Model Number

PSE4-SL-01

Safety edge
with fixed cable

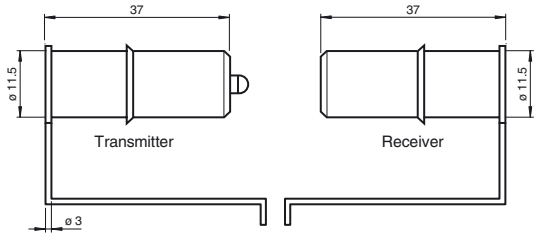
Features

- Safety thru-beam sensor
- Evaluation via safety control unit PSE4-SC-01
- Modulated infrared light
- For mounting in sensor strip PSE4-RUB and -ROI
- No additional mounting materials required
- Component of PSE4 modular system

Product information

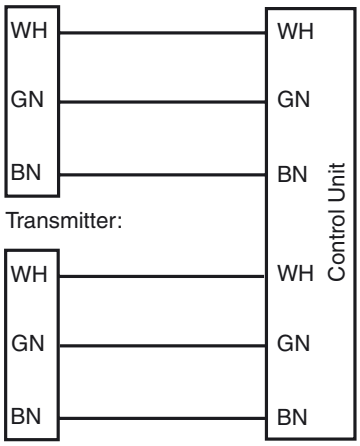
The complete PSE4 safety edge system consists of a control unit, sensors, a rubber sensor strip and an optional aluminum mounting strip. The system has been tested within a temperature range of 5 °C to 55 °C according to EN 1760-2 and is suitable for finger protection.
The control unit evaluates the signal from the sensors and was designed for installation in a control cabinet. The safety contact on the control unit opens when the sensor strip is deformed. The complete system fulfills performance level e, cat. 4 according to EN ISO 13849-1.

Dimensions



Electrical connection

Receiver:



Transmitter:

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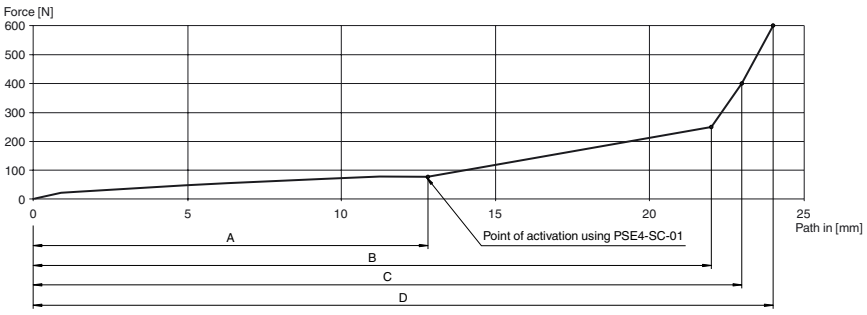
Technical data

General specifications		
Effective detection range		0.4 ... 10 m
Number of protective field beams		1
Light source		LED
Light type		modulated infrared light
Functional safety related parameters		
Performance level (PL)		PL e
Category		Cat. 4
Mission Time (T_M)		20 a
Type		4
Electrical specifications		
Operating voltage	U_B	Power supply via control unit
Ambient conditions		
Ambient temperature		-20 ... 75 °C (-4 ... 167 °F)
Mechanical specifications		
Protection degree		IP68
Connection		fixed cable Emitter: 10 m Receiver: 2.9 m
Mech. capacity		500 N
Material		
Housing		Polyethylene (PE) ; Emitter: gray / Receiver: black
Cable		PUR
Mass		Per 150 g
Compliance with standards and directives		
Directive conformity		
Machinery Directive 2006/42/EC		EN 12978:2003+A1:2009
Standard conformity		
Functional safety		EN ISO 13849-1:2008 + AC:2009
Approvals and certificates		
UL approval		cULus Listed File no: NRNT.E344450
TÜV approval		TÜV Rheinland 968/M 301.00/11

Curves/Diagrams

Force path diagram

Measurement parameters: T = 23 °C, mounting position B as per EN 1760-2, measuring location C (EN 1760-2), v = 100 mm/s up to A, v = 10 mm/s from A.



Force path diagram representing the deformation of the sensor strip under force

Deformation under force with control unit PSE4-SC-01			
		Deformation [mm]	Force [N]
A	Resistance	12.8	80
B		22.0	250
C		23.0	400
D		24.0	600

Notes

The PSE 4 module is comprised of the following components:

Safety thru-beam sensors PSE4-SL:
The emitter and receiver housings are fully encapsulated to provide maximum protection against environmental influences such as water, dust and moisture and achieve degree of protection IP 68.

Sensor strips PSE4-RUB and PSE4-ROI:
The sensor strip has a two chamber design. The emitter and receiver are housed in the round top chamber. When the sensor strip is actuated, the optical channel is interrupted and the safety contacts on the control unit open. When actuation occurs in the end area, the emitter and receiver are pushed into the lower chamber to ensure that the light beam is broken. However, the force required is extremely high and the end areas become inactive as specified in EN 1760-2.

Safety control unit PSE4-SC:
The signal from the emitter/receiver system is evaluated as specified in EN ISO /IEC 61496-1 according to control category 4.

Accessories

PSE4-ROI-01
Rubber profile, oil resistant for safety terminal strips from the PSE4 series

PSE4-ROI-02
Rubber profile, oil resistant for safety terminal strips from the PSE4 series

PSE4-ROI-03
Rubber profile, oil resistant for safety terminal strips from the PSE4 series

PSE4-ROI-04
Rubber profile, oil resistant for safety terminal strips from the PSE4 series

PSE4-RUB-01
Sensor strip for safety edges from the PSE4 series

PSE4-RUB-02
Sensor strip for safety edges from the PSE4 series

PSE4-RUB-03
Sensor strip for safety edges from the PSE4 series

PSE4-RUB-04
Sensor strip for safety edges from the PSE4 series

PSE4-ALU-01
Extruded aluminum mounting strip for safety edges from the PSE4 series

PSE4-ALU-02
Extruded aluminum mounting strip for safety edges from the PSE4 series

PSE4-SC-01
Safety control unit from the PSE4 series

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

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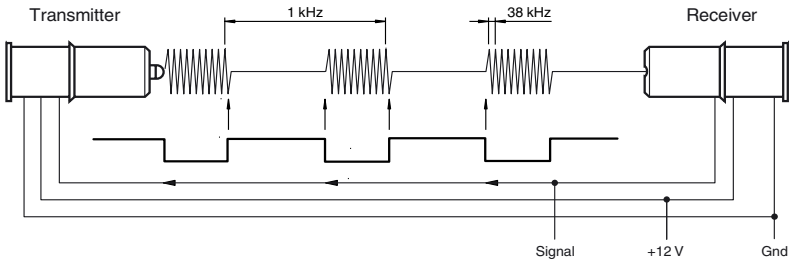
Aluminum rails PSE4-ALU:
Aluminum mounting rails are available in different lengths.

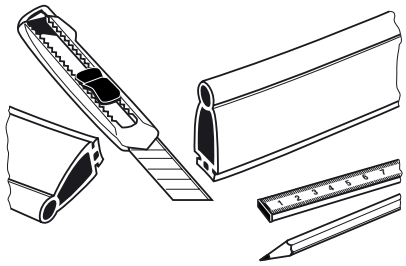
Operating principle

The emitter transmits pulses of infrared light, which are detected by the receiver. When the emitter light is detected, the receiver turns off the emitter via a control input. The "optical emission" stops. The receiver also detects this status and the emitter is then switched on again after a specified time. This coupling generates a dynamic signal sent to a buffer. The evaluation analyzes the charge state of the buffer.
Any errors in the emitter/receiver system affect the optical or electrical signal, which results in the absence of a dynamic signal.

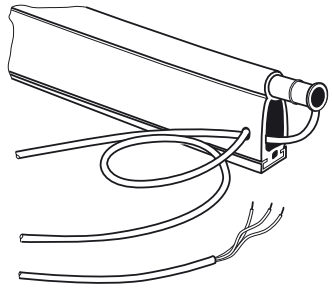


Note:
Only fully fitted safety edges comply with the examination certificate for the PSE4 series.

Mounting or replacing the sensors



Sensor strip PSE4-RUB-XX or PSE4-ROI-XX and accompanying aluminum mounting strip
Cut PSE4-ALU-XX to the required length.



Slide the emitter and receiver into the upper chamber.
Guide the emitter cable through the lower chamber to the receiver side.

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