



## Background suppression sensor ML4.2-8-H-40-43-RT/40b/110/115



- 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

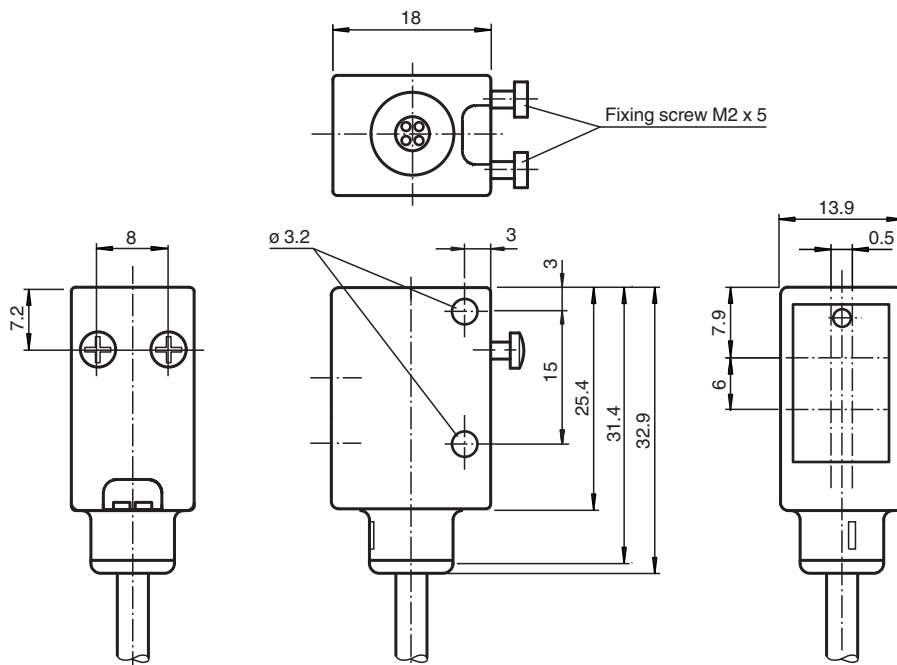
Background suppression sensor



### Function

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



## Technical Data

### General specifications

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Detection range                   | 10 ... 40 mm                         |
| Detection range max.              | 10 ... 43 mm                         |
| Background suppression            | starts from 43 mm                    |
| Light source                      | LED                                  |
| Light type                        | modulated visible red light , 660 nm |
| Black-white difference (6 %/90 %) | approx. 3 mm                         |
| Diameter of the light spot        | approx. 3 mm at 40 mm                |
| Angle of divergence               | approx. 5 °                          |
| Ambient light limit               |                                      |
| Continuous light                  | 40000 Lux                            |
| Modulated light                   | 5000 Lux                             |

### Functional safety related parameters

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 1940 a |
| Mission Time (T <sub>M</sub> ) | 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 <sub>B</sub> | 10 ... 30 V DC |
| Ripple                 |                | 10 %           |
| No-load supply current | I <sub>0</sub> | < 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 <sub>d</sub> | ≤ 2.5 V DC                                                            |
| Switching frequency | f              | 1000 Hz                                                               |
| Response time       |                | 0.5 ms                                                                |

### Conformity

|                  |              |
|------------------|--------------|
| Product standard | EN 60947-5-2 |
|------------------|--------------|

### 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 |

### Ambient conditions

|                     |                               |
|---------------------|-------------------------------|
| Ambient temperature | -20 ... 60 °C (-4 ... 140 °F) |
| Storage temperature | -20 ... 75 °C (-4 ... 167 °F) |

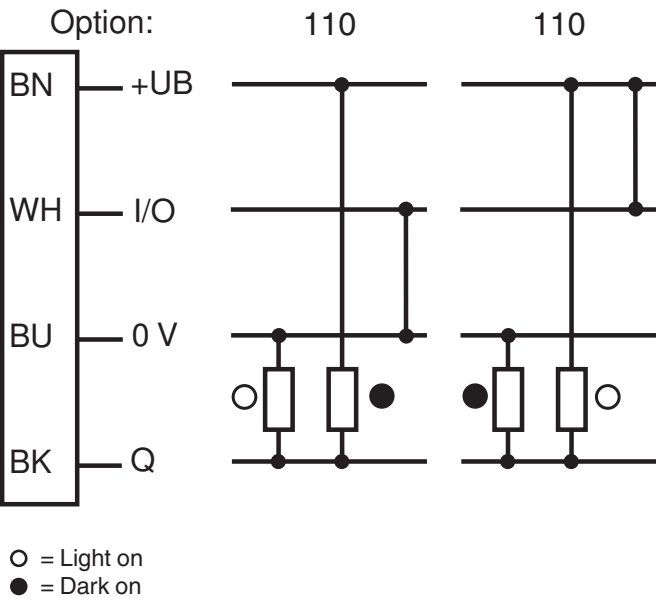
### Mechanical specifications

|                      |                 |
|----------------------|-----------------|
| Housing width        | 13.9 mm         |
| Housing height       | 31.4 mm         |
| Housing depth        | 18 mm           |
| Degree of protection | IP67 / IP69K    |
| Connection           | 2 m fixed cable |
| Material             |                 |
| Housing              | ABS             |

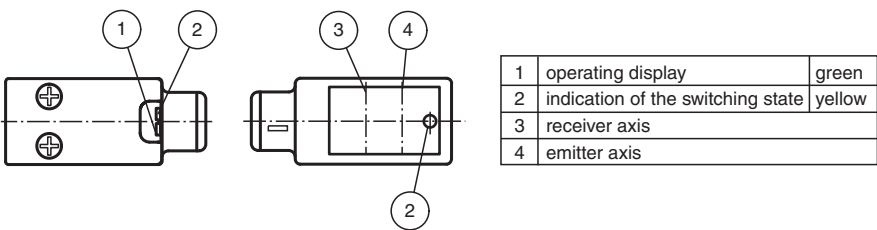
Technical Data

|              |              |
|--------------|--------------|
| Optical face | glass pane   |
| Mass         | approx. 10 g |

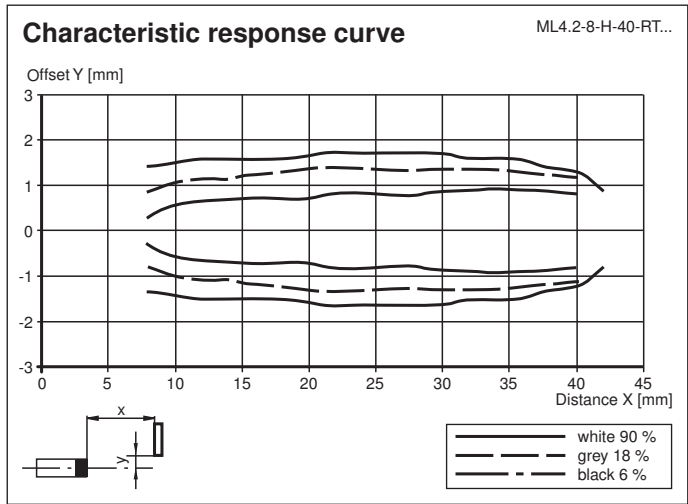
Connection Assignment



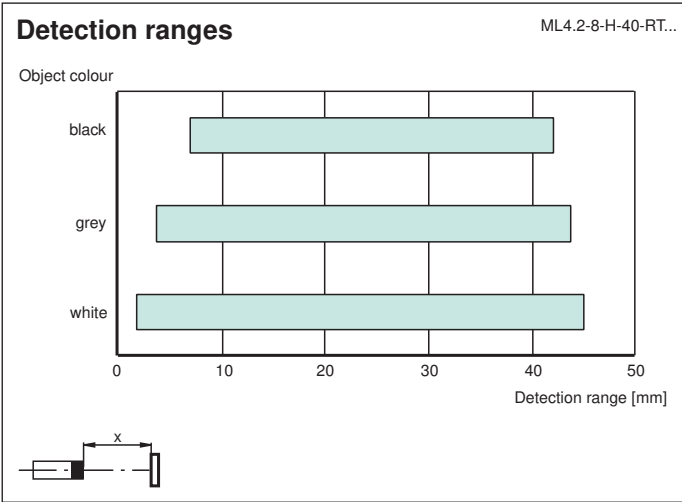
Assembly



Characteristic Curve



Release date: 2021-09-29 Date of issue: 2021-09-29 Filename: 240955\_eng.pdf



Accessories

|                                                                                    |           |                  |
|------------------------------------------------------------------------------------|-----------|------------------|
|   | OMH-4.1   | Mounting Clamp   |
|   | OMH-ML6   | Mounting bracket |
|   | OMH-ML6-U | Mounting bracket |
|  | OMH-ML6-Z | Mounting bracket |