



**Model Number**

**ML100-8-H-100-5986**

Background suppression sensor  
With fixed cable and M8 device plug, 3-pin

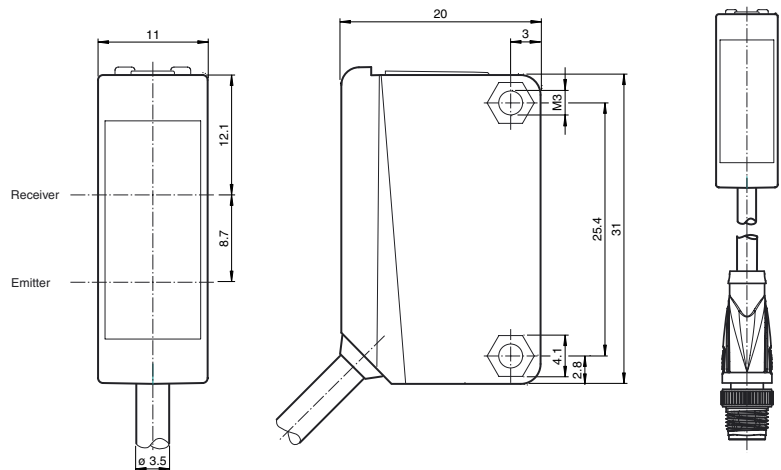
**Features**

- Diffuse mode sensor with multiple light spots
- Specially designed for detecting critical objects such as PCBs
- Miniature design
- Detects objects in front of a close background through precise background suppression
- Can be adapted to the application in question thanks to the adjustable detection range
- Precision object detection, almost irrespective of the color
- Not sensitive to ambient light, even with switched energy saving lamps

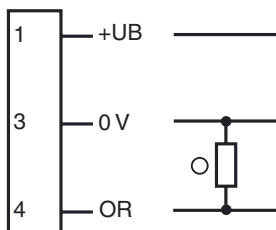
**Product information**

The ML100 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**

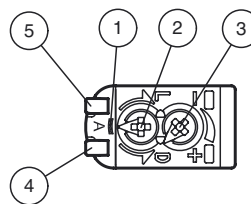


**Electrical connection**



○ = Light on  
● = Dark on

**Indicators/operating means**



|   |                      |        |
|---|----------------------|--------|
| 1 | Alignment Mode       |        |
| 2 | Light-Dark-switching |        |
| 3 | Sensitivity adjuster |        |
| 4 | Signal display       | yellow |
| 5 | Operating display    | green  |

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

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**Technical data****General specifications**

|                                 |  |
|---------------------------------|--|
| Detection range                 | 20 ... 100 mm  |
| Detection range min.            | 10 ... 25 mm   |
| Detection range max.            | 25 ... 100 mm  |
| Adjustment range                | 25 ... 100 mm  |
| Reference target                | standard white, 100 mm x 100 mm  |
| Light source                    | LED  |
| Light type                      | modulated visible red light  |
| Black/White difference (6%/90%) | < 20 %   |
| Approvals                       | CE, cULus Listed 57M3 (Only in association with UL Class 2 power supply; Type 1 enclosure)   |
| Diameter of the light spot      | 3 light spots, spotsize 4 mm at a distance of 50 mm, spots are 8 mm apart; spotsize 2.5 mm at a distance of 80 mm, spots are 12 mm apart; spotsize 4 mm at a distance of 100 mm, spots are 15 mm apart |
| Optical face                    | frontal  |
| Ambient light limit             | EN 60947-5-2   |

**Functional safety related parameters**

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 1100 a |
| Mission Time (T <sub>M</sub> ) | 20 a   |
| Diagnostic Coverage (DC)       | 0 %    |

**Indicators/operating means**

|                   |   |
|-------------------|---|
| Operating display | LED green: power on   |
| Function display  | LED yellow: lights when object is detected, flashes when in adjustment mode |
| Controls          | Detection range adjuster  |
| Controls          | Light/Dark switch   |

**Electrical specifications**

|                        |                |                         |
|------------------------|----------------|-------------------------|
| Operating voltage      | U <sub>B</sub> | 10 ... 30 V DC, class 2 |
| Ripple                 |                | max. 10 %               |
| No-load supply current | I <sub>0</sub> | < 15 mA                 |

**Output**

|                     |   |            |
|---------------------|---|------------|
| Switching type      | light on  |            |
| Signal output       | 1 PNP output, short-circuit protected, reverse polarity protected, open collector |            |
| Switching voltage   | max. 30 V DC  |            |
| Switching current   | max. 100 mA, resistive load   |            |
| Voltage drop        | U <sub>d</sub>  | ≤ 1.5 V DC |
| Switching frequency | f   | 500 Hz     |
| Response time       |   | 1 ms       |

**Ambient conditions**

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

**Mechanical specifications**

|                   |   |
|-------------------|---|
| Protection degree | IP67                                    |
| Connection        | 400 mm pigtail with M8 connector, 3-pin |
| Material          |   |
| Housing           | PC (glass-fiber-reinforced Makrolon)    |
| Optical face      | PMMA                                    |
| Mass              | approx. 50 g                            |

**Compliance with standards and directives**

|                           |              |
|---------------------------|--------------|
| Directive conformity      |              |
| EMC Directive 2004/108/EC | EN 60947-5-2 |
| Standard conformity       |              |
| Standards                 | UL 508       |

**Approvals and certificates**

|              |  |
|--------------|--|
| UL approval  | cULus Listed, Class 2 Power Source, Type 1 enclosure         |
| CCC approval | CCC approval / marking not required for products rated ≤36 V |

**Accessories**

**OMH-ML100-01**  
Mounting bracket

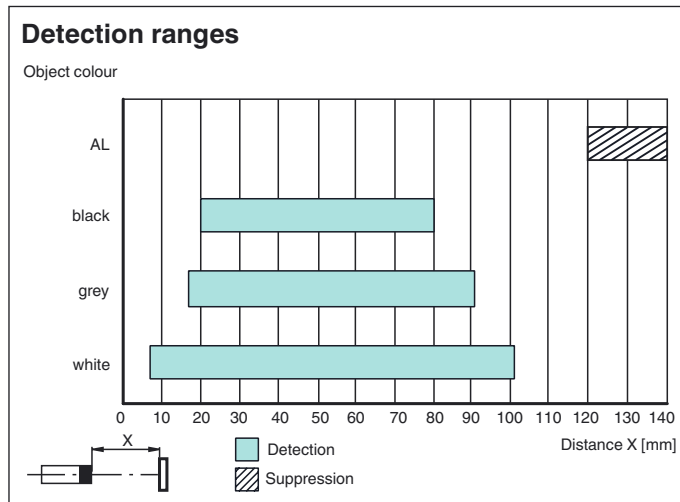
**OMH-ML100-02**  
Mounting bracket

**OMH-ML100-03**  
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

**OMH-ML100-04**  
Mounting bracket

**OMH-ML100-05**  
Mounting bracket

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



## Configuration Information

### Setting mode (A-Mode):

A-Mode is an additional switch position that is integrated into the light ON/dark ON switch. A-Mode is located between position L and position D. A-Mode is a help mode which enables you to detect whether all three light spots are directed onto the object.

If A-Mode is selected, the yellow signal indicator LED flashes; the number of times that the LED flashes equates to the number of detected light spots.

The following scenarios exist:

- No flashing/LED off: No light spots detected
- Fast flashing (8 Hz): One light spot detected
- Slow flashing (4 Hz): Two light spots detected
- Static illumination/LED on: Three light spots detected

As soon as you exit A-Mode, the yellow LEDs light up in the standard manner again.