



## Up to Category 4, EN 954-1 PNOZ X2.7P



Safety relay for monitoring E-STOP pushbuttons, safety gates and light barriers.

### Approvals

	PNOZ X2.7P
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### Unit features

- q Positive-guided relay outputs:
  - 3 safety contacts (N/O), instantaneous
  - 1 auxiliary contact (N/C), instantaneous
- q Connection options for:
  - E-STOP pushbutton
  - Safety gate limit switch
  - Reset button
  - Light barriers
- q LED indicator for:
  - Switch status channel 1/2
  - Supply voltage
- q Plug-in connection terminals (either cage clamp terminal or screw terminal)
- q See order reference for unit types

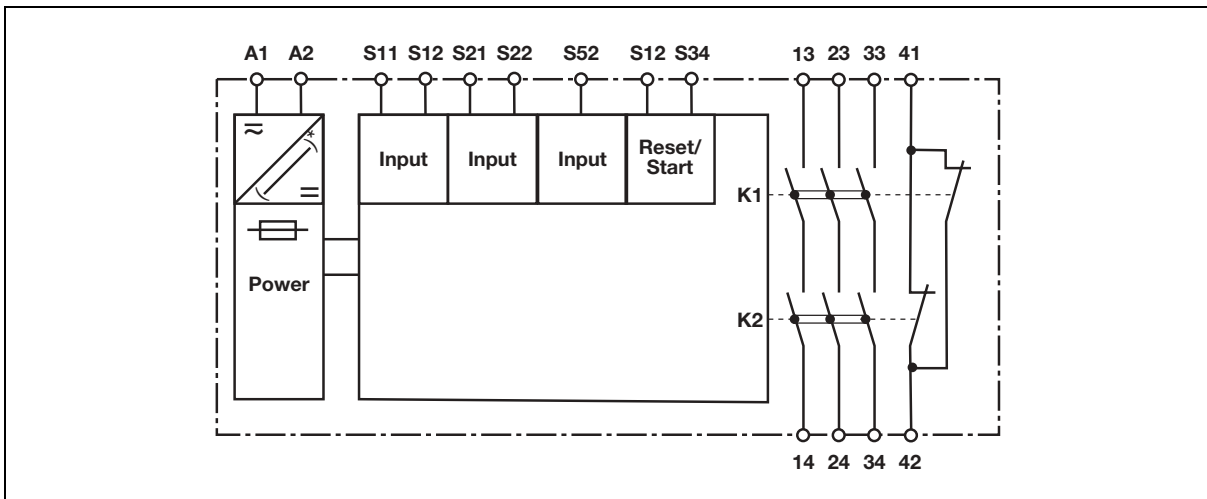
### Safety features

- The relay conforms to the following safety criteria:
- q The circuit is redundant with built-in self-monitoring.
  - q The safety function remains effective in the case of a component failure.
  - q 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
- q E-STOP pushbuttons
  - q Safety gates
  - q Light barriers

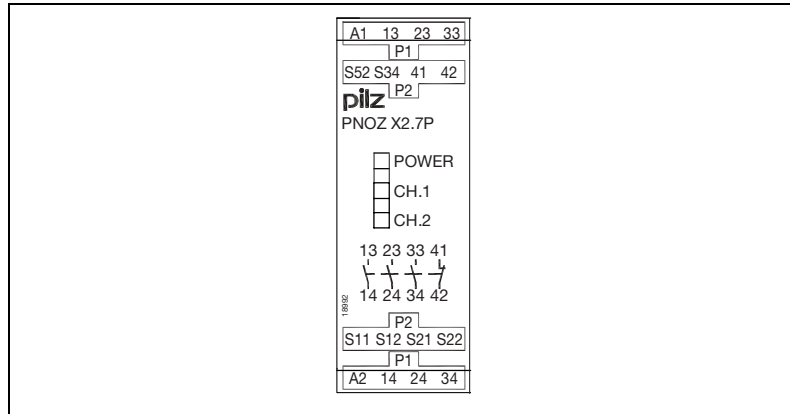
### Block diagram



\*only with  $U_B$  24 – 240 VAC/DC

## Up to Category 4, EN 954-1 PNOZ X2.7P

### Terminal configuration

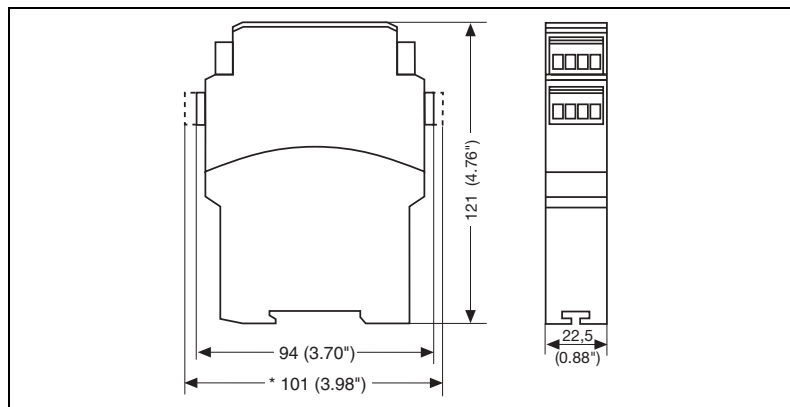


### Installation

- q The safety relay should be installed in a control cabinet with a protection type of at least IP54.
- q Use the notch on the rear of the unit to attach it to a DIN rail.
- q 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

\* with cage clamp terminals



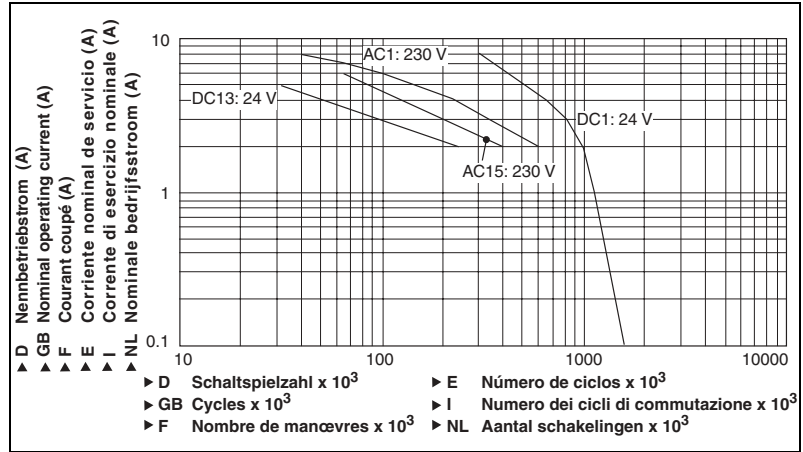
## Up to Category 4, EN 954-1 PNOZ X2.7P

### Notice

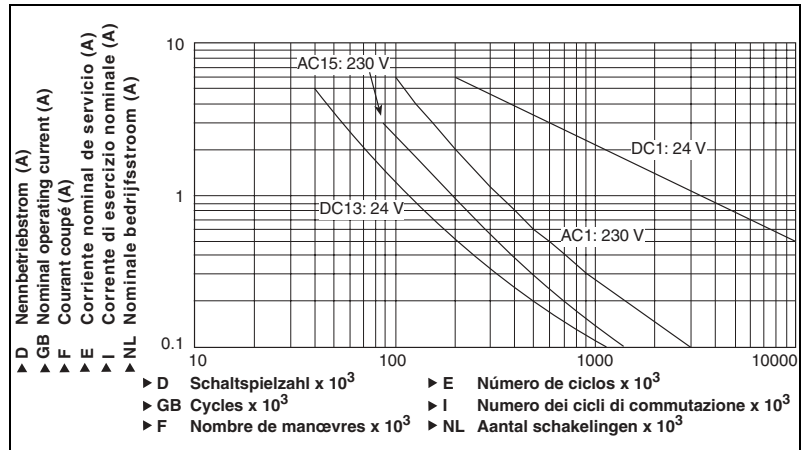
This data sheet is only intended for use during configuration. For installation and operation, please refer to the operating instructions supplied with the unit.

### Service life graph

$U_B$  24 VAC/DC



$U_B$  24 - 240 VAC/DC



### Technical details

#### Electrical data

Supply voltage	
Supply voltage $U_B$ AC:	<b>24 V, 24 - 240 V</b>
Supply voltage $U_B$ DC:	<b>24 V, 24 - 240 V</b>
Voltage tolerance	<b>-15% - 10%</b>
Power consumption at $U_B$ AC	Order no. 777305, 787305: <b>3.5 VA</b> Order no. 777306, 787306: <b>4.5 VA</b>
Power consumption at $U_B$ DC	<b>2.0 W</b>
Frequency range AC	<b>50 - 60 Hz</b>
Residual ripple DC	<b>160 %</b>
Voltage and current at Input circuit DC: <b>24.0 V</b>	Order no. 777305, 787305: <b>30 mA</b> Order no. 777306, 787306: <b>25 mA</b>
Reset circuit DC: <b>24.0 V</b>	<b>50 mA</b>
Feedback loop DC: <b>24.0 V</b>	<b>50 mA</b>
Output contacts in accordance with <b>EN 954-1</b> , Category 4	Safety contacts (N/O): <b>3</b>
Output contacts in accordance with <b>EN 954-1</b> , Category 3	Auxiliary contacts (N/C): <b>1</b>

## Up to Category 4, EN 954-1 PNOZ X2.7P

Electrical data	
Utilisation category in accordance with <b>EN 60947-4-1</b> AC1: <b>240 V</b>	$I_{min}$ : <b>0.01 A</b> , $I_{min}$ : <b>6.0 A</b> $P_{max}$ : <b>1500 VA</b>
DC1: <b>24 V</b>	$I_{min}$ : <b>0.01 A</b> , $I_{min}$ : <b>6.0 A</b> $P_{max}$ : <b>150 W</b>
Utilisation category in accordance with <b>EN 60947-5-1</b> AC15: <b>230 V</b>	$I_{max}$ : Order no. 777305, 787305: <b>5.0 A</b> Order no. 777306, 787306: <b>3.0 A</b>
DC13: <b>24 V</b> (DC13: 6 cycles/min)	$I_{max}$ : <b>4.0 A</b>
Contact material	Order no. 777305, 787305: <b>AgSnO<sub>2</sub> + 0.2 σm Au</b> Order no. 777306, 787306: <b>AgCuNi+ 0.2 σm Au</b>
External contact fuse protection in accordance with <b>EN 60947-5-1</b>	
Blow-out fuse, quick	<b>6 A</b>
Blow-out fuse, slow	<b>4 A</b>
Circuit breaker	24 VAC/DC, <b>4 A</b> , characteristic B/C
Max. overall cable resistance $R_{lmax}$ input circuits, reset circuits single-channel at $U_B$ DC	Order no. 777305, 787305: <b>50 Ohm</b> Order no. 777306, 787306: <b>45 Ohm</b>
single-channel at $U_B$ AC	Order no. 777305, 787305: <b>200 Ohm</b> Order no. 777306, 787306: <b>45 Ohm</b>
dual-channel without detect. of shorts across contacts at $U_B$ DC	Order no. 777305, 787305: <b>100 Ohm</b> Order no. 777306, 787306: <b>80 Ohm</b>
dual-channel without detect. of shorts across contacts $U_B$ AC	Order no. 777305, 787305: <b>320 Ohm</b> Order no. 777306, 787306: <b>80 Ohm</b>
dual-channel with detect. of shorts across contacts at $U_B$ DC	<b>15 Ohm</b>
dual-channel with detect. of shorts across contacts $U_B$ AC	Order no. 777305, 787305: <b>25 Ohm</b> Order no. 777306, 787306: <b>15 Ohm</b>
Times	
Switch-on delay with monitored reset typ.	<b>30 ms</b>
with monitored reset max.	Order no. 777305, 787305: <b>50 ms</b> Order no. 777306, 787306: <b>40 ms</b>
Delay-on de-energisation with E-STOP typ.	Order no. 777305, 787305: <b>12 ms</b> Order no. 777306, 787306: <b>10 ms</b>
with E-STOP max.	Order no. 777305, 787305: <b>30 ms</b> Order no. 777306, 787306: <b>20 ms</b>
with power failure typ.	Order no. 777305, 787305: <b>50 ms</b>
with power failure max.	Order no. 777305, 787305: <b>80 ms</b>
With power failure typ. $U_B = 24 V$	Order no. 777306, 787306: <b>180 ms</b>
with power failure max. $U_B = 24 V$	Order no. 777306, 787306: <b>230 ms</b>
with power failure typ. $U_B = 240 V$	Order no. 777306, 787306: <b>1100 ms</b>
with power failure max. $U_B = 240 V$	Order no. 777306, 787306: <b>1500 ms</b>
Recovery time at max. switching frequency 1/s after E-STOP	<b>50 ms</b>
after power failure	Order no. 777305, 787305: <b>150 ms</b> Order no. 777306, 787306: <b>250 ms</b>
Waiting period with a monitored reset	<b>300 ms</b>
Simultaneity, channel 1 and 2	←
Supply interruption before de-energisation	Order no. 777305, 787305: <b>10 ms</b> Order no. 777306, 787306: <b>20 ms</b>
Environmental data	
EMC	Order no. 777305, 787305: <b>EN 60947-5-1, EN 61000-6-2</b> Order no. 777306, 787306: <b>EN 60947-5-1, EN 61000-6-2, EN 61000-6-4</b>
Vibration in accordance with <b>EN 60068-2-6</b>	
Frequency:	<b>10 - 55 Hz</b>
Amplitude:	<b>0.35 mm</b>
Climatic suitability	<b>EN 60068-2-78</b>

## Up to Category 4, EN 954-1 PNOZ X2.7P

2.2

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	IP40
Terminals	IP20
Mechanical data	
Housing material	
Housing	PPO UL 94 V0
Front	ABS UL 94 V0
Max. cross section of external conductors with screw terminals:	
1 core flexible	0.25 - 2.5 mm <sup>2</sup>
2 core, same cross section, flexible with crimp connectors, without insulating sleeve	0.25 - 1 mm <sup>2</sup>
without crimp connectors or with TWIN crimp connectors	0.2 - 1.5 mm <sup>2</sup>
Torque setting with screw terminals	0.5 Nm
Max. cross section of external conductors with cage clamp terminals:	
Flexible without crimp connectors	0.2 - 1.5 mm <sup>2</sup>
Cage clamp terminals:	
Terminal points per connection	2
Stripping length	8 mm
Dimensions (H x W x D)	
With screw terminals	94 x 22.5 x 121 mm
With cage clamp terminals	101 x 22.5 x 121 mm
Weight	Order no. 777305, 787305: 190 g Order no. 777306, 787306: 210 g

The standards current on **11/03** apply.

Max. continuous current		
Number of contacts	I <sub>max</sub> (A) at U <sub>B</sub> DC	I <sub>max</sub> (A) at U <sub>B</sub> AC
1	6.00	6.00
2	6.00	6.00
3	Order no.: 777305, 787305: 5.00 Order no.: 777306, 787306: 4.50	Order no.: 777305, 787305: 5.00 Order no.: 777306, 787306: 4.500

Order reference				
Type	Features		Terminals	Order no.
PNOZ X2.7P C	24 VAC	24 VDC	Cage clamp terminals	787 305
PNOZ X2.7P	24 VAC	24 VDC	Screw terminals	777 305
PNOZ X2.7P C	24 - 240 VAC	24 - 240 VDC	Cage clamp terminals	787 306
PNOZ X2.7P	24 - 240 VAC	24 - 240 VDC	Screw terminals	777 306