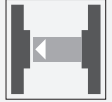




## Thru-beam sensor ML29T-P/32/59/115 100mm



- Single-beam monitoring with extremely narrow sensor
- Integrated circuit
- Test
- Simple installation - Plug & Play
- Ideal for installation in door profiles or frames
- Version with Certification in accordance with railway standard EN50155

Single-beam miniature photoelectric sensor, ideal for installation in door frames, with certification in accordance with the EN 50155 railroad standard



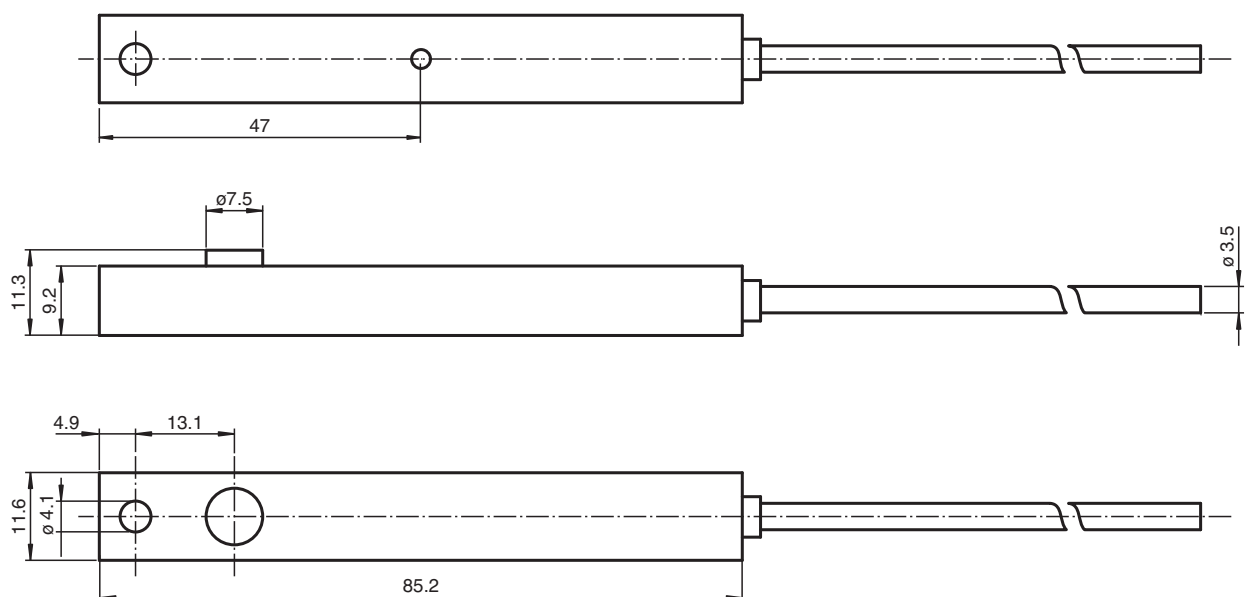
### Function

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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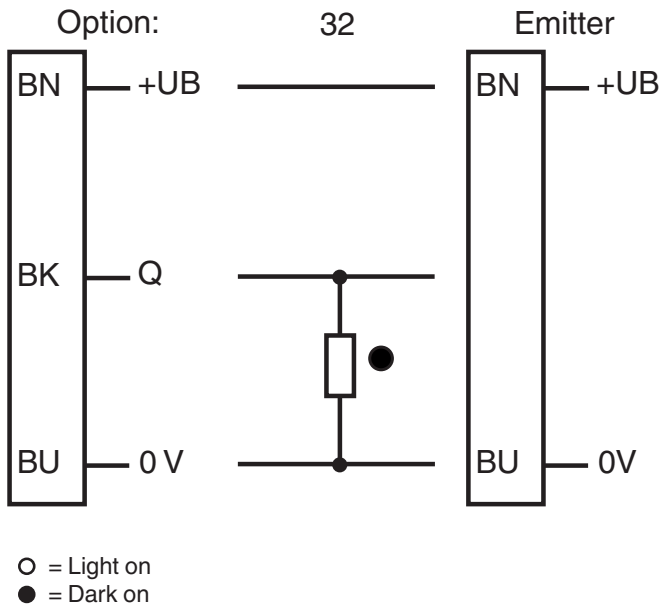
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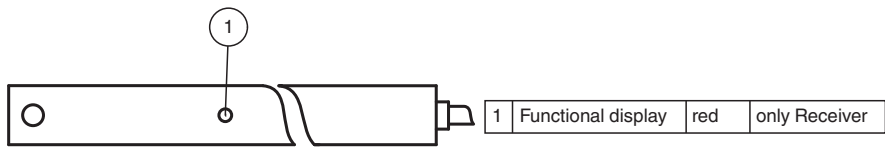
## Technical Data

|                                          |  |                                                              |                                                                                   |
|------------------------------------------|--|--------------------------------------------------------------|-----------------------------------------------------------------------------------|
| System components                        |  |                                                              |                                                                                   |
| Emitter                                  |  | ML29T-T/115                                                  |                                                                                   |
| Receiver                                 |  |                                                              | ML29T-R/32/59/115                                                                 |
| General specifications                   |  |                                                              |                                                                                   |
| Effective detection range                |  |                                                              | 0 ... 2.5 m                                                                       |
| Threshold detection range                |  |                                                              | 3.5 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 <sub>d</sub>                        |  |                                                              | 1440 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>                                               | 10 ... 32 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. 32 V DC                                                                      |
| Switching current                        |  |                                                              | max. 0.2 A                                                                        |
| Switching frequency                      |  | f                                                            | 10 Hz                                                                             |
| Response time                            |  |                                                              | 50 ms                                                                             |
| Conformity                               |  |                                                              |                                                                                   |
| Product standard                         |  |                                                              | EN 60947-5-2                                                                      |
| Compliance with standards and directives |  |                                                              |                                                                                   |
| Standard conformity                      |  |                                                              |                                                                                   |
| Standards                                |  | EN 50121-3-2 , EN 50155                                      |                                                                                   |
| Approvals and certificates               |  |                                                              |                                                                                   |
| CCC approval                             |  | CCC approval / marking not required for products rated ≤36 V |                                                                                   |
| Ambient conditions                       |  |                                                              |                                                                                   |
| Ambient temperature                      |  | -25 ... 60 °C (-13 ... 140 °F)                               |                                                                                   |
| Storage temperature                      |  |                                                              | -25 ... 75 °C (-13 ... 167 °F)                                                    |
| Relative humidity                        |  | 90 % , noncondensing                                         |                                                                                   |
| Mechanical specifications                |  |                                                              |                                                                                   |
| Degree of protection                     |  | IP65                                                         |                                                                                   |
| Connection                               |  |                                                              | 100 mm fixed cable                                                                |
| Material                                 |  |                                                              |                                                                                   |
| Housing                                  |  |                                                              | PMMA , black                                                                      |
| Optical face                             |  | Plastic pane                                                 |                                                                                   |
| Mass                                     |  |                                                              | per device 12 g                                                                   |

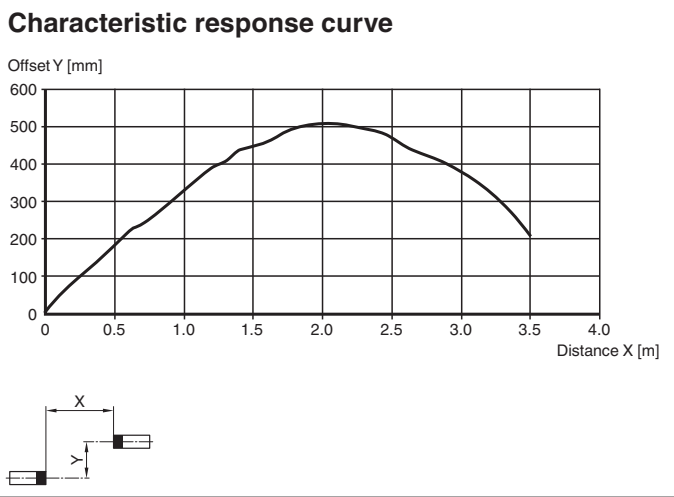
Connection Assignment



Assembly

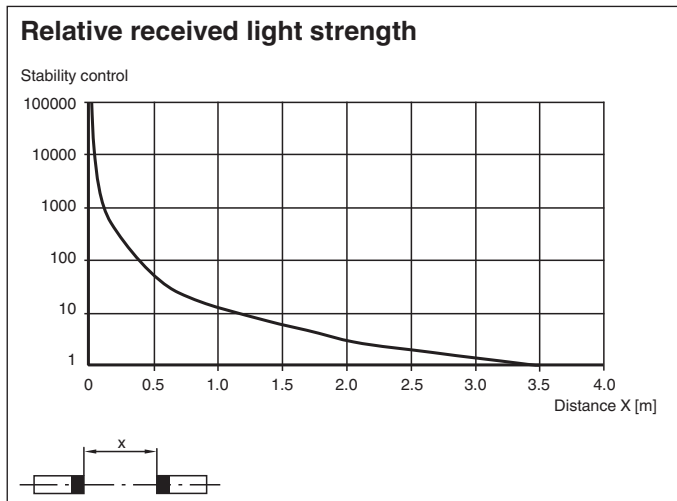


Characteristic Curve



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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.

## Additional Information

### Static detection:

The light beam switch 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.

### Test input:

The test input is used to check the function of the light beam switch.

The test signal at the emitter switches the emitter off at  $+U_B \leq 5 \text{ V}$  and thereby simulates a light beam interruption. It thus enables a complete check of the sensor from the optical path through to the output.

### 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.

