



**Model Number**

**ML29-P/59/103/143**

Thru-beam sensor  
4-pin plastic connector, 6.5 mm diameter

**Features**

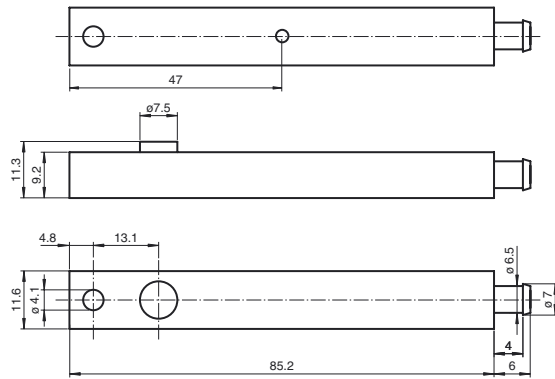
- Single-beam monitoring with extremely narrow sensor
- Integrated circuit
- Test
- Simple installation - Plug & Play
- Ideal for installation in door profiles or frames
- Dark on version

**Product information**

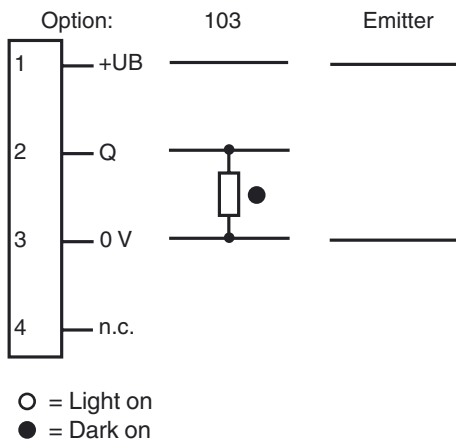
The narrow miniature thru-beam sensors are a small and cost-effective solution, fitting in virtually any door frame. The ML29 and ML30 series offer fast, reliable detection at a distance of up to 8.5 m. The sensors are easy to mount on the profile, either using adhesive strips or a screw. A large opening angle ensures problem-free alignment. Several sensors can be mounted in a cross formation to offer multi-beam protection.

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**Dimensions**



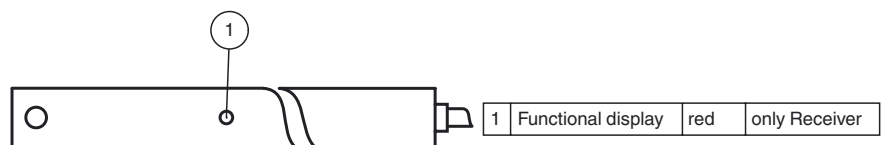
**Electrical connection**



**Pinout**



**Indicators/operating means**



**Technical data**

**System components**

|          |                   |
|----------|-------------------|
| Emitter  | ML29-T/143        |
| Receiver | ML29-R/59/103/143 |

**General specifications**

|                           |                          |
|---------------------------|--------------------------|
| Effective detection range | 0 ... 6 m                |
| Threshold detection range | 8.5 m                    |
| Light source              | IREDD                    |
| Light type                | modulated infrared light |
| Angle of divergence       | +/- 8 °                  |
| Optical face              | lateral                  |
| Ambient light limit       | 40000 Lux                |

**Functional safety related parameters**

|                                |       |
|--------------------------------|-------|
| MTTF <sub>d</sub>              | 880 a |
| Mission Time (T <sub>M</sub> ) | 20 a  |
| Diagnostic Coverage (DC)       | 0 %   |

**Indicators/operating means**

|                    |   |
|--------------------|---|
| Function indicator | LED red in receiver : lights up when receiving the light beam |
|--------------------|---|

**Electrical specifications**

|                        |                |                                       |
|------------------------|----------------|---------------------------------------|
| Operating voltage      | U <sub>B</sub> | 11 ... 30 V DC                        |
| No-load supply current | I <sub>0</sub> | Emitter: ≤ 25 mA<br>Receiver: ≤ 10 mA |

**Input**

|            |  |
|------------|--|
| Test input | Test: Transmitter switches off at +UB ≤ 5 V DC |
|------------|--|

**Output**

|                     |   |
|---------------------|---|
| Switching type      | dark on   |
| Signal output       | 1 PNP output, short-circuit protected, reverse polarity protected, open collector |
| Switching voltage   | max. 30 V DC  |
| Switching current   | max. 0.1 A  |
| Switching frequency | f 100 Hz  |
| Response time       | 5 ms  |

**Ambient conditions**

|                     |                               |
|---------------------|-------------------------------|
| Ambient temperature | -20 ... 60 °C (-4 ... 140 °F) |
| Storage temperature | -20 ... 75 °C (-4 ... 167 °F) |
| Relative humidity   | 90 % , noncondensing          |

**Mechanical specifications**

|                      |  |
|----------------------|--|
| Degree of protection | IP65                                     |
| Connection           | 4-pin plastic connector, 6.5 mm diameter |
| Material             |  |
| Housing              | PMMA , black                             |
| Optical face         | Plastic pane                             |
| Mass                 | per device 120 g                         |

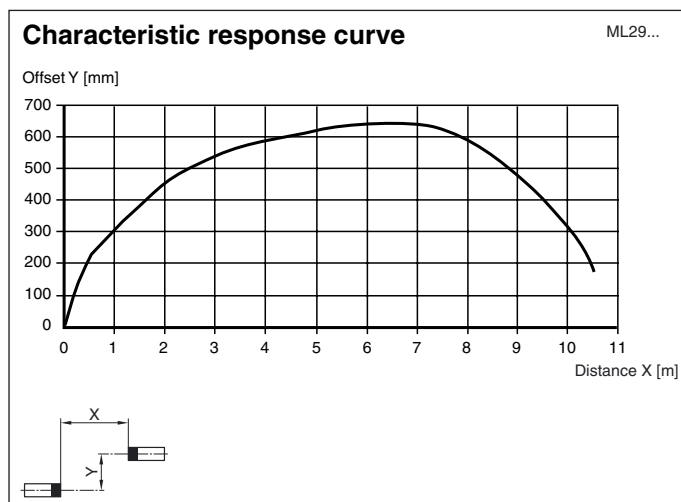
**Compliance with standards and directives**

|                     |   |
|---------------------|---|
| Standard conformity |   |
| Product standard    | EN 60947-5-2:2007<br>IEC 60947-5-2:2007 |
| Standards           | EN 61000-6-2, EN 61000-6-3              |

**Approvals and certificates**

|              |  |
|--------------|--|
| CCC approval | CCC approval / marking not required for products rated ≤36 V |
|--------------|--|

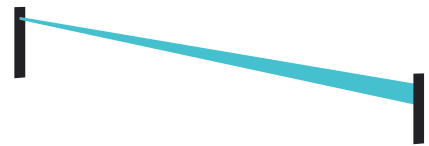
**Curves/Diagrams**



**Typical applications**

- Person detection for automatic doors and gates
- Closing edge protection on sliding and revolving doors
- Threshold monitoring for elevator doors
- Step monitoring for doors on public transport vehicles
- Trigger function for restarting escalators

**Detection area**



**Accessories**

**ML29 Kupplungsdose 6m 4polig**

Female cordset with 6 m cable for ML29 series sensors

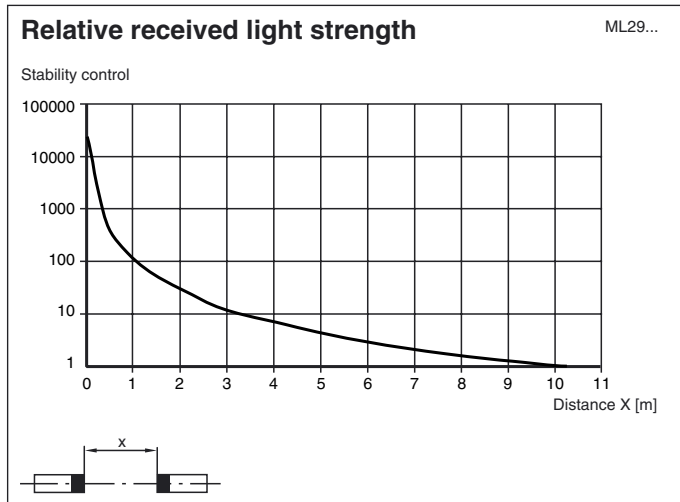
**ML29 Front Plate**

Front plate for thru-beam sensors in series ML29

**ML29 Kupplungsdose 3m 4polig**

Female cordset with 3 m cable for ML29 series sensors

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



**Function principle**

The thru-beam sensor requires a pair of devices for operation, comprising a light transmitter and a light receiver. The emitter and receiver must be arranged in optical alignment with each other. The infrared light from the emitter is detected by the receiver and evaluated.

**Function**

**Static detection:**

The thru-beam sensor detects persons and objects independently of movement and surface structure for as long as the object breaks the detection beam.

|                     |                       | Electronic output |
|---------------------|-----------------------|-------------------|
| Light detection /25 | Person in the beam    | Inactive          |
|                     | No person in the beam | Active            |
| Dark detection /59  | Person in the beam    | Active            |
|                     | No person in the beam | Inactive          |

**Optics:**

The relatively wide opening angles enable the light beam switches to be installed quickly, without alignment problems. Even if there is a light distortion of the installation profiles the function is retained.

**Testing:**

Testing is used to check the function of the light beam switch.

With supply voltage  $+U_B < 5\text{ V}$  the emitter device is switched off. This simulates a light beam interruption. By means of this, the function of the light barrier can be tested easily without using a separate test input.

**Installation:**

Thanks to its small dimensions, the light beam can be fitted in a U-profile or behind a face panel. The hole diameter for both the emitter and the receiver is 8 mm.

Even fixing by means of the adhesive tape contained in the delivery package can be considered.

**Installation of twin-beam arrangement:**

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A twin-beam version requires 2 emitters and receivers. Care should be taken that the beam separation is not less than 20 cm. The transmitters and receivers must be arranged in the form of a cross.

