



Model Number

ML6-54-F/82b/95/110

Retroreflective sensor
with 4-pin, M8 x 1 connector

Features

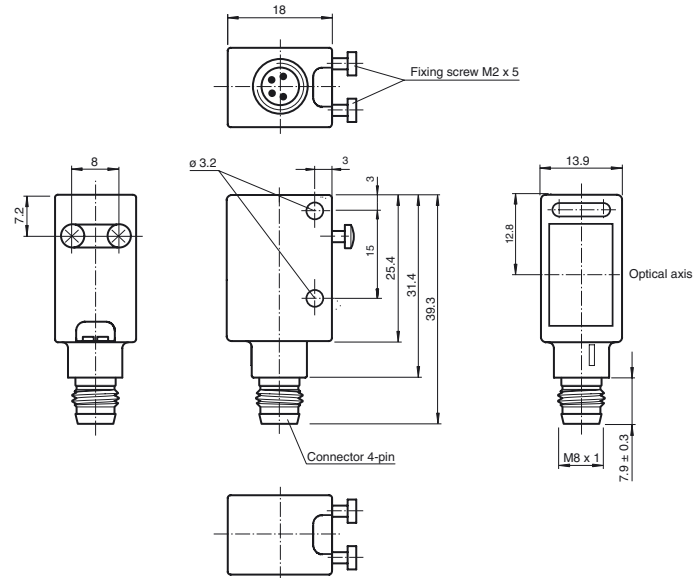
- Precision sensor for standard applications
- Miniature design with very robust and versatile mounting options
- Objects can be reliably detected down to 0 mm: no blind zone
- Small, sharp light spot
- Weak signal output and indicator
- Tamper-proof version with no adjustments

Product information

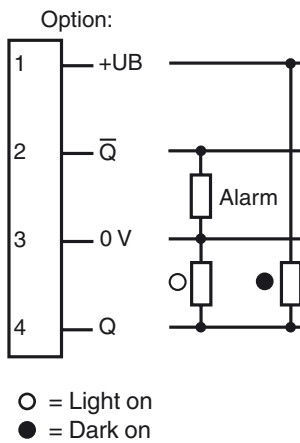
The ML6 series is characterized by a robust, powerful and standard design in a miniature housing. The housing offers IP67/IP69K degree of protection, a food-grade lens, highly visible LEDs and robust all-metal bushings for mounting. Adjustable and tamper-proof sensors with a double push-pull output are available. 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. Clearly visible red light sources facilitates alignment. 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.

Release date: 2015-04-09 10:40 Date of issue: 2015-04-09 207102_eng.xml

Dimensions



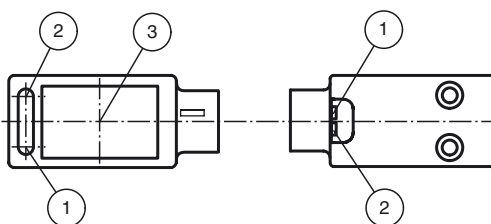
Electrical connection



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. $\pm 1^\circ$ |
| 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 | 980 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

| | | |
|-----------------------------|----------------|---|
| Pre-fault indication output | | 1 PNP function reserve output (alarm), short-circuit protected, protected from reverse polarity, open collector |
| Switching type | | light on |
| 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 | M8 x 1 connector, 4-pin |
| Material | |
| Housing | ABS |
| Optical face | PMMA |
| Mass | 10 g |

Compliance with standards and directives

| | |
|-----------------------------|--|
| 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

| | |
|--------------|--|
| 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-5M-PUR

Female cordset, M8, 4-pin, PUR cable

V31-WM-5M-PUR

Female cordset, M8, 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

Reflector, rectangular 40.5 mm x 60 mm, mounting holes

REF-VR10

Reflector, rectangular 60 mm x 19 mm, mounting holes

OFR-100/100

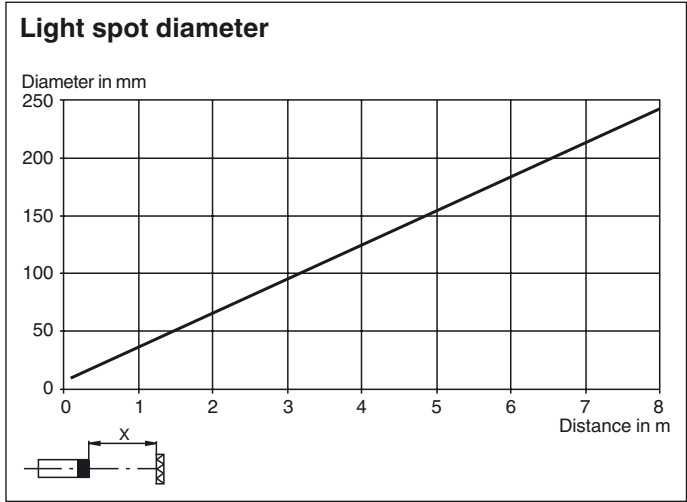
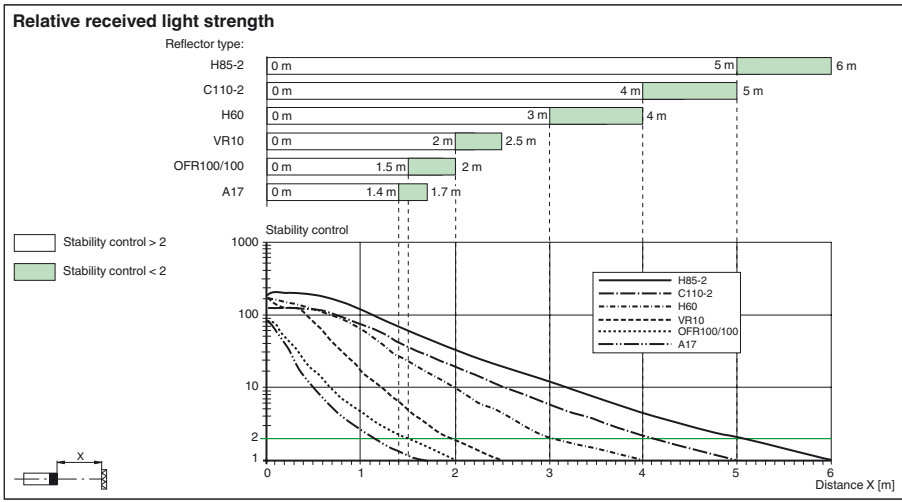
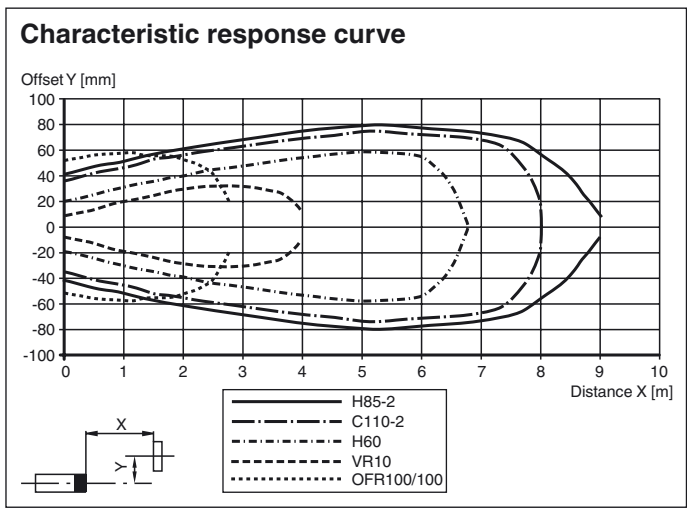
Reflective tape 100 mm x 100 mm

REF-A17

Reflector, round ø 20.5 mm, self-adhesive

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

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.

