



Visualisation; Diagnostics

Easy to Configure

Programming IEC 61131-3

Rapid Installation

## PNOZ s7.2

# PILZ

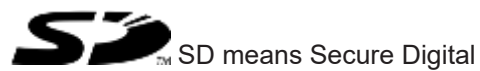
THE SPIRIT OF SAFETY

► Safety relays

This document is the original document.

All rights to this documentation are reserved by Pilz GmbH & Co. KG. Copies may be made for the user's internal purposes. Suggestions and comments for improving this documentation will be gratefully received.

Pilz®, PIT®, PMI®, PNOZ®, Primo®, PSEN®, PSS®, PVIS®, SafetyBUS p®, SafetyEYE®, SafetyNET p®, the spirit of safety® are registered and protected trademarks of Pilz GmbH & Co. KG in some countries.



<b>Introduction</b> .....	<b>5</b>
Validity of documentation.....	5
Using the documentation .....	5
Definition of symbols.....	5
<b>Safety</b> .....	<b>6</b>
Intended use .....	6
Safety regulations .....	6
Safety assessment .....	6
Use of qualified personnel .....	7
Warranty and liability .....	7
Disposal .....	7
For your safety .....	7
<b>Unit features</b> .....	<b>8</b>
<b>Safety features</b> .....	<b>8</b>
<b>Block diagram/terminal configuration</b> .....	<b>9</b>
<b>Function description</b> .....	<b>9</b>
<b>Installation</b> .....	<b>9</b>
<b>Wiring</b> .....	<b>11</b>
<b>Preparing for operation</b> .....	<b>12</b>
<b>Application examples</b> .....	<b>12</b>
<b>Operation</b> .....	<b>13</b>
Status indicators .....	14
<b>Faults - malfunctions</b> .....	<b>14</b>
<b>Dimensions in mm</b> .....	<b>14</b>
<b>Technical details</b> .....	<b>15</b>
Safety characteristic data .....	19
<b>Supplementary data</b> .....	<b>20</b>
Service life graph .....	20
Permitted operating height in accordance with EN 60664-1 .....	22

<b>Remove plug-in terminals .....</b>	<b>23</b>
<b>Order reference .....</b>	<b>23</b>
<b>EC declaration of conformity .....</b>	<b>23</b>

## Introduction

### Validity of documentation

This documentation is valid for the product PNOZ s7.2. It is valid until new documentation is published.

This operating manual explains the function and operation, describes the installation and provides guidelines on how to connect the product.

### Using the documentation

This document is intended for instruction. Only install and commission the product if you have read and understood this document. The document should be retained for future reference.

### Definition of symbols

Information that is particularly important is identified as follows:



#### **DANGER!**

This warning must be heeded! It warns of a hazardous situation that poses an immediate threat of serious injury and death and indicates preventive measures that can be taken.



#### **WARNING!**

This warning must be heeded! It warns of a hazardous situation that could lead to serious injury and death and indicates preventive measures that can be taken.



#### **CAUTION!**

This refers to a hazard that can lead to a less serious or minor injury plus material damage, and also provides information on preventive measures that can be taken.



#### **NOTICE**


This describes a situation in which the product or devices could be damaged and also provides information on preventive measures that can be taken. It also highlights areas within the text that are of particular importance.

**INFORMATION**


This gives advice on applications and provides information on special features.

**Safety****Intended use**

The unit meets the requirements of EN 60947-5-1 and EN 60204-1. The contact expansion module is used to increase the number of instantaneous safety contacts available on a base unit.

The max. achievable safety level depends on the base unit. The expansion module may not exceed this. The safety-related characteristic values stated under [safety-related characteristic data](#) [ 19] can only be achieved if the base unit also exhibits these safety characteristic values.

The following is deemed improper use in particular

- ▶ Any component, technical or electrical modification to the product,
- ▶ Use of the product outside the areas described in this operating manual,
- ▶ Use of the product outside the technical details (see [Technical details](#) [ 15]).

**NOTICE****EMC-compliant electrical installation**

The product is designed for use in an industrial environment. The product may cause interference if installed in other environments. If installed in other environments, measures should be taken to comply with the applicable standards and directives for the respective installation site with regard to interference.

**Safety regulations****Safety assessment**

Before using a device, a safety assessment in accordance with the Machinery Directive is required.

The product as an individual component fulfils the functional safety requirements in accordance with EN ISO 13849 and EN 62061. However, this does not guarantee the functional safety of the overall plant/machine. To achieve the relevant safety level of the overall plant/machine's required safety functions, each safety function needs to be considered separately.

**Use of qualified personnel**

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by persons who are competent to do so.

A competent person is a qualified and knowledgeable person who, because of their training, experience and current professional activity, has the specialist knowledge required. To be able to inspect, assess and operate devices, systems and machines, the person has to be informed of the state of the art and the applicable national, European and international laws, directives and standards.

It is the company's responsibility only to employ personnel who

- ▶ Are familiar with the basic regulations concerning health and safety / accident prevention,
- ▶ Have read and understood the information provided in the section entitled Safety
- ▶ Have a good knowledge of the generic and specialist standards applicable to the specific application.

**Warranty and liability**

All claims to warranty and liability will be rendered invalid if

- ▶ The product was used contrary to the purpose for which it is intended,
- ▶ Damage can be attributed to not having followed the guidelines in the manual,
- ▶ Operating personnel are not suitably qualified,
- ▶ Any type of modification has been made (e.g. exchanging components on the PCB boards, soldering work etc.).

**Disposal**

- ▶ In safety-related applications, please comply with the mission time  $T_M$  in the safety-related characteristic data.
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

**For your safety**

The unit meets all the necessary conditions for safe operation. However, please note the following:

- ▶ Note for overvoltage category III: If voltages higher than low voltage (>50 VAC or >120 VDC) are present on the unit, connected control elements and sensors must have a rated insulation voltage of at least 250 V.

### Unit features

- ▶ Positive-guided relay outputs:
  - 4 safety contacts (N/O), instantaneous
  - 1 auxiliary contact (N/C), instantaneous
- ▶ Connection option for expansion modules
- ▶ LED for:
  - Input status, channel 1
  - Input status, channel 2
  - Switch status of the safety contacts
- ▶ Plug-in connection terminals (either spring-loaded terminal or screw terminal)
- ▶ See order reference for unit types

### Safety features

The unit meets the following safety requirements:

- ▶ The contact expansion module expands an existing circuit. As the output relays are monitored via the base unit's feedback loop, the safety functions on the existing circuit are transferred to the contact expansion module.
- ▶ The safety function remains effective in the case of a component failure.
- ▶ Earth fault in the feedback loop:  
Detected, depending on the base unit that is used.
- ▶ Earth fault in the input circuit:  
The output relays de-energise and the safety contacts open.



## Block diagram/terminal configuration

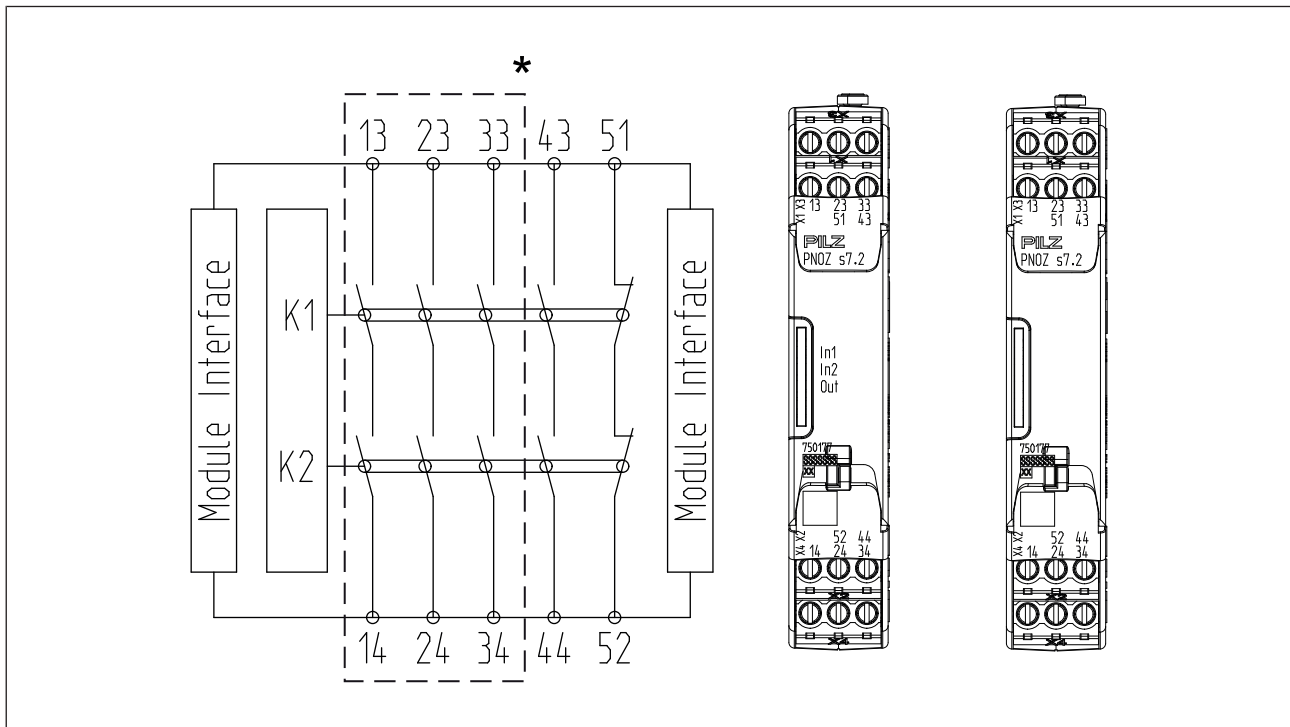


Fig.: Centre: Front view with cover, right: Front view without cover

\*Safe separation from non-marked area in accordance with EN 60947-1, 6 kV, basic insulation between all safety contacts.

## Function description

with PNOZsigma s7.1:

- ▶ Dual-channel operation and supply voltage via PNOZsigma connector

with PNOZsigma expansion modules:

- ▶ Dual-channel operation and supply voltage via PNOZsigma connector

## Installation

### Connect contact expansion module PNOZ s7.2 to PNOZsigma contact expansion modules

- ▶ Connect the contact expansion modules using the connector supplied.

### Control cabinet installation

- ▶ The safety relay should be installed in a control cabinet with a protection type of at least IP54.
- ▶ Use the notch on the rear of the unit to attach it to a DIN rail.
- ▶ Ensure the unit is mounted securely on a vertical DIN rail (35 mm) by using a fixing element (e.g. retaining bracket or an end angle).

Push the unit upwards or downwards before lifting it from the DIN rail.

Expansion options	Please note the max. power consumption of the contact expansion modules (see technical data PNOZ s7.1).
<p>①: Base unit                      ②: Contact expansion module PNOZ s7.1                      ③: Contact expansion module PNOZ s7.2                      ④: Contact expansion module PNOZ s7.2 with terminator</p>	
<p>①: Base unit                      ②: Contact expansion module PNOZ s7.1                      ③: Contact expansion module PNOZ s7.2                      ④: Expansion module PNOZ s7, s8, s9, s10, s11 as a terminator</p>	
<p>①: Contact expansion module PNOZ s7.1 with terminator                      ②: Contact expansion module PNOZ s7.2                      ③: Contact expansion module PNOZ s7.2 with terminator</p>	

Expansion options	Please note the max. power consumption of the contact expansion modules (see technical data PNOZ s7.1).
<p>①: Contact expansion module PNOZ s7.1 with terminator</p> <p>②: Contact expansion module PNOZ s7.2</p> <p>③: Expansion module PNOZ s7, s8, s9, s10, s11 as a terminator</p>	
<p>①: Base unit</p> <p>②: Contact expansion module PNOZ s7.1</p> <p>③: Contact expansion module PNOZ s7.2</p> <p>④: Contact expansion module PNOZ s7.1</p> <p>⑤: Contact expansion module PNOZ s7.2</p> <p>⑥: Contact expansion module PNOZ s7.2 with terminator</p>	

## Wiring

Please note:

- ▶ Information given in the "[Technical details \[15\]](#)" must be followed.
- ▶ Outputs 13-14, 23-24, 33-34, 43-44 are safety contacts; outputs 51 -52 are auxiliary contacts (e.g. for display).
- ▶ Auxiliary contact 51-52 should **not** be used for safety circuits!
- ▶ To prevent contact welding, a fuse should be connected before the output contacts (see [Technical details \[15\]](#)).
- ▶ Use copper wiring with a temperature stability of 75 °C.
- ▶ To prevent EMC interferences (particularly common-mode interferences) the measures described in EN 60204-1 must be executed. This includes the separate routing of cables of the control circuits (input, start and feedback loop) from other cables for energy transmission or the shielding of cables, for example.
- ▶ Adequate protection must be provided on all output contacts with capacitive and inductive loads.

### Preparing for operation

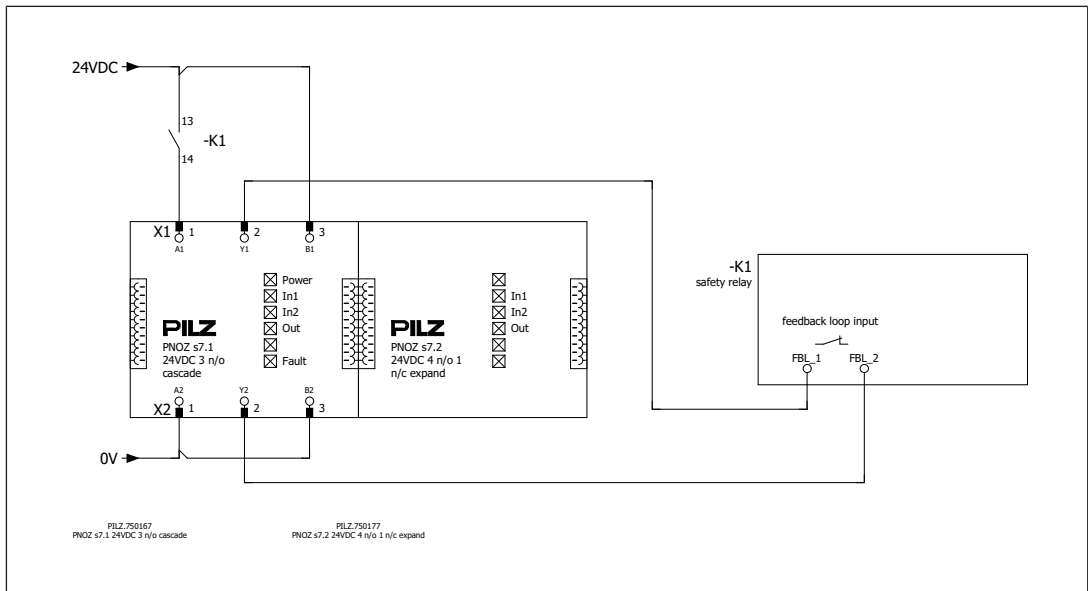
Supply voltage/input circuit/ feedback loop	AC	DC
Contact expansion module PNOZ s7.2	/	<div style="border: 1px dashed black; padding: 5px; display: inline-block;">                     PNOZ s7.1 expansion module                     <div style="display: inline-block; vertical-align: middle; border: 1px solid black; padding: 2px; margin: 0 5px;">Interface PNOZ-Sigma</div>                     PNOZs expansion module                 </div>

Further connection options see operating manual PNOZ s7.1.

### Application examples

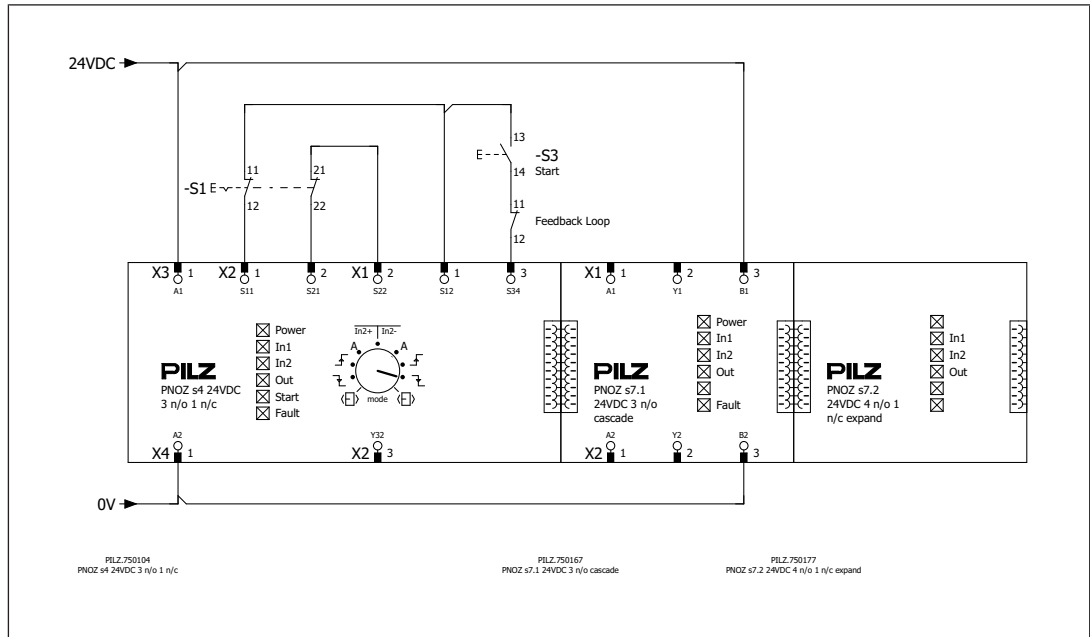
#### Combined with PNOZ s7.1

- ▶ Single-channel
- ▶ Driven via safety relay with safety contacts



**Combination with PNOZ s7.1 and PNOZ s4**

- ▶ Emergency stop
- ▶ Dual-channel
- ▶ with detection of shorts across contacts
- ▶ Monitored start
- ▶ falling edge with feedback loop monitoring



**Operation**

When the relay outputs are switched on, the mechanical contact on the relay cannot be tested automatically. Depending on the operational environment, measures to detect the non-opening of switching elements may be required under some circumstances.

When the product is used in accordance with the European Machinery Directive, a check must be carried out to ensure that the safety contacts on the relay outputs open correctly. Open the safety contacts (switch off output) and start the device again, so that the internal diagnostics can check that the safety contacts open correctly

- ▶ for SIL CL 3/PL e at least 1x per month
- ▶ for SIL CL 2/PL d at least 1x per year



**NOTICE**

The safety function should be checked after initial commissioning and each time the plant/machine is changed. The safety functions may only be checked by qualified personnel.


LEDs indicate the status and errors during operation:

 LED on

**Status indicators**

 **IN1**  
Channel 1 actuated.

 **IN2**  
Channel 2 actuated.

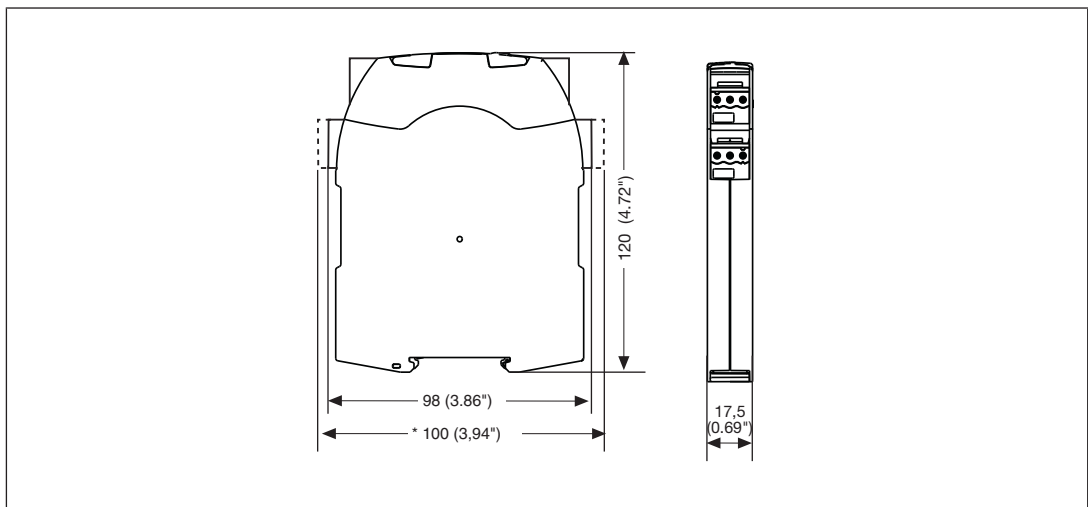
 **IN1, IN2, OUT**  
Safety contacts are closed.

**Faults - malfunctions**

- ▶ Contact malfunctions: If the contacts have welded, reactivation will not be possible after the input circuit has opened.

**Dimensions in mm**

\*with spring-loaded terminals



## Technical details

<b>General</b>	<b>750177</b>	<b>751177</b>
Certifications	CCC, CE, EAC, KOSHA, TÜV, cULus Listed	CCC, CE, EAC, KOSHA, TÜV, cULus Listed
<b>Electrical data</b>	<b>750177</b>	<b>751177</b>
Supply voltage		
Voltage	<b>24 V</b>	<b>24 V</b>
Kind	<b>DC</b>	<b>DC</b>
Power consumption	<b>2 W</b>	<b>2 W</b>
Duty cycle	<b>100 %</b>	<b>100 %</b>
<b>Relay outputs</b>	<b>750177</b>	<b>751177</b>
Number of output contacts		
Safety contacts (N/O), instantaneous	<b>4</b>	<b>4</b>
Auxiliary contacts (N/C)	<b>1</b>	<b>1</b>
Max. short circuit current I <sub>K</sub>	<b>1 kA</b>	<b>1 kA</b>
Utilisation category		
In accordance with the standard	<b>EN 60947-4-1</b>	<b>EN 60947-4-1</b>
Utilisation category of safety contacts		
AC1 at	<b>240 V</b>	<b>240 V</b>
Min. current	<b>0,003 A</b>	<b>0,003 A</b>
Max. current	<b>6 A</b>	<b>6 A</b>
Min. output	<b>0,04 VA</b>	<b>0,04 VA</b>
Max. power	<b>1500 VA</b>	<b>1500 VA</b>
DC1 at	<b>24 V</b>	<b>24 V</b>
Min. current	<b>0,003 A</b>	<b>0,003 A</b>
Max. current	<b>6 A</b>	<b>6 A</b>
Min. output	<b>0,04 W</b>	<b>0,04 W</b>
Max. power	<b>150 W</b>	<b>150 W</b>
Utilisation category of auxiliary contacts		
AC1 at	<b>240 V</b>	<b>240 V</b>
Min. current	<b>0,003 A</b>	<b>0,003 A</b>
Max. current	<b>2 A</b>	<b>2 A</b>
Min. output	<b>0,04 VA</b>	<b>0,04 VA</b>
Max. power	<b>500 VA</b>	<b>500 VA</b>
DC1 at	<b>24 V</b>	<b>24 V</b>
Min. current	<b>0,003 A</b>	<b>0,003 A</b>
Max. current	<b>2 A</b>	<b>2 A</b>
Min. output	<b>0,04 W</b>	<b>0,04 W</b>
Max. power	<b>50 W</b>	<b>50 W</b>
Utilisation category		
In accordance with the standard	<b>EN 60947-5-1</b>	<b>EN 60947-5-1</b>

<b>Relay outputs</b>	<b>750177</b>	<b>751177</b>
Utilisation category of safety contacts		
AC15 at	<b>230 V</b>	<b>230 V</b>
Max. current	<b>5 A</b>	<b>5 A</b>
DC13 (6 cycles/min) at	<b>24 V</b>	<b>24 V</b>
Max. current	<b>5 A</b>	<b>5 A</b>
Utilisation category of auxiliary contacts		
AC15 at	<b>230 V</b>	<b>230 V</b>
Max. current	<b>2 A</b>	<b>2 A</b>
DC13 (6 cycles/min) at	<b>24 V</b>	<b>24 V</b>
Max. current	<b>2 A</b>	<b>2 A</b>
Utilisation category in accordance with UL		
Voltage	<b>240 V AC G.U. (same polarity)</b>	<b>240 V AC G.U. (same polarity)</b>
With current	<b>6 A</b>	<b>6 A</b>
Voltage	<b>24 V DC G. U.</b>	<b>24 V DC G. U.</b>
With current	<b>6 A</b>	<b>6 A</b>
External contact fuse protection, safety contacts		
In accordance with the standard	<b>EN 60947-5-1</b>	<b>EN 60947-5-1</b>
Max. melting integral	<b>260 A<sup>2</sup>s</b>	<b>260 A<sup>2</sup>s</b>
Blow-out fuse, quick	<b>10 A</b>	<b>10 A</b>
Blow-out fuse, slow	<b>6 A</b>	<b>6 A</b>
Blow-out fuse, gG	<b>10 A</b>	<b>10 A</b>
Circuit breaker 24V AC/DC, characteristic B/C	<b>6 A</b>	<b>6 A</b>
External contact fuse protection, auxiliary contacts		
Max. melting integral	<b>160 A<sup>2</sup>s</b>	<b>160 A<sup>2</sup>s</b>
Blow-out fuse, quick	<b>4 A</b>	<b>4 A</b>
Blow-out fuse, slow	<b>2 A</b>	<b>2 A</b>
Blow-out fuse, gG	<b>4 A</b>	<b>4 A</b>
Circuit breaker 24 V AC/DC, characteristic B/C	<b>2 A</b>	<b>2 A</b>
Contact material	<b>AgCuNi + 0,2 µm Au</b>	<b>AgCuNi + 0,2 µm Au</b>
<b>Conventional thermal current while loading several contacts</b>	<b>750177</b>	<b>751177</b>
I <sub>th</sub> per contact at UB DC; AC1: 240 V, DC1: 24 V		
Conv. therm. current with 1 contact	<b>6 A</b>	<b>6 A</b>
Conv. therm. current with 2 contacts	<b>5,5 A</b>	<b>5,5 A</b>
Conv. therm. current with 3 contacts	<b>4,5 A</b>	<b>4,5 A</b>
Conv. therm. current with 4 contacts	<b>4 A</b>	<b>4 A</b>



<b>Times</b>	<b>750177</b>	<b>751177</b>
Switch-on delay		
With automatic start after power on typ.	<b>30 ms</b>	<b>30 ms</b>
With automatic start after power on max.	<b>50 ms</b>	<b>50 ms</b>
Delay-on de-energisation		
With E-STOP typ.	<b>18 ms</b>	<b>18 ms</b>
With E-STOP max.	<b>30 ms</b>	<b>30 ms</b>
With power failure typ.	<b>18 ms</b>	<b>18 ms</b>
With power failure max.	<b>30 ms</b>	<b>30 ms</b>
<b>Environmental data</b>	<b>750177</b>	<b>751177</b>
Climatic suitability	<b>EN 60068-2-78</b>	<b>EN 60068-2-78</b>
Ambient temperature		
Temperature range	<b>-10 - 55 °C</b>	<b>-10 - 55 °C</b>
Storage temperature		
Temperature range	<b>-40 - 85 °C</b>	<b>-40 - 85 °C</b>
Climatic suitability		
Humidity	<b>93 % r. h. at 40 °C</b>	<b>93 % r. h. at 40 °C</b>
Condensation during operation	<b>Not permitted</b>	<b>Not permitted</b>
EMC	<b>EN 60947-5-1, EN 61000-6-2, EN 61000-6-4, EN 61326-3-1</b>	<b>EN 60947-5-1, EN 61000-6-2, EN 61000-6-4, EN 61326-3-1</b>
Vibration		
In accordance with the standard	<b>EN 60068-2-6</b>	<b>EN 60068-2-6</b>
Frequency	<b>10 - 55 Hz</b>	<b>10 - 55 Hz</b>
Amplitude	<b>0,35 mm</b>	<b>0,35 mm</b>
Airgap creepage		
In accordance with the standard	<b>EN 60947-1</b>	<b>EN 60947-1</b>
Overvoltage category	<b>III</b>	<b>III</b>
Pollution degree	<b>2</b>	<b>2</b>
Rated insulation voltage	<b>250 V</b>	<b>250 V</b>
Rated impulse withstand voltage	<b>6 kV</b>	<b>6 kV</b>
Protection type		
Housing	<b>IP40</b>	<b>IP40</b>
Terminals	<b>IP20</b>	<b>IP20</b>
Mounting area (e.g. control cabinet)	<b>IP54</b>	<b>IP54</b>
<b>Mechanical data</b>	<b>750177</b>	<b>751177</b>
Mounting position	<b>Any</b>	<b>Any</b>
Mechanical life	<b>10,000,000 cycles</b>	<b>10,000,000 cycles</b>
Material		
Bottom	<b>PC</b>	<b>PC</b>
Front	<b>PC</b>	<b>PC</b>
Top	<b>PC</b>	<b>PC</b>
Connection type	<b>Screw terminal</b>	<b>Spring-loaded terminal</b>
Mounting type	<b>plug-in</b>	<b>plug-in</b>

<b>Mechanical data</b>	<b>750177</b>	<b>751177</b>
Conductor cross section with screw terminals		
1 core flexible	<b>0,25 - 2,5 mm<sup>2</sup>, 24 - 12 AWG</b>	–
2 core with the same cross section, flexible with crimp connectors, no plastic sleeve	<b>0,25 - 1 mm<sup>2</sup>, 24 - 16 AWG</b>	–
2 core with the same cross section, flexible without crimp connectors or with TWIN crimp connectors	<b>0,2 - 1,5 mm<sup>2</sup>, 24 - 16 AWG</b>	–
Torque setting with screw terminals	<b>0,5 Nm</b>	–
Stripping length with screw terminals	<b>8 mm</b>	–
Conductor cross section with spring-loaded terminals: Flexible with/without crimp connector	–	<b>0,2 - 2,5 mm<sup>2</sup>, 24 - 12 AWG</b>
Spring-loaded terminals: Terminal points per connection	–	<b>2</b>
Stripping length with spring-loaded terminals	–	<b>9 mm</b>
Dimensions		
Height	<b>98 mm</b>	<b>100 mm</b>
Width	<b>17,5 mm</b>	<b>17,5 mm</b>
Depth	<b>120 mm</b>	<b>120 mm</b>
Weight	<b>170 g</b>	<b>170 g</b>

Where standards are undated, the 2020-07 latest editions shall apply.

**Safety characteristic data**



**NOTICE**

You must comply with the safety characteristic data in order to achieve the required safety level for your plant/machine.

Operating mode	EN ISO 13849-1: 2015	EN ISO 13849-1: 2015	EN 62061 SIL CL	EN 62061 PFH <sub>D</sub> [1/h]	IEC 61511 SIL	IEC 61511 PFD	EN ISO 13849-1: 2015
	PL	Category					T <sub>M</sub> [year]

Safety contacts, instantaneous

<b>PL e</b>	<b>Cat. 4</b>	<b>SIL CL 3</b>	<b>2,31E-09</b>	<b>SIL 3</b>	<b>2,03E-06</b>	<b>20</b>
-------------	---------------	-----------------	-----------------	--------------	-----------------	-----------

Explanatory notes for the safety-related characteristic data:

- ▶ The SIL CL value in accordance with EN 62061 corresponds to the SIL value in accordance with EN 61508.
- ▶ T<sub>M</sub> is the maximum mission time in accordance with EN ISO 13849-1. The value also applies as the retest interval in accordance with EN 61508-6 and IEC 61511 and as the proof test interval and mission time in accordance with EN 62061.

All the units used within a safety function must be considered when calculating the safety characteristic data.



**INFORMATION**

A safety function's SIL/PL values are **not** identical to the SIL/PL values of the units that are used and may be different. We recommend that you use the PAScal software tool to calculate the safety function's SIL/PL values.

### Supplementary data



**CAUTION!**

It is essential to consider the relay's service life graphs. The relay outputs' safety-related characteristic data is only valid if the values in the service life graphs are met.

The PFH value depends on the switch frequency and the load of the relay output. If the service life graphs are not accessible, the stated PFH value can be used irrespective of the switch frequency and the load, as the PFH value already considers the relay's B10d value as well as the failure rates of the other components.

**Service life graph**

The service life graphs indicate the number of cycles from which failures due to wear must be expected. The wear is mainly caused by the electrical load; the mechanical load is negligible.

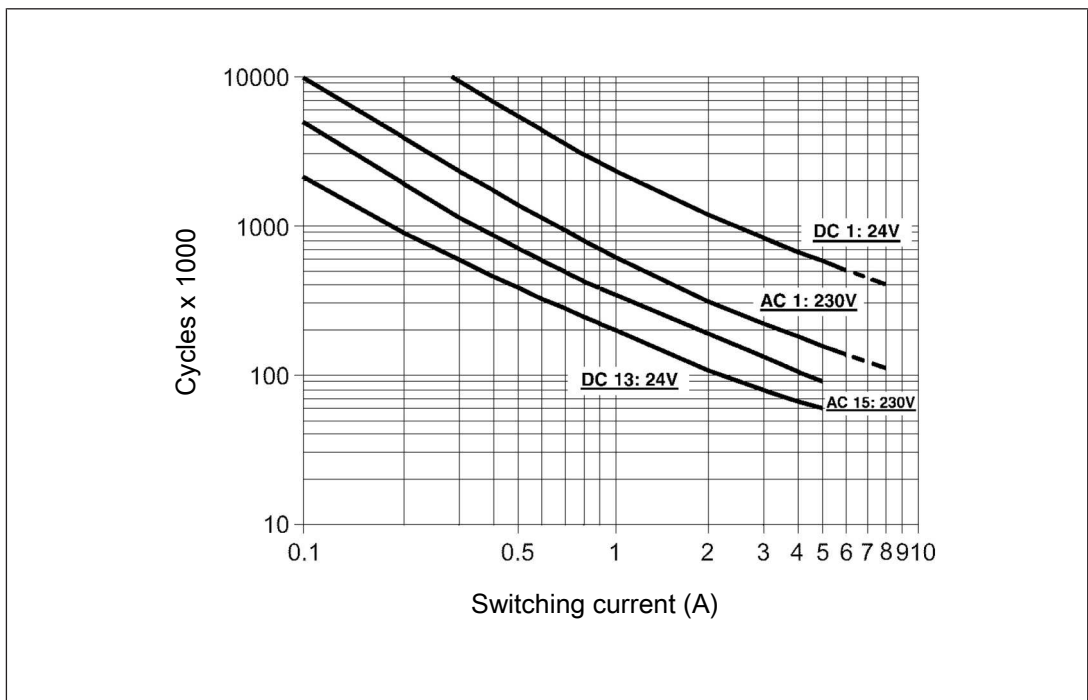


Fig.: Service life graphs at 24 V DC and 230 V AC

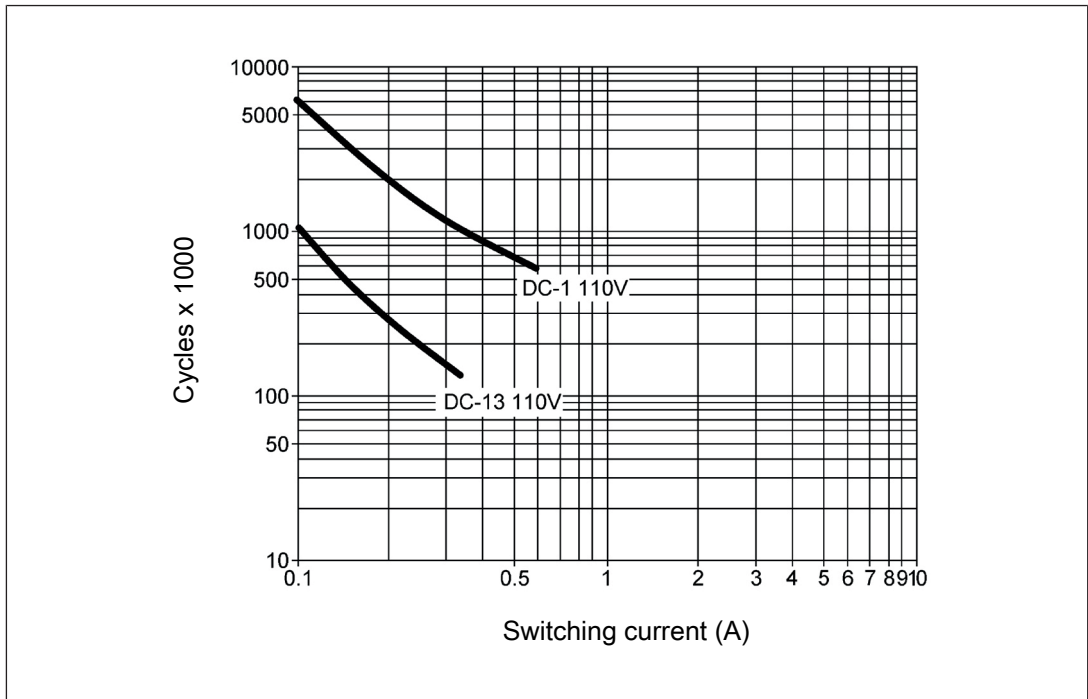


Fig.: Service life graphs at 110 V DC

**Example**

- ▶ Inductive load: 0.2 A
- ▶ Utilisation category: AC15
- ▶ Contact service life: 2 000 000 cycles

Provided the application to be implemented requires fewer than 2 000 000 cycles, the PFH value (see [Technical details \[15\]](#)) can be used in the calculation.

To increase the service life, sufficient spark suppression must be provided on all output contacts. With capacitive loads, any power surges that occur must be noted. With DC contactors, use flywheel diodes for spark suppression.

**Permitted operating height in accordance with EN 60664-1**

The values stated in the technical details apply to the use of the device in operating heights up to max. 2000 m above sea level. When used in greater heights, constraints have to be taken into account:

- ▶ Permitted maximum operating height 5000 m
- ▶ Reduction of rated insulation voltage and rated impulse withstand voltage for applications with safe separation:

Maximum operation height	Rated insulation voltage	Overvoltage category	Max. rated impulse withstand voltage
3000 m	150 V	II	2.5 kV
	100 V	III	2.5 kV
4000 m	150 V	II	2.5 kV
	100 V	III	2.5 kV
5000 m	150 V	II	2.5 kV
	100 V	III	2.5 kV

- ▶ Reduction of rated insulation voltage and rated impulse withstand voltage for applications with basic insulation:

Maximum operation height	Rated insulation voltage	Overvoltage category	Max. rated impulse withstand voltage
3000 m	250 V	II	2.5 kV
	150 V	III	2.5 kV
4000 m	250 V	II	2.5 kV
	150 V	III	2.5 kV
5000 m	250 V	II	2.5 kV
	150 V	III	2.5 kV

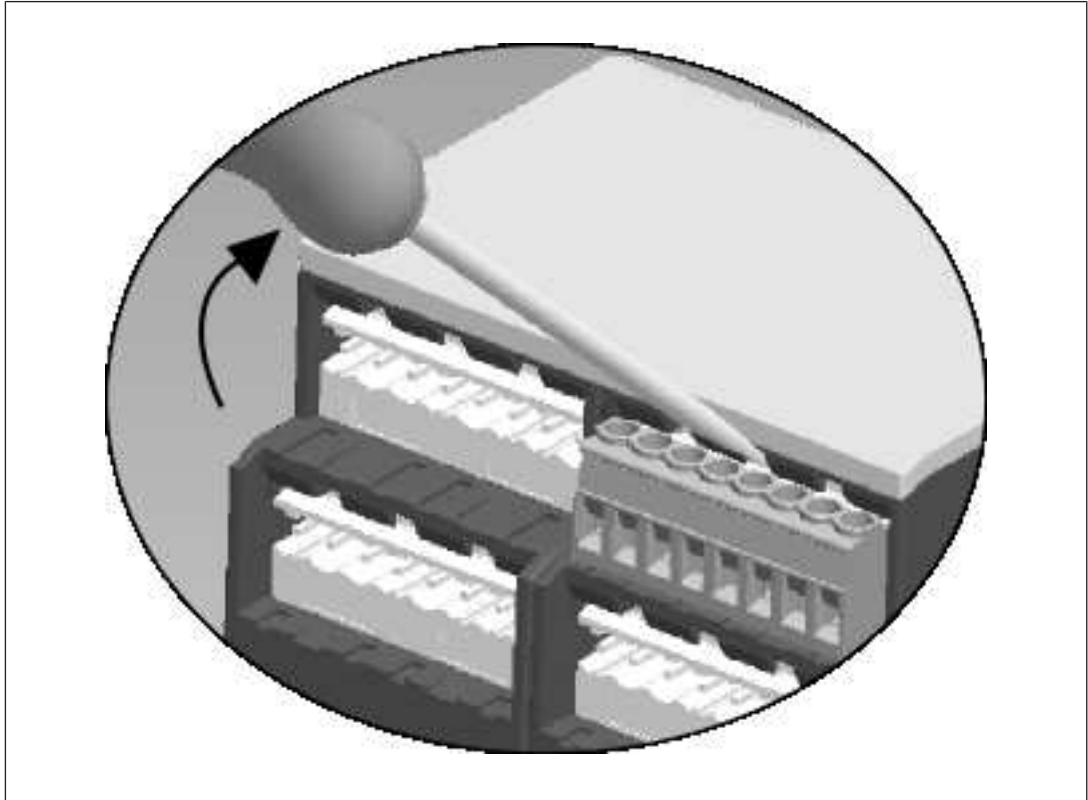
- ▶ From an operating height of 2000 m the max. permitted ambient temperature is reduced by 0.5 °C/100 m

Operating height	Permitted ambient temperature
3000 m	50 °C
4000 m	45 °C
5000 m	40 °C

## Remove plug-in terminals

Procedure: Insert the screwdriver into the housing recess behind the terminal and lever the terminal out.

Do **not** remove the terminals by pulling the cables!



## Order reference

Product type	Features	Connection type	Order no.
PNOZ s7.2	24 V DC	Screw terminals	750177
PNOZ s7.2 C	24 V DC	Spring-loaded terminals	751177

## EC declaration of conformity

This product/these products meet the requirements of the directive 2006/42/EC for machinery of the European Parliament and of the Council. The complete EC Declaration of Conformity is available on the Internet at [www.pilz.com/downloads](http://www.pilz.com/downloads).

Authorised representative: Norbert Fröhlich, Pilz GmbH & Co. KG, Felix-Wankel-Str. 2, 73760 Ostfildern, Germany

# ► Support

Technical support is available from Pilz round the clock.

## Americas

### Brazil

+55 11 97569-2804

### Canada

+1 888 315 7459

### Mexico

+52 55 5572 1300

### USA (toll-free)

+1 877-PILZUSA (745-9872)

## Asia

### China

+86 21 60880878-216

### Japan

+81 45 471-2281

### South Korea

+82 31 778 3300

## Australia and Oceania

### Australia

+61 3 95600621

### New Zealand

+64 9 6345350

## Europe

### Austria

+43 1 7986263-0

### Belgium, Luxembourg

+32 9 3217570

### France

+33 3 88104003

### Germany

+49 711 3409-444

### Ireland

+353 21 4804983

### Italy, Malta

+39 0362 1826711

## Scandinavia

+45 74436332

## Spain

+34 938497433

## Switzerland

+41 62 88979-32

## The Netherlands

+31 347 320477

## Turkey

+90 216 5775552

## United Kingdom

+44 1536 462203

Pilz develops environmentally-friendly products using ecological materials and energy-saving technologies. Offices and production facilities are ecologically designed, environmentally-aware and energy-saving. So Pilz offers sustainability, plus the security of using energy-efficient products and environmentally-friendly solutions.



We are represented internationally. Please refer to our homepage [www.pilz.com](http://www.pilz.com) for further details or contact our headquarters.

Headquarters: Pilz GmbH & Co. KG, Felix-Wankel-Straße 2, 73760 Ostfildern, Germany  
Telephone: +49 711 3409-0, Telefax: +49 711 3409-133.

**PILZ**  
THE SPIRIT OF SAFETY

CECE®, CHRE®, CMSE®, InduraNET p®, Leansafe®, Master of Safety®, Master of Security®, PAS4000®, PAScale®, PASconfig®, Pilz®, PTT®, PLID®, PMCPirimo®, PMCPiritego®, PMCTendo®, PMD®, PMJ®, PNOZ®, PRBM®, PRCM®, PRM®, PRTM®, PSEN®, PSS®, PVS®, SafetyBUS p®, SafetyEYE®, THE SPIRIT OF SAFETY® are registered and protected trademarks of Pilz GmbH & Co. KG in some countries. We would point out that product features may vary from the details stated in this document, depending on the status at the time of publication and the scope of the equipment. We accept no responsibility for the validity, accuracy and entirety of the text and graphics presented in this information. Please contact our Technical Support if you have any questions.

21866-EN-12, 2021-07 Printed in Germany  
© Pilz GmbH & Co. KG, 2019