

# PSENmag

## PSEN 1.1p-20



### Unit features

- ▶ The actuator **PSEN 1,1-20** belongs to the safety switch
- ▶ 2 reed contacts (N/O)
- ▶ Assured operating distance: **8 mm**
- ▶ Assured release distance: **26 mm**
- ▶ Square design
- ▶ Works magnetically
- ▶ Switching voltage 24 VDC

contacts on the safety switch. If the actuator is outside the response range (safety gate open), the reed contacts on the safety switch will switch.

### Unit description

The safety switch meets the requirements of EN 60204-1 and IEC 60204-1.

The safety switch only complies with EN 60947-5-3 in conjunction with the actuator **PSEN 1,1-20** and its approved evaluation devices.



The safety switch should only be connected to the evaluation devices listed under "Connections".

### Function description

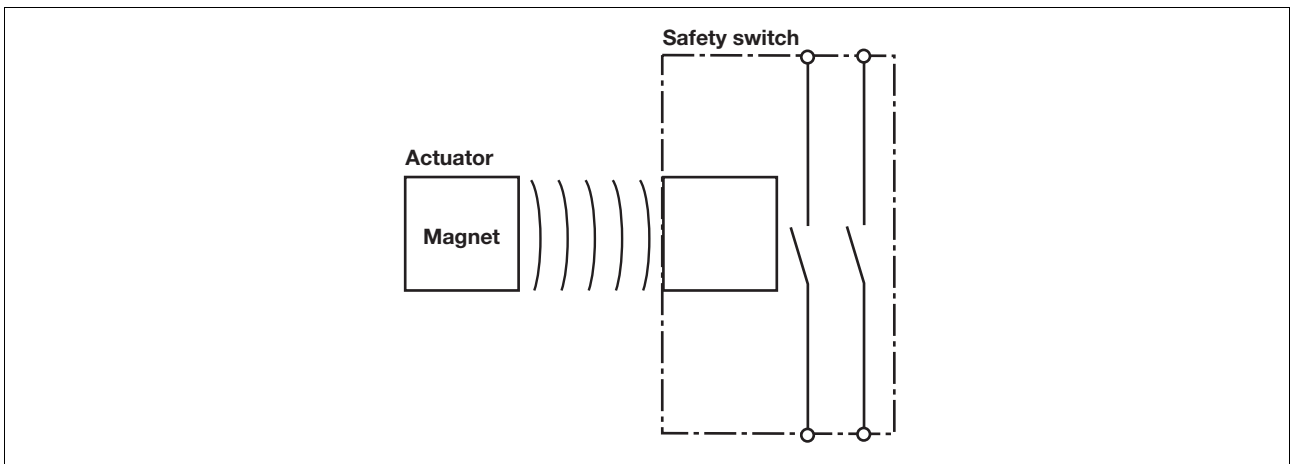
If the actuator is within the response range, the magnets switch the reed

Magnetic safety switches for monitoring the position of movable guards in accordance with EN 60947-5-3

### Approvals

	PSEN 1.1p-20
	◆
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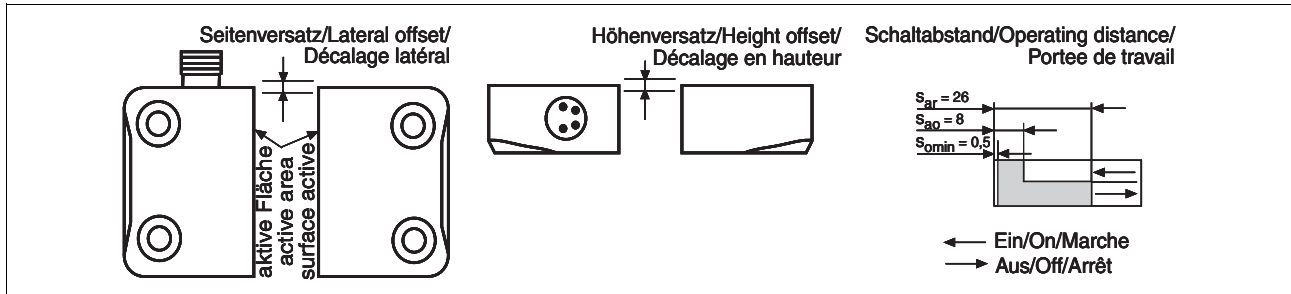
### Block diagram



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### Operating distances



### Lateral and vertical offset

- Assured operating distance  $S_{ao}$  in mm

		Höhenversatz/Height offset/ Décalage en hauteur				
		1,0	2,0	3,0	4,0	5,0
Seitenversatz/Lateral offset/Décalage latéral	1,0	7,5	7,5	7,0	7,0	5,5
	2,0	7,5	7,0	7,0	6,5	5,5
	3,0	7,0	7,0	7,0	6,0	5,5
	4,0	6,5	6,5	6,0	5,5	5,0
	5,0	6,0	6,0	6,0	5,0	4,5

- Assured release distance  $S_{ar}$ :  
Max. 26 mm with all vertical and lateral offsets

The stated values are valid at a temperature of 20 °C.

### Wiring

Please note:

- Information given in the “Technical details” must be followed.
- Calculation of the max. cable runs  $l_{max}$  in the input circuit:

$$l_{max} = \frac{R_{lmax}}{R_l / km}$$

$R_{lmax}$  = max. overall cable resistance (see Technical details)  
 $R_l / km$  = cable resistance/km

- When using evaluation devices with delay-on de-energisation contacts, please note:
  - Delay time  $\leq 30$  s: Delay-on de-energisation contacts satisfy the requirements of category 3 in accordance with EN 954-1 and the requirements of a PDF with single-fault tolerance (PDF-S).
  - Delay time  $\geq 30$  s: Delay-on de-energisation contacts satisfy the requirements of Category 1 in accordance with EN 954-1 and

the requirements of a PDF with designed reliability (PDF-D).

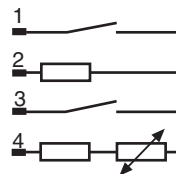
- In the following commissioning cases, check the function that detects shorts across contacts:
  - On evaluation devices with DC supply voltage: Overall cable resistance  $\geq 15$  Ohms per channel
  - On evaluation devices with AC supply voltage: Overall cable resistance  $\geq 25$  Ohms per channel
  - For details of how to perform the test for shorts across the contacts, please refer to the operating manual for the relevant evaluation device.

### Connections

#### NOTICE

The colour marking for the connection lead only applies for the cable that Pilz supplies as an accessory. The safety switch is shown in an unoperated condition.

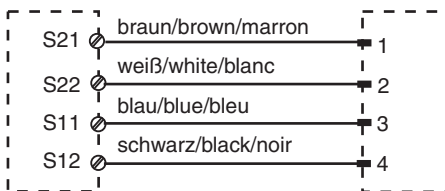
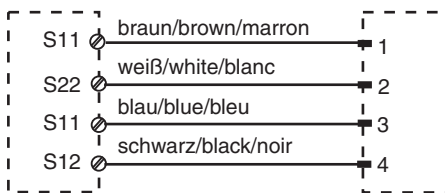
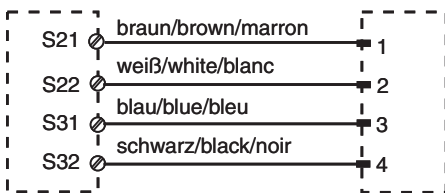
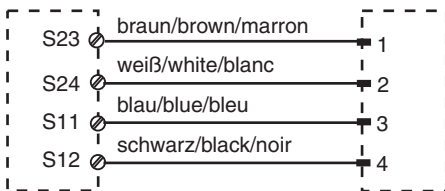
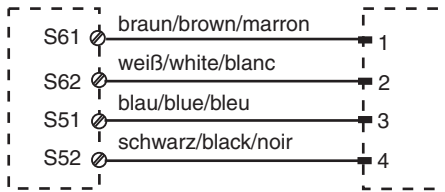
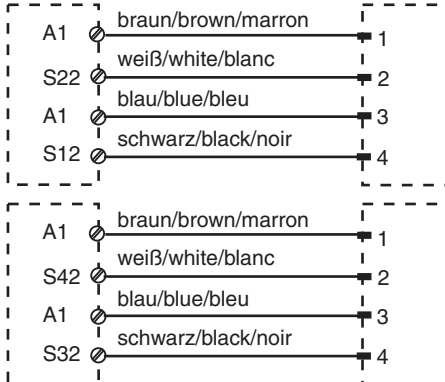
Belegung des 4-pol. M8-Stiftsteckers/Assignment of the 4-pin M8 male connector/Repérage du connecteur mâle M8 à 4 pôles



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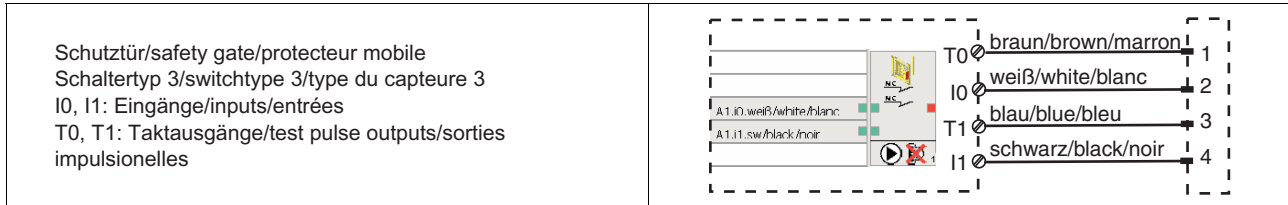
► Connection to PNOZ X, PNOZpower, PNOZelog, PNOZsigma

<table border="0"> <tr> <td>PNOZ p1p</td> <td>PNOZ X2C</td> <td>PNOZ e1p</td> </tr> <tr> <td>PNOZ p1vp</td> <td>PNOZ X2.1C</td> <td>PNOZ e1.1p</td> </tr> <tr> <td>PNOZ X2/X2P</td> <td>(nur 24 V DC/</td> <td>PNOZ e1vp</td> </tr> <tr> <td>PNOZ X2.1</td> <td>24 V DC only/</td> <td>PNOZ e6.1p</td> </tr> <tr> <td>(nur 24 V DC/</td> <td>24 V DC seulement)</td> <td>PNOZ e6vp</td> </tr> <tr> <td>24 V DC only/</td> <td>PNOZ X4/X8P</td> <td>PNOZ s3</td> </tr> <tr> <td>24 V DC seulement)</td> <td>PNOZ X9/X9P</td> <td>PNOZ s4</td> </tr> <tr> <td>PNOZ X2.3P</td> <td>PNOZ X10/X10.1</td> <td>PNOZ s5</td> </tr> <tr> <td>PNOZ X2.7P</td> <td>PNOZ X10.11P</td> <td></td> </tr> <tr> <td>PNOZ X2.8P/X2.9P</td> <td>PNOZ Ex</td> <td></td> </tr> </table>	PNOZ p1p	PNOZ X2C	PNOZ e1p	PNOZ p1vp	PNOZ X2.1C	PNOZ e1.1p	PNOZ X2/X2P	(nur 24 V DC/	PNOZ e1vp	PNOZ X2.1	24 V DC only/	PNOZ e6.1p	(nur 24 V DC/	24 V DC seulement)	PNOZ e6vp	24 V DC only/	PNOZ X4/X8P	PNOZ s3	24 V DC seulement)	PNOZ X9/X9P	PNOZ s4	PNOZ X2.3P	PNOZ X10/X10.1	PNOZ s5	PNOZ X2.7P	PNOZ X10.11P		PNOZ X2.8P/X2.9P	PNOZ Ex		
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<table border="0"> <tr> <td>PNOZ 11</td> <td>PNOZ X3.1</td> <td>PNOZ X3.10P</td> </tr> <tr> <td>PNOZ 16</td> <td>PNOZ X3P</td> <td>PNOZ XV2</td> </tr> <tr> <td>PNOZ X11P</td> <td>PNOZ X2.5P</td> <td>PNOZ XV2P</td> </tr> <tr> <td>PNOZ X13</td> <td>PNOZ X3</td> <td>PNOZ XV3</td> </tr> <tr> <td></td> <td></td> <td>PNOZ XV3P</td> </tr> </table>	PNOZ 11	PNOZ X3.1	PNOZ X3.10P	PNOZ 16	PNOZ X3P	PNOZ XV2	PNOZ X11P	PNOZ X2.5P	PNOZ XV2P	PNOZ X13	PNOZ X3	PNOZ XV3			PNOZ XV3P																
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<p>PNOZ X6 (mit Brücke/with link/avec pontage Y3-Y4)</p>																															
<p>PMUT X1P</p>																															
<p>PNOZ e5.11p</p>																															

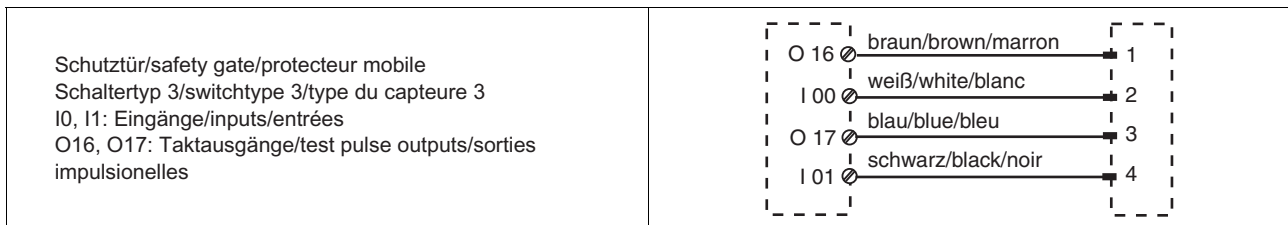
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### ▶ Connection to PNOZmulti



### ▶ Connection to PSS with and without SafetyBUS p



### CAUTION!

The safety switches may only be operated on a PSS in conjunction with standard function block SB064 or SB066.

### Installation

- ▶ The unit can be installed in any position. However, safety switches and actuators must be positioned opposite each other in parallel:
- ▶ If possible, do not install the safety switch and actuator on to ferromagnetic material. Changes to the operating distances are to be expected. In this case, use the spacer available under order number 534 310.
- ▶ Safety switches and actuators should only be secured using M4 screws with a flat head (e.g. M4 cheese-head or pan head screws). Torque setting max. 1 Nm. Use screws made of non-magnetic material (e.g. Messing).
- ▶ The distance between two systems comprising safety switch and actuator must be at least 25 mm.
- ▶ Safety switch and actuator
  - Keep away from iron swarf
  - Do not expose to strong magnetic fields
  - Do not expose to heavy shock or vibration
  - Do not use as a limit stop

### Adjustment

- ▶ The safety switch may only be used with the corresponding actuator **PSEN 1,1-20**.
- ▶ Always test the function with one of the approved evaluation devices.
- ▶ The stated operating distances (see Technical details) only apply when the safety switch and actuator are installed facing each other in parallel. Switching distances may deviate if other arrangements are used. Note the maximum permitted lateral and vertical offset (see "Operating distances" and "Max. lateral and vertical offset").

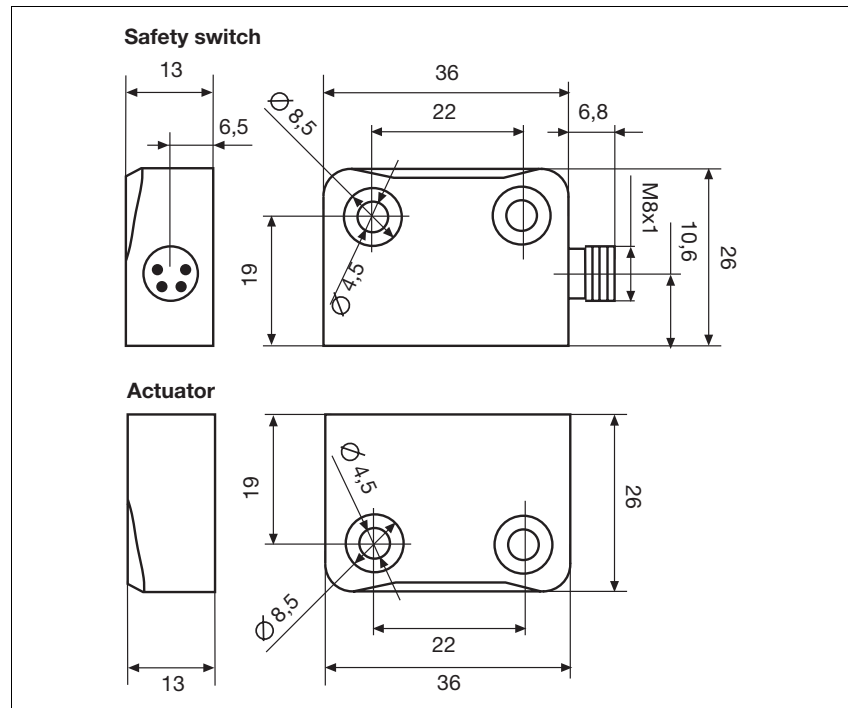
## PSENmag

### PSEN 1.1p-20

#### NOTICE

This data sheet is only intended for use during configuration. For installation and operation, please refer to the operating instructions supplied with the unit.

#### Dimensions



#### Technical details

Approvals	<b>BG, CE, UL/cUL</b>
Switching distances	
Assured operating distance $S_{ao}$	<b>8 mm</b>
Min. operating distance $S_{omin}$	<b>0.5 mm</b>
Assured release distance $S_{ar}$	<b>26 mm</b>
Switching voltage	<b>24 V</b>
Max. switching current for reed contacts	<b>0.50 A</b>
Max. breaking capacity for reed contacts	<b>10.0 W</b>
Max. switch frequency	<b>1 Hz</b>
Actuator	<b>PSEN 1,1-20</b>
Ambient temperature	<b>-10 - 55 °C</b>
Vibration to <b>EN 60947-5-2</b>	
Frequency	<b>10 - 55 Hz</b>
Amplitude	<b>1.00 mm</b>
Shock stress	<b>30 g , 11 ms</b>
Connection type	<b>M8</b>
Cable	<b>LiYY 4 x 0,25 mm<sup>2</sup></b>
Protection type	<b>IP65, IP67</b>
Housing material	<b>PBT</b>

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#### Technical details

##### Dimensions

##### Safety switch

Height	<b>42.8 mm</b>
Width	<b>26.0 mm</b>
Depth	<b>13.0 mm</b>

##### Actuator

Height	<b>36 mm</b>
Width	<b>26 mm</b>
Depth	<b>13 mm</b>

##### Weight

Safety switch	<b>14 g</b>
Actuator	<b>17 g</b>

The standards current on **2006-12** apply.

#### Order reference

Type	Quantity	Operation	Features	Order no.
PSEN 1.1p-20	1/1	magnetic	Safety switch/actuator	504 220
PSEN 1.1p-20 (switch)	1	magnetic	Safety switch	524 120
PSEN 1.1-20	1	magnetic	Actuator	514 120