## Model Number

**ML100-8-1000-RT/95/102**

Diffuse mode sensor
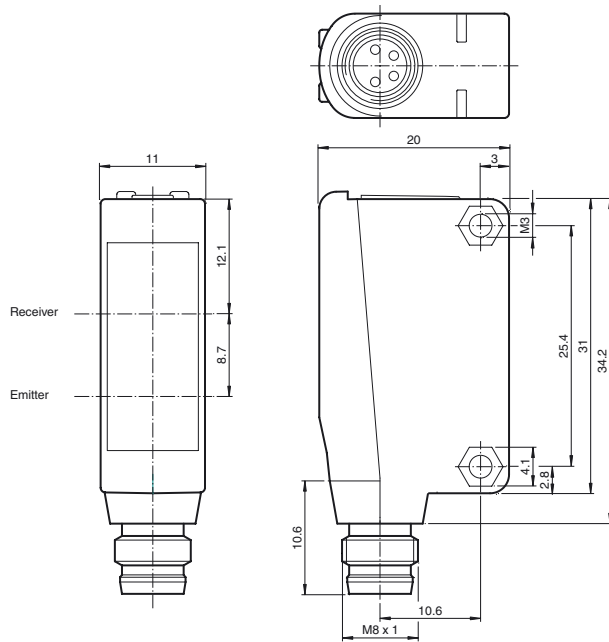with 4-pin, M8 x 1 connector

## Features

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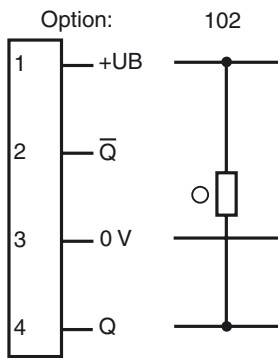- Not sensitive to ambient light

## 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.
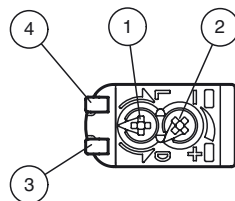
## Dimensions

## Electrical connection

Option: 102

| Pin | Signal |
|-----|--------|
| 1 | +UB |
| 2 | Q̄ |
| 3 | 0 V |
| 4 | Q |

○ = Light on
● = Dark on

## Pinout

## Indicators/operating means

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

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

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## Technical data

### General specifications

| | |
|---|---|
| Detection range | 0 ... 1000 mm |
| Adjustment range | 100 ... 1000 mm |
| Reference target | standard white, 100 mm x 100 mm |
| Light source | LED |
| Light type | modulated visible red light |
| Diameter of the light spot | approx. 75 mm at a distance of 1000 mm |
| Angle of divergence | approx. 2 ° |
| Optical face | frontal |
| Ambient light limit | EN 60947-5-2 |

### Functional safety related parameters

| | |
|---|---|
| $MTTF_d$ | 860 a |
| Mission Time ($T_M$) | 20 a |
| Diagnostic Coverage (DC) | 0 % |

### Indicators/operating means

| | |
|---|---|
| Operation indicator | LED green: power on |
| Function indicator | LED yellow, lights up with receiver lit |
| Control elements | sensitivity adjustment |
| Control elements | Light/Dark switch |

### Electrical specifications

| | | |
|---|---|---|
| Operating voltage | $U_B$ | 10 ... 30 V DC , class 2 |
| Ripple | | max. 10 % |
| No-load supply current | $I_0$ | < 20 mA |

### Output

| | | |
|---|---|---|
| Switching type | | light/dark on, switchable |
| Signal output | | 1 NPN output, short-circuit protected, reverse polarity protected, open collector |
| Switching voltage | | max. 30 V DC |
| Switching current | | max. 100 mA |
| Voltage drop | $U_d$ | ≤ 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

| | |
|---|---|
| Protection degree | IP67 |
| Connection | Male connector M8 x 1 , 4-pin |
| Material | |
| Housing | PC (Polycarbonate) |
| Optical face | PMMA |
| Mass | approx. 10 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 |
| Approvals | CE, cULus Listed 57M3 (Only in association with UL Class 2 power supply; Type 1 enclosure) |

## Accessories

**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

**OMH-F10-ML100**
Mounting aid for ML100 series

**OMH-10**
Mounting aid

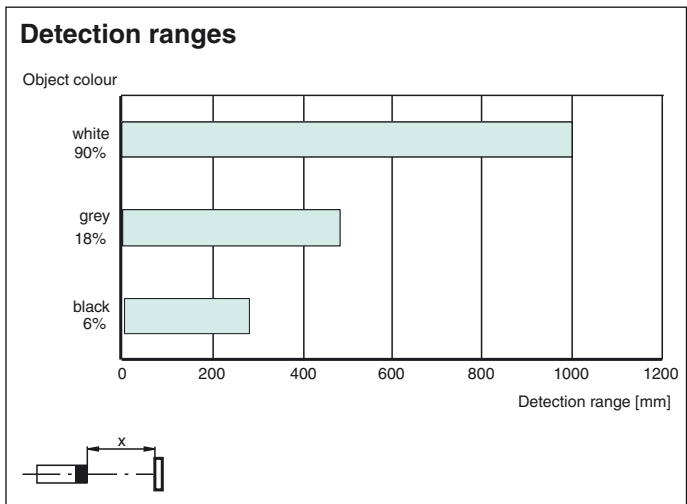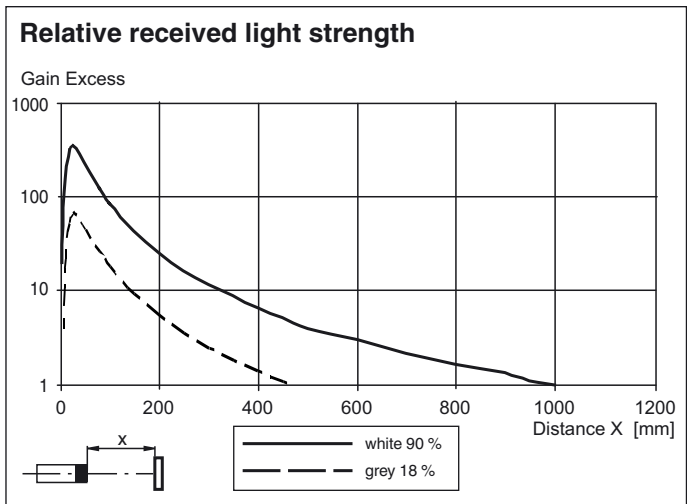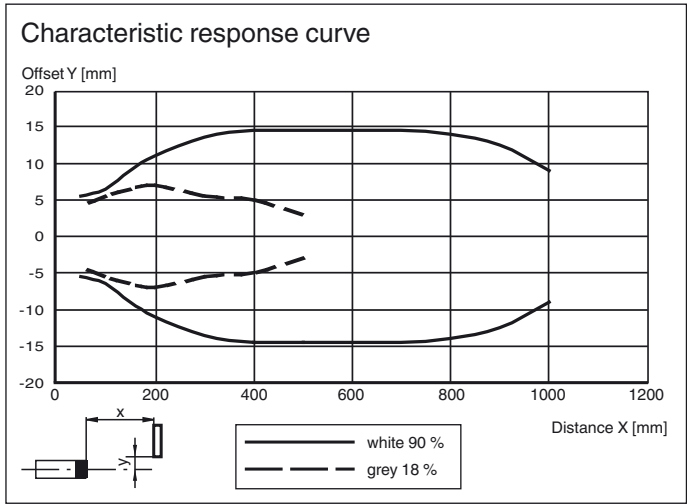**V31-WM-2M-PUR**
Female cordset, M8, 4-pin, PUR cable

**V31-GM-2M-PUR**
Female cordset, M8, 4-pin, PUR cable

**OMH-ML100-S1**
Mounting bracket

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

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## Curves/Diagrams

### Characteristic response curve

Offset Y [mm]



Distance X [mm]

white 90 %
grey 18 %

### Relative received light strength

Gain Excess



Distance X  [mm]

white 90 %
grey 18 %

### Detection ranges

Object colour



white 90%

grey 18%

black 6%

Detection range [mm]

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

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