Retroreflective sensor with polarization filter

ML100-55/103/115

Model Number
ML100-55/103/115
Retroreflective sensor with 2 m fixed cable

Features
- Miniature design
- Easy to use
- Clearly visible LEDs for Power ON, switching state and weak signal indication
- Full metal thread mounting
- Very bright, highly visible light spot
- Not sensitive to ambient light

Product information
The ML 100 series is characterized by its miniature housing with integral, all-metal threaded bushings. All versions are equipped with a visible red transmitter LED. This greatly simplifies installation and commissioning. The switching states are easily visible from all directions thanks to the highly visible LEDs.

Dimensions

Electrical connection

<table>
<thead>
<tr>
<th>Option</th>
<th>Symbol</th>
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</thead>
<tbody>
<tr>
<td>BN</td>
<td>+UB</td>
</tr>
<tr>
<td>BU</td>
<td>0 V</td>
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<tr>
<td>BK</td>
<td>Q</td>
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Indicators/operating means

1. Light-Dark-switching
2. Sensitivity adjuster
3. Signal display yellow
4. Operating display green

= Light on
= Dark on
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**Technical data**

**General specifications**
- Effective detection range: 0 ... 5 m
- Reflector distance: 0.01 ... 5 m
- Threshold detection range: 7 m
- Reference target: H50 reflector
- Light source: LED
- Light type: modulated visible red light
- Polarization filter: yes
- Diameter of the light spot: approx. 500 mm at a distance of 7 m
- Angle of divergence: approx. 4 °
- Optical face: frontal

**Functional safety related parameters**
- MTTFd: 860 a
- Mission Time (TM): 20 a
- Diagnostic Coverage (DC): 0 %

**Indicators/operating means**
- Operation indicator: LED green: power on
- Function indicator: LED yellow: lights up when receiving the light beam; flashes when falling short of the stability control; OFF when light beam is interrupted
- Control elements: sensitivity adjustment
- Control elements: Light-on/dark-on changeover switch

**Electrical specifications**
- Operating voltage: $U_{B} = 10 ... 30$ V DC
- Ripple: max. 10 %
- No-load supply current: $I_0 < 20$ mA

**Output**
- Switching type: The switching type of the sensor is adjustable. The default setting is: light on
- Signal output: 1 PNP output, short-circuit protected, reverse polarity protected, open collector
- Switching voltage: max. 100 mA, resistive load
- Voltage drop: $U_d \leq 1.5$ V DC
- Switching frequency: $f = 1000$ Hz
- Response time: 0.5 ms

**Ambient conditions**
- Ambient temperature: -30 ... 60 °C (-22 ... 140 °F)
- Storage temperature: -40 ... 70 °C (-40 ... 158 °F)

**Mechanical specifications**
- Housing width: 11 mm
- Housing height: 31 mm
- Housing depth: 20 mm
- Degree of protection: IP67
- Connection: 2 m fixed cable
- Material: Housing: PC (Polycarbonate)
- Optical face: PMMA
- Mass: approx. 50 g
- Tightening torque, fastening screws: 0.6 Nm
- Cable length: 2 m

**Compliance with standards and directives**
- Standard conformity: UL 60947-5-2

**Approvals and certificates**
- UL approval: cULus Listed, Class 2 Power Source or listed Power Supply with a limited voltage output with (maybe integrated) fuse (max. 3.3 A according UL248), Type 1 enclosure
- CCC approval: CCC approval / marking not required for products rated ≤36 V

**Accessories**
- **OMH-F10-ML100**
  - Mounting aid for ML100 series
- **OMH-ML100-01**
  - Mounting aid for ML100 series, Mounting bracket
- **OMH-ML100-02**
  - Mounting aid for ML100 series, Mounting bracket
- **OMH-ML100-03**
  - Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
- **OMH-ML100-04**
  - Mounting aid for ML100 series, Mounting bracket
- **OMH-ML100-05**
  - Mounting aid for ML100 series, Mounting bracket
- **OMH-10**
  - Mounting aid
- **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
- **REF-H50**
  - Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap
- **REF-H33**
  - Reflector with screw fixing
- **OFR-70-2**
  - Reflective tape 70 mm x 70 mm
- **REF-MH23-2**
  - Reflector with Micro-structure, rectangular 23 mm x 14 mm, diagonal mounting hole
- **OMH-ML100-S1**
  - Mounting bracket
- **OMH-ML100-08**
  - Mounting aid for ML100 series, Snap-in

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

**Characteristic response curve**

Offset Y [mm]

Distance X [m]

- H85-2 offset
- C110-2 offset
- H60-2 offset
- H50 offset
- OFR70-2 offset

**Relative received light strength (typical)**

Reflector type:
- H85-2
- C110-2
- H60-2
- H50
- H33
- OFR70-2

Stability control > 1.5
Stability control < 1.5