

Thru-beam sensor

ML29-P/59/103/143



- 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

Single-beam miniature sensor, ideal for installing in frames or door profiles



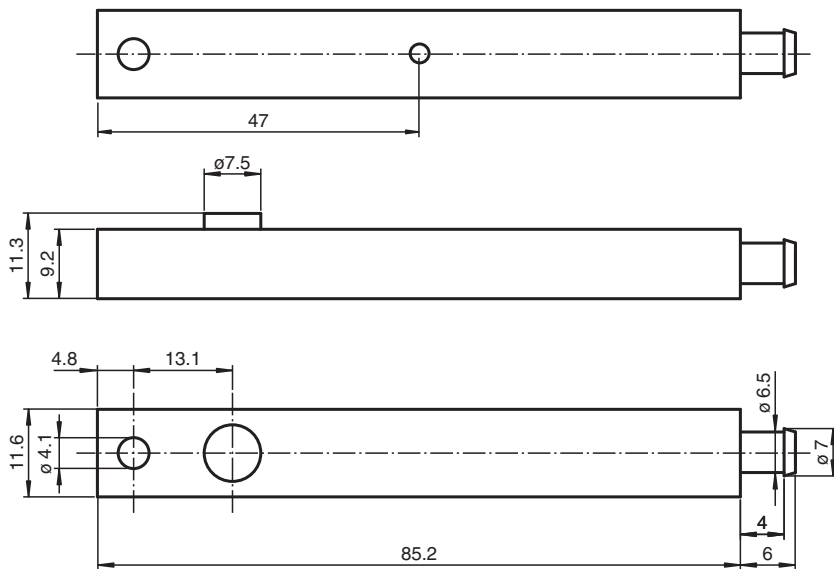
Function

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.

Application

- 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

Dimensions



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

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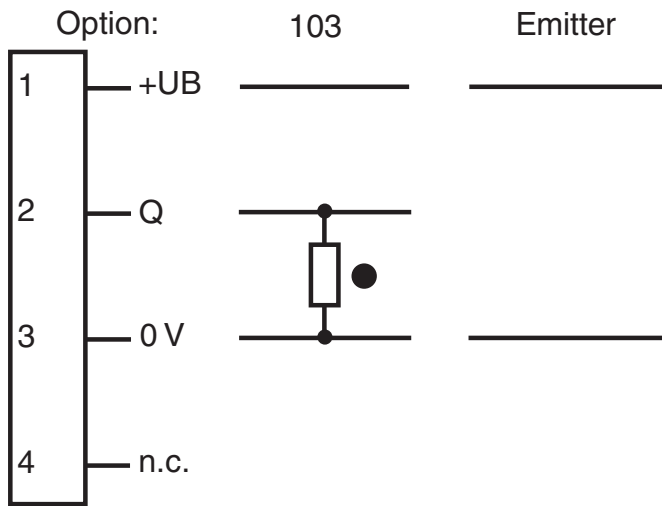
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Technical Data

| | | |
|---|----------------|---|
| 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 | | IRED |
| Light type | | modulated infrared light |
| Opening angle | | +/- 8 ° |
| Optical face | | lateral |
| Ambient light limit | | 40000 Lux |
| Functional safety related parameters | | |
| MTTF _d | | 880 a |
| Mission Time (T _M) | | 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 _B | 11 ... 30 V DC |
| No-load supply current | I ₀ | Emitter: ≤ 25 mA 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 |
| Conformity | | |
| Product standard | | EN 60947-5-2 |
| Compliance with standards and directives | | |
| Standard conformity | | |
| Standards | | EN 61000-6-2, EN 61000-6-3 |
| Approvals and certificates | | |
| 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) |
| 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 |

Connection Assignment



○ = Light on
● = Dark on

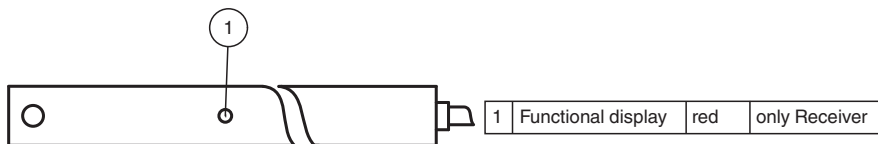
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

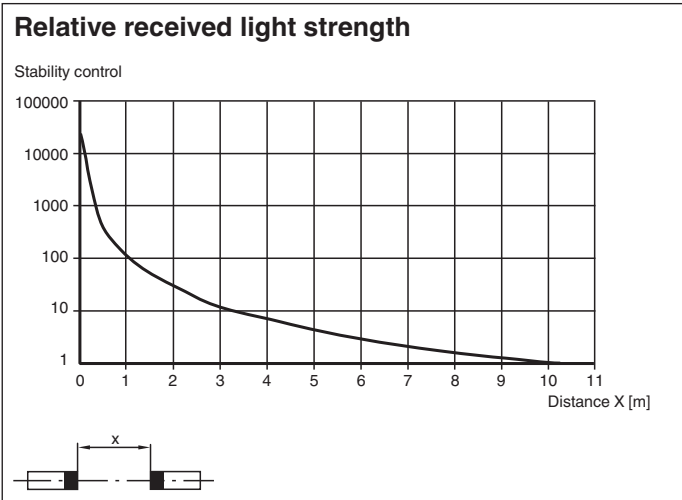
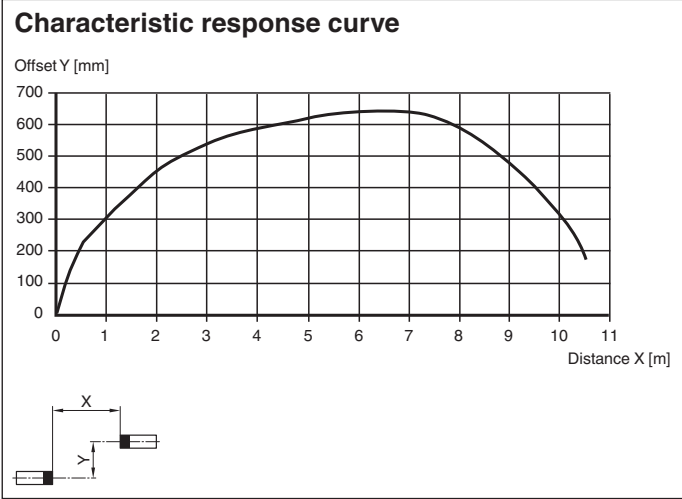
Assembly



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Characteristic Curve



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.

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Additional Information

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 $+U_B < 5 V$ 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.

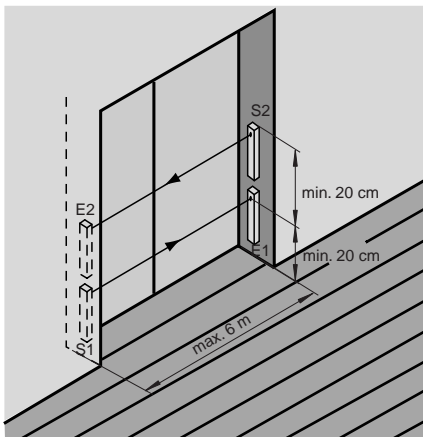
Installation:

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:

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.



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