Instantaneous
PZE X5

Contact expander module for increasing the number of available contacts

Approvals

	PZE X5
c UL us LISTED	◆
TÜV	◆
CCC	◆

Unit features

- Positive-guided relay outputs:
  - 5 safety contacts (N/O), instantaneous
- LED indicator for:
  - Switch status channel 1/2
  - Supply voltage
- See order reference for unit types

Unit description

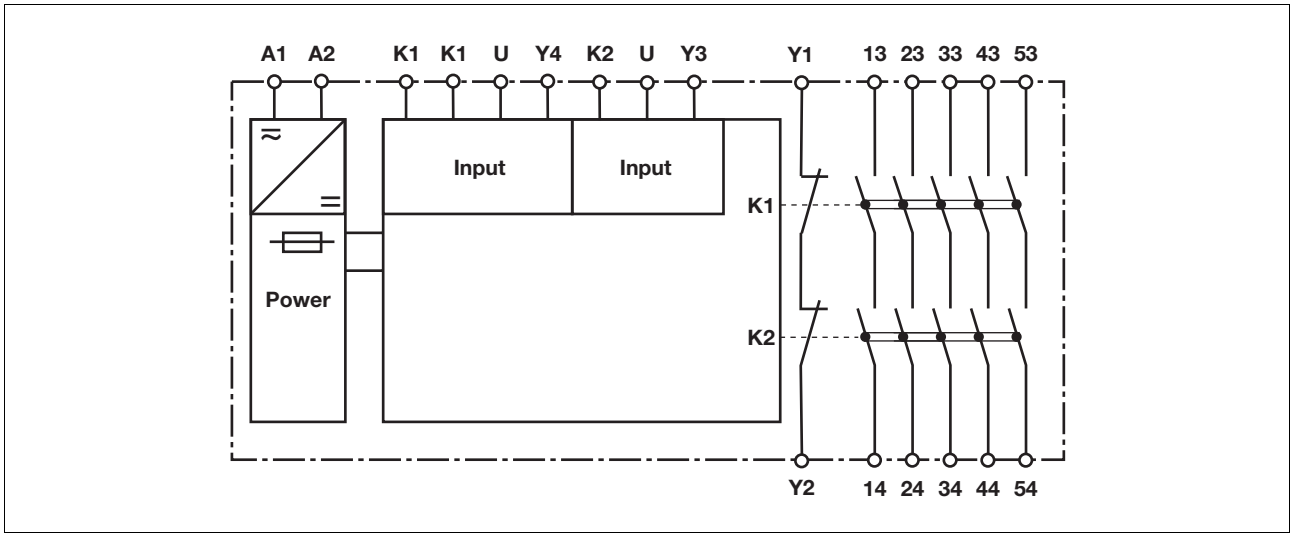
The unit meets the requirements of EN 60947-5-1, EN 60204-1 and VDE 0113-1. The contact expander module is used to increase the number of contacts available on a base unit. Base units are all safety relays with feedback loop.
The category that can be achieved in accordance with EN 954-1 depends on the category of the base unit. The contact expander module may not exceed this.

Safety features

The unit meets the following safety requirements:

- The contact expander 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 expander 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



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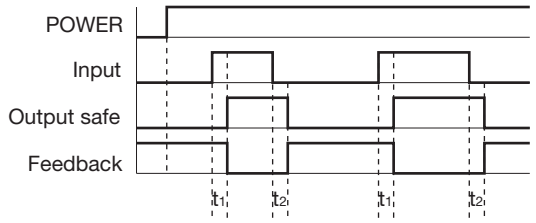
Function description

- Single-channel operation: one input circuit affects both output relays
- Dual-channel operation:
  - two redundant input circuits affect one output relay
  - Detection of shorts across contacts is also possible

Timing diagram



Key

- Power: Supply voltage
- Input: Input circuits K1-U-Y4, K2-U-Y3
- Output safe: Safety contacts 13-14, 23-24, 33-34, 43-44, 53-54
- Feedback: Feedback loop Y1-Y2
- t_1: Switch-on delay
- t_2: Delay-on de-energisation

Wiring

Please note:

- Information given in the “Technical details” must be followed.
- Outputs 13-14, 23-24, 33-34, 43-44, 53-54 are safety contacts.
- To prevent contact welding, a fuse should be connected before the output contacts (see technical details).
- 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

- Use copper wire that can withstand 60/75 °C.
- Sufficient fuse protection must be provided on all output contacts with capacitive and inductive loads.

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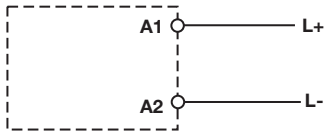
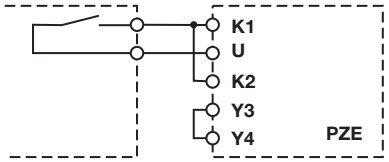
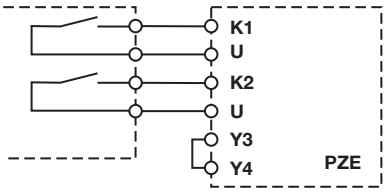
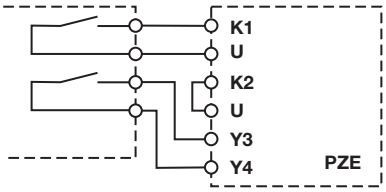
Preparing for operation

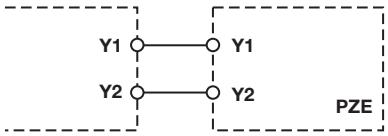
▸ Supply voltage

Supply voltage	AC	DC
		

▸ Input circuit

Input circuit	Single-channel	Dual-channel
without detection of shorts across contacts		
with detection of shorts across contacts		

▸ Feedback loop

Y1 and Y2 are feedback loop inputs on the base unit	

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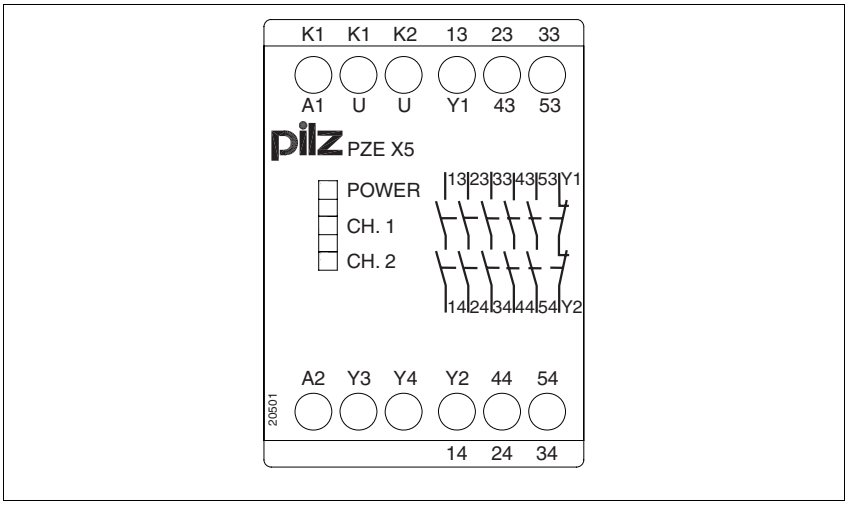
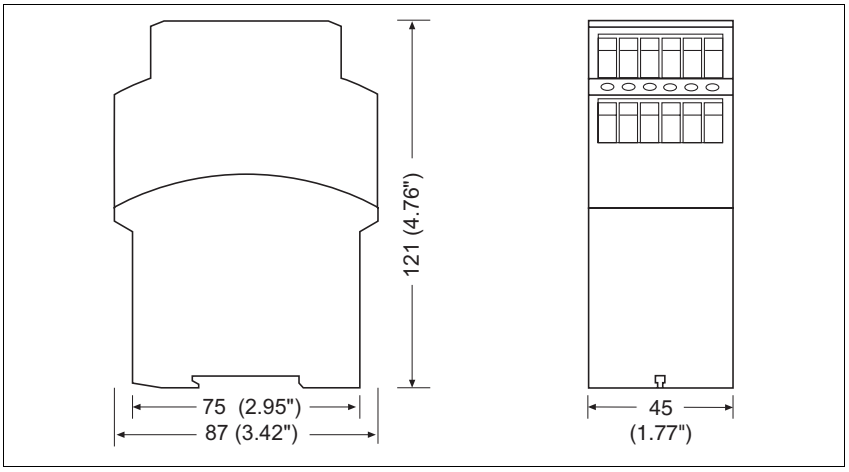
Terminal configuration



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



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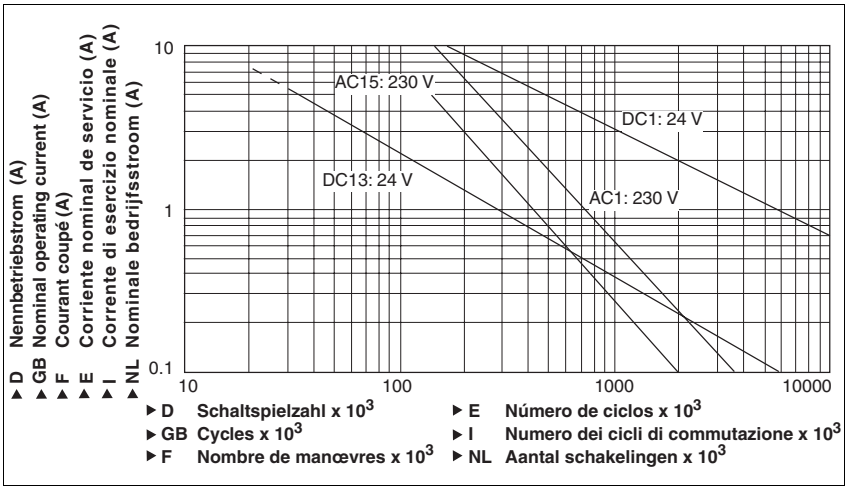
Notice

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



Technische Daten	
Elektrische Daten	
Versorgungsspannung	
Supply voltage U_B DC	**24 V**
Voltage tolerance	**-15 %/+10 %**
Power consumption at U_B DC	**3.5 W**
Residual ripple DC	**20 %**
Spannung und Strom an	
Input circuit DC: **24.0 V**	**35.0 mA**
Number of output contacts	
Safety contacts (S) instantaneous:	**5**
Utilisation category in accordance with **EN 60947-4-1**	
Safety contacts: AC1 at **240 V**	I_{min}: **0.01 A** , I_{max}: **8.0 A** P_{max}: **2000 VA**
Safety contacts: DC1 at **24 V**	I_{min}: **0.01 A** , I_{max}: **8.0 A** P_{max}: **200 W**
Utilisation category in accordance with **EN 60947-5-1**	
Safety contacts: AC15 at **230 V**	I_{max}: **5.0 A**
Safety contacts: DC13 at **24 V** (6 Schaltspiele/min)	I_{max}: **7.0 A**
Contact material	**AgSnO2 + 0.2µ Au**
External contact fuse protection (I_K = 1 kA) to **EN 60947-5-1**	
Blow-out fuse, quick	
Safety contacts:	**10 A**
Blow-out fuse, slow	
Safety contacts:	**6 A**
Circuit breaker 24 VAC/DC, characteristic B/C	
Safety contacts:	**6 A**
Max. overall cable resistance R_{lmax} per input circuit	
single-channel at U_B DC	**120 Ohm**
dual-channel without detect. of shorts across contacts at U_B DC	**240 Ohm**
dual-channel with detect. of shorts across contacts at U_B DC	**4 Ohm**
Zeiten	
Switch-on delay	
with automatic reset typ.	**15 ms**
with automatic reset max.	**30 ms**

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Zeiten	
Delay-on de-energisation	
with E-STOP typ.	**13 ms**
with E-STOP max.	**30 ms**
with power failure typ.	**110 ms**
with power failure max.	**150 ms**
Supply interruption before de-energisation	**20 ms**
Supply interruption before de-energisation in the input circuit	**8.0 ms**
Umweltdaten	
EMC	**EN 60947-5-1**, **EN 61000-6-2**
Vibration to **EN 60068-2-6**	
Frequency	**10 - 55 Hz**
Amplitude	**0.35 mm**
Climatic suitability	**EN 60068-2-78**
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**
Mechanische Daten	
Housing material	
Housing	**PPO UL 94 V0**
Front	**ABS UL 94 V0**
Max. cross section of external conductors with screw terminals	
1 core flexible	**0.20 - 4.00 mm² , 24 - 10 AWG**
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	**0.20 - 2.50 mm² , 24 - 14 AWG**
without crimp connectors or with TWIN crimp connectors	**0.20 - 2.50 mm² , 24 - 14 AWG**
Torque setting with screw terminals	**0.60 Nm**
Dimensions	
Height	**87.0 mm**
Width	**45.0 mm**
Depth	**121.0 mm**
Weight	**240 g**

The standards current on **2004-10** apply.

Conventional thermal current	
I_{th} (A) at U_B DC	
1 contact	**8.00 A**
2 contacts	**8.00 A**
3 contacts	**6.50 A**
4 contacts	**5.60 A**
5 contacts	**5.00 A**

Order reference

Type	Features		Terminals	Order no.
PZE X5		24 VDC	Screw terminals	774 595

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