



**Model Number**

**M4.2/MV4.2-8000-RT/76a/95/110**

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

**Features**

- High-precision sensors for complex applications
- Miniature design with very robust and versatile mounting options
- Optical surface made of scratch-resistant glass for areas that are prone to high levels of dirt
- Maximum immunity thanks to unique encrypted emission frequency
- Very short response time
- Rear mounting option for easy mounting without mounting bracket

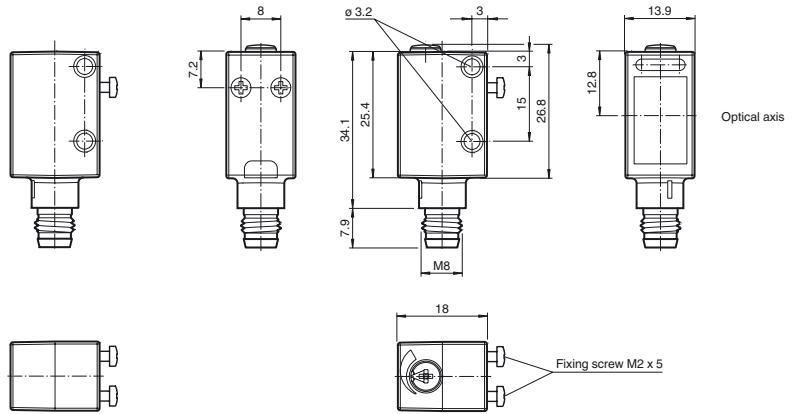
**Product information**

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.

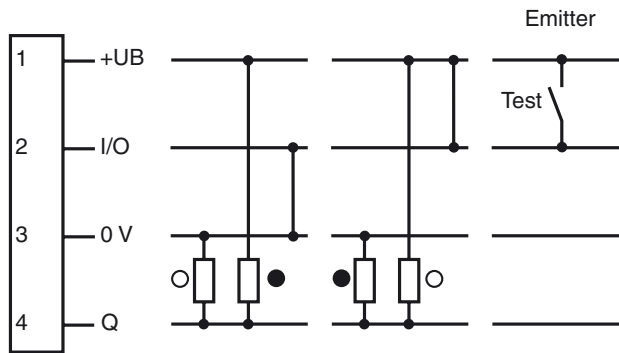
**Dimensions**

Transmitter

Receiver



**Electrical connection**



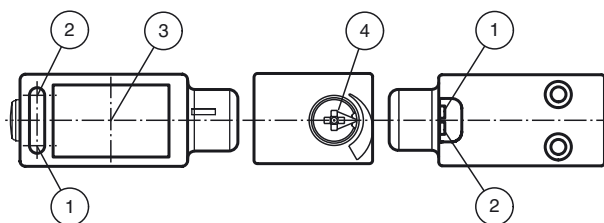
○ = Light on  
● = Dark on

**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	Signal display (only Receiver)	yellow
3	Optical axis	
4	Sensitivity adjustment (only Receiver)	

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

Emitter	M4.2-8000-RT/76a/95
Receiver	MV4.2-8000-RT/40b/95/110

**General specifications**

Effective detection range	0 ... 8000 mm
Threshold detection range	10000 mm
Light source	LED
Light type	modulated visible red light
Target size	min. 7 mm
Diameter of the light spot	300 mm at 8000 mm detection range
Angle of divergence	approx. 2 °
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	2000 Hz
Response time		250 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

**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

**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**

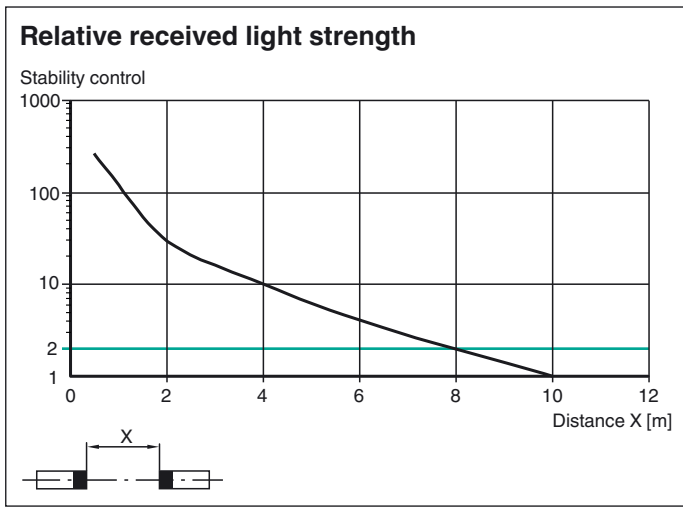
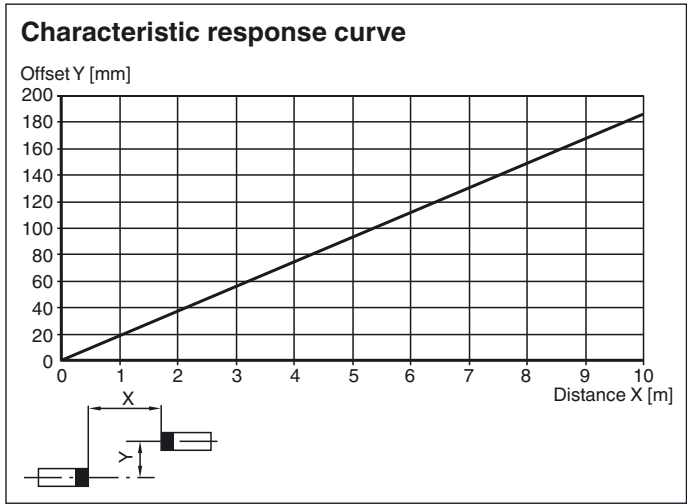
Female cordset single-ended, M8, 4-pin, PVC cable

**V31-WM-2M-PVC**

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

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

**Curves/Diagrams**

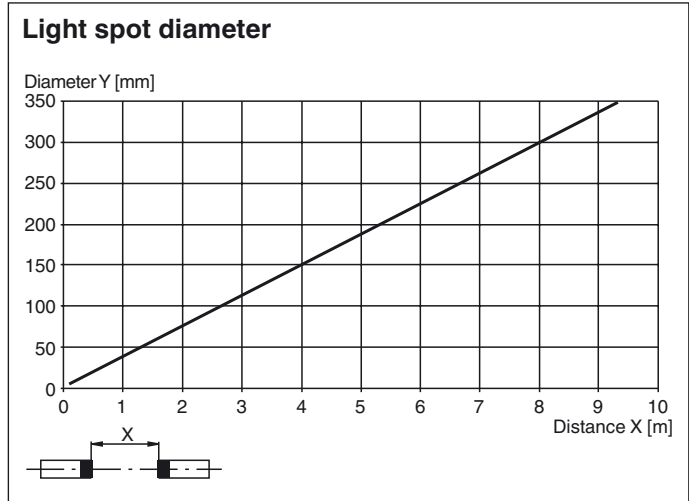


**Curves/Diagrams**

To aid in the detection of small objects, various apertures OMH-11-... can be placed on the sensors. This results in different detection ranges:

Aperture	Aperture type	Min. object size	Detection range
No aperture		7.0 mm	0 to 10 m
OMH-11-08	Vertical	2.0 mm	0 to 4 m
OMH-11-08	Horizontal	2.0 mm	0 to 2 m
OMH-11-06	Vertical	1.5 mm	0 to 3 m
OMH-11-06	Horizontal	1.5 mm	0 to 1.5 m
OMH-11-04	Vertical	1.0 mm	0 to 2 m
OMH-11-04	Horizontal	1.0 mm	0 to 1 m
OMH-11-02	Vertical	0.5 mm	0 to 1.5 m
OMH-11-02	Horizontal	0.5 mm	0 to 0.5 m

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### Aperture alignment

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

