Mechanical specifications		
Protection degree		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		
Directive conformity		
EMC Directive 2004/108/EC		EN 60947-5-2:2007
Standard conformity		
Product standard		EN 60947-5-2:2007 IEC 60947-5-2:2007
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
UL approval		cULus Listed

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

M8, 4-pin socket, PVC cable

V31-WM-2M-PVC

M8, 4-pin socket, PVC cable

V31-GM-5M-PUR

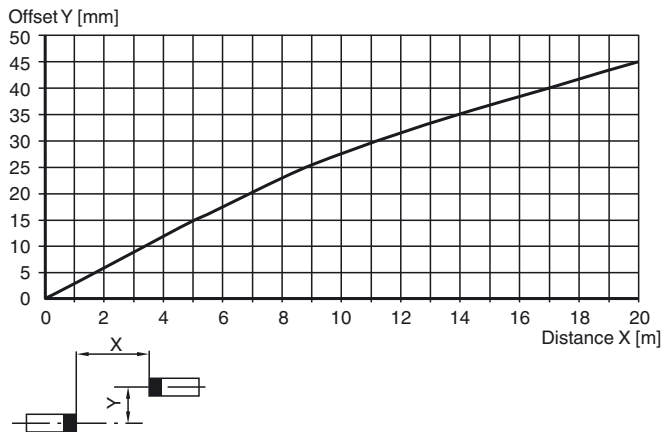
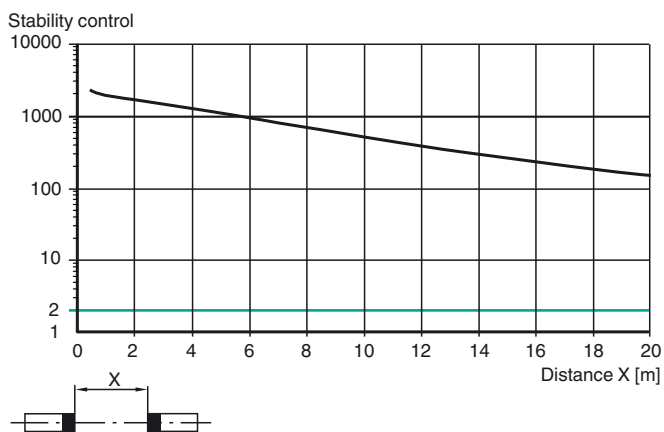
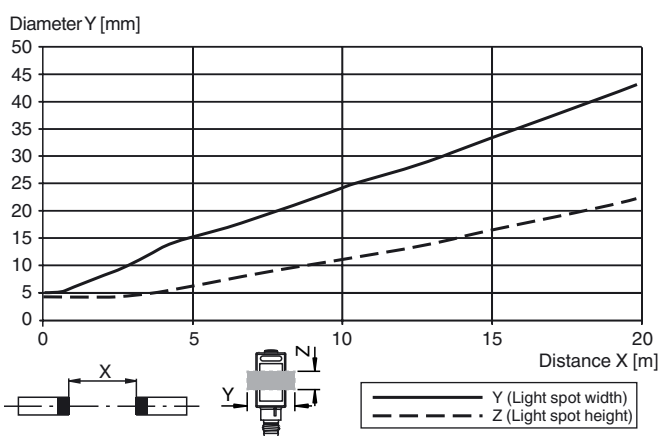
4-pin, M8 socket, PUR cable

V31-WM-5M-PUR

4-pin, M8 socket, PUR cable

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

CCC approval

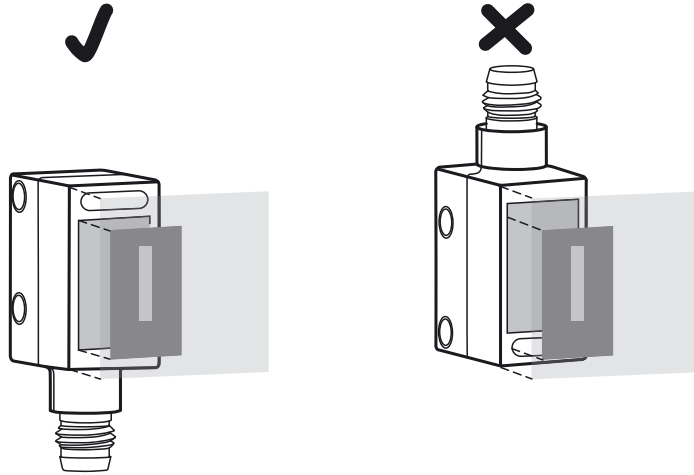
CCC approval / marking not required for products rated ≤ 36 V**Curves/Diagrams****Characteristic response curve****Relative received light strength****Light spot diameter****Aperture alignment**

Release date: 2013-06-26 12:59 Date of issue: 2013-06-27 228067_eng.xml

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

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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.