

## Up to Category 2, EN 954-1 PNOZ X7



Safety relay for monitoring E-STOP pushbuttons.

### Approvals

	PNOZ X7
	◆
	◆
	◆

### Unit features

- ▶ Positive-guided relay outputs:
  - 2 safety contacts (N/O), instantaneous
- ▶ Connection options for:
  - E-STOP pushbutton
  - Reset button
- ▶ LED indicator for:
  - Switch status channel 1/2
  - Supply voltage
- ▶ See order reference for unit types

- ▶ The circuit is redundant with built-in self-monitoring.
- ▶ The safety function remains effective in the case of a component failure.
- ▶ The correct opening and closing of the safety function relays is tested automatically in each on-off cycle.

### Unit description

The safety relay meets the requirements of EN 60204-1 and IEC 60204-1 and may be used in applications with

- ▶ E-STOP pushbuttons

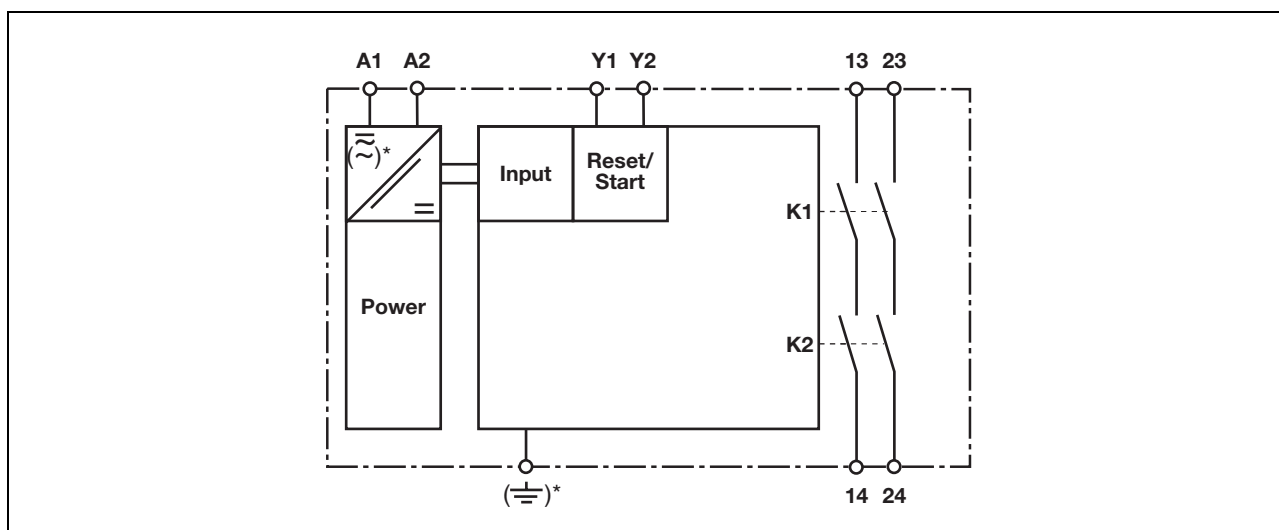
The safety relay is not suitable for non-contact barriers because

- ▶ a dynamic start is not possible
- ▶ the unit can be started during the delay-on de-energisation time.

### Safety features

The relay conforms to the following safety criteria:

### Block diagram






\*Only when  $U_B = 42 - 240 \text{ VAC}$

Galvanic isolation only when  $U_B = 42 - 240 \text{ VAC}$

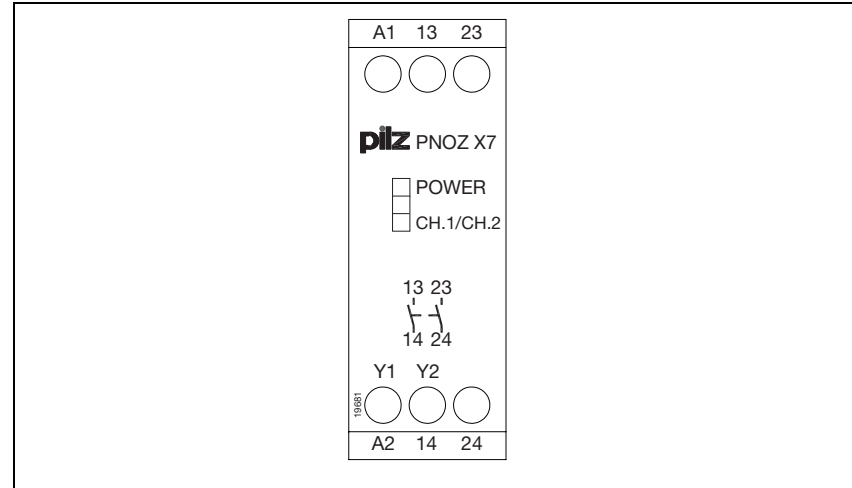
## Up to Category 2, EN 954-1 PNOZ X7

### ▶ Key

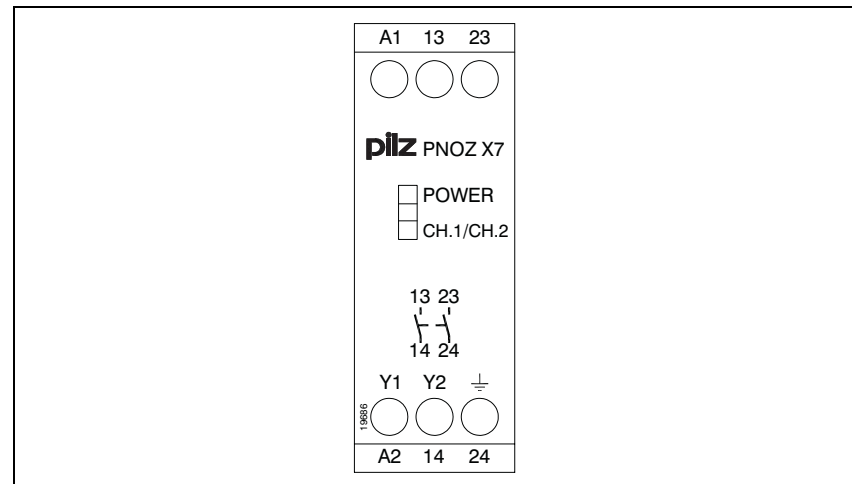
S1	E-STOP pushbutton
S3	Reset button
	Switch operated
	Gate open
	Gate closed

### Terminal configuration

$U_B = 24 \text{ VAC/DC}$



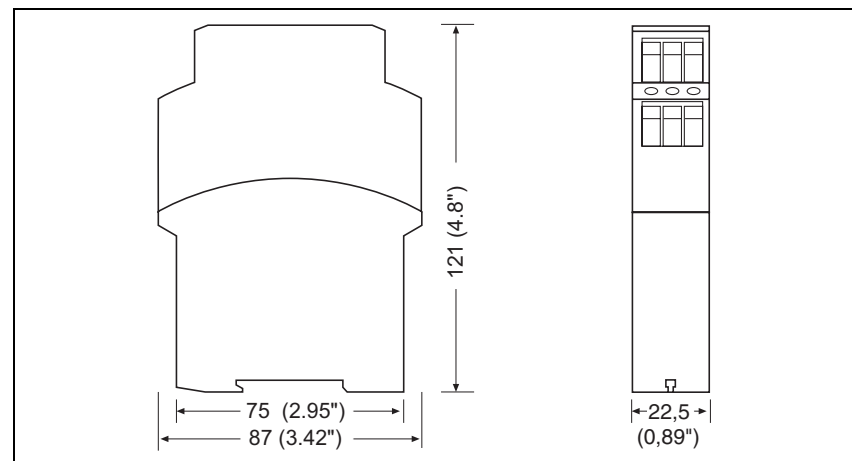
$U_B \text{ AC}$



### 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).

### Dimensions

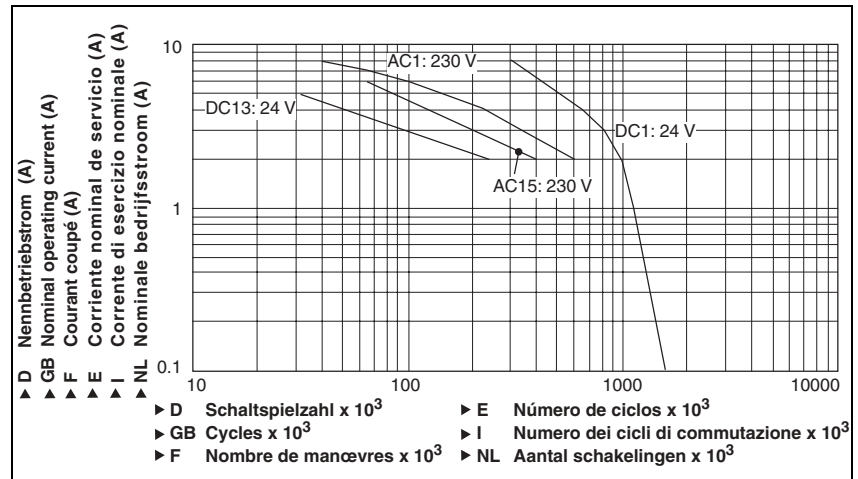


## Up to Category 3, EN 954-1 PNOZ X5

### 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.

### Service life graph



### Technical details

#### Electrical data

Supply voltage $U_B$ AC	<b>24 V</b>
Supply voltage $U_B$ DC	<b>12 V, 24 V</b>
Voltage tolerance	<b>-15% / +10%</b> Order No.: 774325 <b>-20% / +20%</b> Order No.: 774326
Power consumption at $U_B$ AC	<b>4.0 VA</b> Order no.: 774325
Power consumption at $U_B$ DC	<b>2.0 W</b> Order no.: 774325 <b>2.5 W</b> Order no.: 774326
Frequency range AC	<b>10 - 55 Hz</b>
Residual ripple DC	<b>20 %</b> Order no.: 774326 <b>160 %</b> Order no.: 774325
Voltage and current at input circuit: <b>24 VDC</b>	<b>55 mA</b> Order no.: 774325 <b>70 mA</b> Order no.: 774326
reset circuit: <b>24 VDC</b>	<b>55 mA</b> Order no.: 774325 <b>90 mA</b> Order no.: 774326
feedback loop: <b>24 VDC</b>	<b>55 mA</b> Order no.: 774325 <b>90 mA</b> Order no.: 774326
Output contacts in accordance with <b>EN 954-1, Category 3</b>	Safety contacts (N/O): <b>2</b>

## Up to Category 3, EN 954-1 PNOZ X5

### Electrical data

Utilisation category in accordance with **EN 60947-4-1**

AC1: **240 V**

$I_{\min}$ : **0.01 A**,  $I_{\max}$ : **6 A**

$P_{\max}$ : **1500 VA**

DC1: **24 V**

$I_{\min}$ : **0.01 A**,  $I_{\max}$ : **4 A**

$P_{\max}$ : **100 W**

Utilisation category in accordance with **EN 60947-5-1**

AC15: **230 V**

$I_{\max}$ : **5 A**

DC13 (6 cycles/min): **24 V**

$I_{\max}$ : **4 A**

Contact material

**AgSnO<sub>2</sub> + 0.2 cm Au**

External contact fuse protection (**EN 60947-5-1**)

Blow-out fuse, quick

**6 A**

Blow-out fuse, slow

**4 A**

Circuit breaker

**4 A**, 24 VAC/DC, characteristic B/C

Max. overall cable resistance  $R_{l\max}$  input circuits, reset circuits

Single-channel at  $U_B$  DC

**50 Ohm** Order no.: 774325

**20 Ohm** Order no.: 774326

Single-channel at  $U_B$  AC

**150 Ohm** Order no.: 774325

Dual-channel without detect. of shorts across contacts at  $U_B$  DC

**100 Ohm** Order no.: 774325

**35 Ohm** Order no.: 774326

Dual-channel without detect. of shorts across contacts at  $U_B$  AC

**250 Ohm** Order no.: 774325

### Times

Switch-on delay

with automatic reset typ.

**115 ms** Order no.: 774325

**124 ms** Order no.: 774326

with automatic reset max.

**180 ms** Order no.: 774325

**230 ms** Order no.: 774326

with automatic reset after power on typ.

**120 ms** Order no.: 774325

**124 ms** Order no.: 774326

with automatic reset after power on max.

**190 ms** Order no.: 774325

**230 ms** Order no.: 774326

with manual reset typ.

**40 ms** Order no.: 774325

**80 ms** Order no.: 774326

with manual reset max.

**180 ms** Order no.: 774325

**230 ms** Order no.: 774326

Delay-on de-energisation

with E-STOP typ.

**12 ms** Order no.: 774325

**18 ms** Order no.: 774326

with E-STOP max.

**20 ms** Order no.: 774325

**30 ms** Order no.: 774326

with power failure typ.

**110 ms** Order no.: 774325

**20 ms** Order no.: 774326

with power failure max.

**160 ms** Order no.: 774325

**30 ms** Order no.: 774326

Recovery time at max. switching frequency 1/s after E-STOP

**50 ms** Order no.: 774325

**40 ms** Order no.: 774326

after power failure

**200 ms** Order no.: 774325

**50 ms** Order no.: 774326

Simultaneity, channel 1 and 2

←

Supply interruption before de-energisation

**20 ms** Order no.: 774325

**10 ms** Order no.: 774326

### Environmental data

EMC

**EN 60947-5-1, EN 61000-6-2**

Vibration in accordance with **EN 60068-2-6**

Frequency

**10 - 55 Hz**

Amplitude

**0.35 mm**

Climatic suitability

**EN 60068-2-78**

## Up to Category 3, EN 954-1 PNOZ X5

Environmental data	
Airgap creepage	VDE 0110-1
Ambient temperature	-10 - 55 °C
Storage temperature	-40 - 85 °C
Protection type	
Mounting (e.g. cabinet)	IP54
Housing	IP 40
Terminals	IP 20
Mechanical data	
Housing material	
Housing	PPO UL 94 V0
Front	PPO UL 94 V0
Max. cross section of external conductors with screw terminals	
1 core flexible	0.20 - 4.00 mm <sup>2</sup>
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	0.20 - 2.50 mm <sup>2</sup>
without crimp connectors or with TWIN crimp connectors	0.20 - 2.50 mm <sup>2</sup>
Torque setting with screw terminals	0.60 Nm
Dimensions (H x W x D)	
With screw terminals	87 mm x 22.5 mm x 121 mm
Weight	190 g

The standards current on **09/04** apply.

Order reference			
Type	Features	Terminals	Order no.
PNOZ X5	24 VAC/DC	Screw terminals	774 325
PNOZ X5	12 VDC	Screw terminals	774 326