











Model Number

ML4.2-54-F/40b/110/115b

Retroreflective sensor

with 300 mm fixed cable and 4-pin, M12 x 1 connector

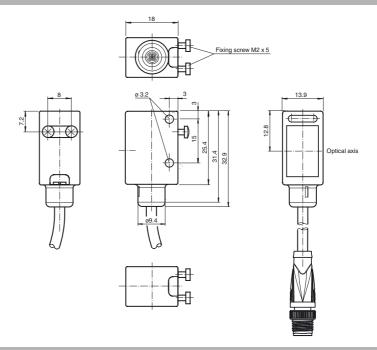
Features

- 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
- Objects can be reliably detected down to 0 mm: no blind zone
- Small, sharp light spot
- Tamper-proof version with no adjustments

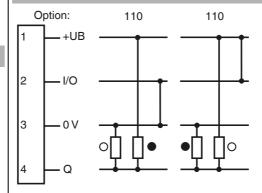
Product information

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

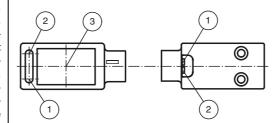


- O = Light on
- = Dark on

Pinout



Indicators/operating means



| 1 | Operating display | green |
|---|-------------------|--------|
| 2 | Signal display | yellow |
| 3 | Optical axis | |



| Technical data | | | | |
|--------------------------------------|----------------|--|--|--|
| General specifications | | | | |
| Effective detection range | | 0 5 m | | |
| Reflector distance | | 0 5 m | | |
| Threshold detection range | | 6 m | | |
| Reference target | | H85-2 reflector | | |
| Light source | | LED | | |
| Light type | | modulated visible red light , 660 nm | | |
| Polarization filter | | yes | | |
| Angle deviation | | max. ± 1° | | |
| Diameter of the light spot | | approx. 40 mm at detection range 1 m | | |
| Angle of divergence | | 1.7° | | |
| 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 | | LED yellow: switching state; Stability control | | |
| Electrical specifications | | | | |
| Operating voltage | U_B | 10 30 V DC | | |
| Ripple | | max. 10 % | | |
| No-load supply current | I ₀ | < 20 mA at 24 V DC | | |
| 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 | 1 kHz | | |
| Response time | | 500 μs | | |
| Ambient conditions | | | | |
| Ambient temperature | | -20 60 °C (-4 140 °F) | | |
| Storage temperature | | -20 75 °C (-4 167 °F) | | |
| Mechanical specifications | | | | |
| Degree of protection | | IP67 / IP69K | | |
| Connection | | 300 mm fixed cable with M12 x 1, 4-pin connector | | |
| Material | | | | |
| Housing | | ABS | | |
| Optical face | | glass pane | | |
| Cable | | PUR | | |
| Mass | | approx. 15 g | | |
| Compliance with standards and ves | l directi- | | | |
| 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 | | |
| Approvals and certificates | | | | |
| CE conformity | | yes | | |
| UL approval | | cULus Listed | | |
| - = wpp. 0.m. | | | | |

Accessories

OMH-4.1

Mounting Clamp

OMH-ML6

Mounting bracket

OMH-ML6-Z

Mounting bracket

OMH-ML6-U

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

V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

REF-H85-2

Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

REF-C110-2

Reflector, round ø 84 mm, central mounting hole

REF-H60-2

Reflector with mounting holes

Reflector, rectangular 60 mm x 19 mm, mounting holes

OFR-100/100

Reflective tape 100 mm x 100 mm

REF-A17

Reflector, round ø 20.5 mm, self-adhesive

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

PEPPERL+FUCHS



UL approval CCC approval

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

Curves/Diagrams

