## Model Number

**ML4.2-8-H-20-RT/40b/110/115b**

Background suppression sensor

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

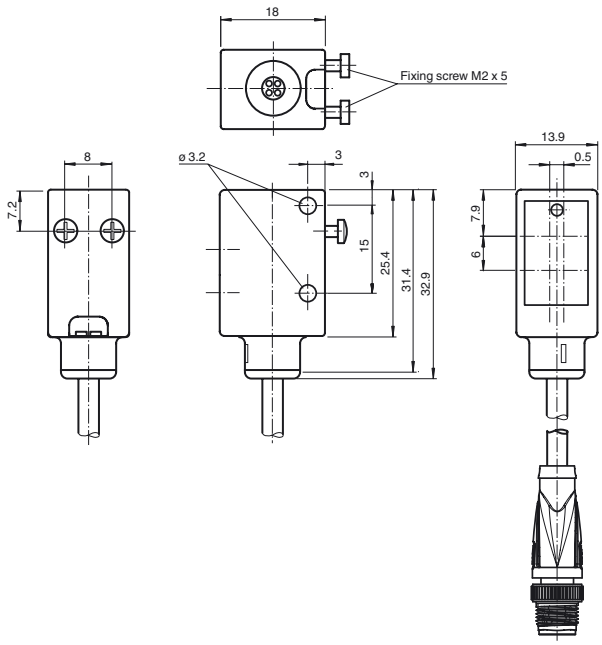
## Features

- Precise background suppression
- Very small black-white difference
- Small, sharp light spot
- Highly visible LEDs for Power-On, switching status, short-circuit, and undervoltage
- Metal-reinforced fastening holes
- Tamper-proof version with no adjustments
- Push-pull output

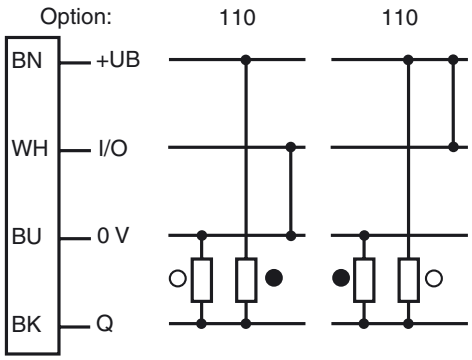
## Product information

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

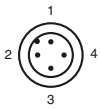



## Electrical connection




○ = Light on
● = Dark on

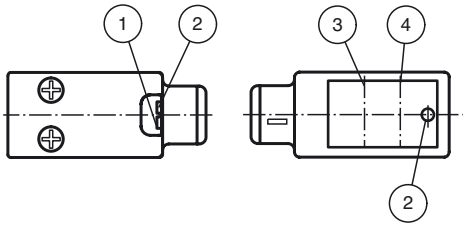
## Pinout




Wire colors in accordance with EN 60947-5-2

| | | |
|---|---|---|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

## Indicators/operating means




| | | |
|---|---|---|
| 1 | operating display | green |
| 2 | indication of the switching state | yellow |
| 3 | receiver axis | |
| 4 | emitter axis | |

Release date: 2019-11-27 14:15 Date of issue: 2019-11-27 205416_eng.xml

## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Detection range | | 7 ... 20 mm |
| Detection range max. | | 5 ... 25 mm |
| Background suppression | | starts from 25 mm |
| Light source | | LED |
| Light type | | modulated visible red light , 660 nm |
| Black/White difference (6 %/90 %) | | approx. 1 mm |
| Diameter of the light spot | | approx. 1.5 mm at 20 mm |
| Angle of divergence | | approx. 5 ° |
| 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: lights when object is detected |
| **Electrical specifications** | | |
| Operating voltage | $U_B$ | 10 ... 30 V DC |
| Ripple | | 10 % |
| No-load supply current | $I_0$ | < 25 mA |
| **Output** | | |
| Switching type | | light/dark on electrically switchable |
| Signal output | | Push-pull 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 | 1000 Hz |
| Response time | | 0.5 ms |
| **Conformity** | | |
| Product standard | | EN 60947-5-2 |
| **Ambient conditions** | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| Storage temperature | | -20 ... 75 °C (-4 ... 167 °F) |
| **Mechanical specifications** | | |
| Housing width | | 13.9 mm |
| Housing height | | 31.4 mm |
| Housing depth | | 18 mm |
| 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 directives** | | |
| Standard conformity | | |
| 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 -150 Hz, 5 g in each X, Y and Z directions |

| | |
|---|---|
| **Approvals and certificates** | |
| CE conformity | yes |
| 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

**V1-G-2M-PVC**
Female cordset, M12, 4-pin, PVC cable

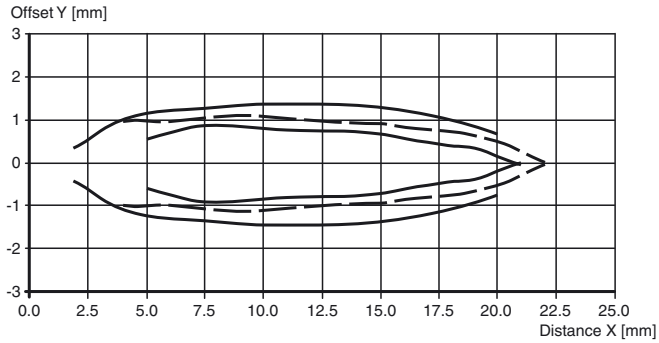
Other suitable accessories can be found at www.pepperl-fuchs.com

Release date: 2019-11-27 14:15 Date of issue: 2019-11-27 205416_eng.xml

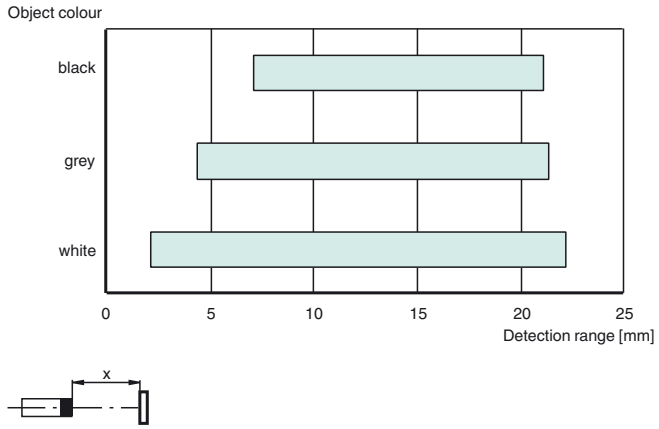
## Curves/Diagrams

### Characteristic response curve

ML4.2-8-H-20-RT...




### Detection ranges




Release date: 2019-11-27 14:15 Date of issue: 2019-11-27 205416_eng.xml