




Delayed PZE X4VP4



Contact expander module for increasing the number of available contacts

Approvals

	PZE X4VP4
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Unit features

- ▶ Positive-guided relay outputs:
- ▶ 4 safety contacts (N/O), delay-on de-energisation
 - Switch status channel 1/2
- ▶ Plug-in connection terminals (either cage clamp terminal or screw terminal)
- ▶ See order reference for unit types

Unit description

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

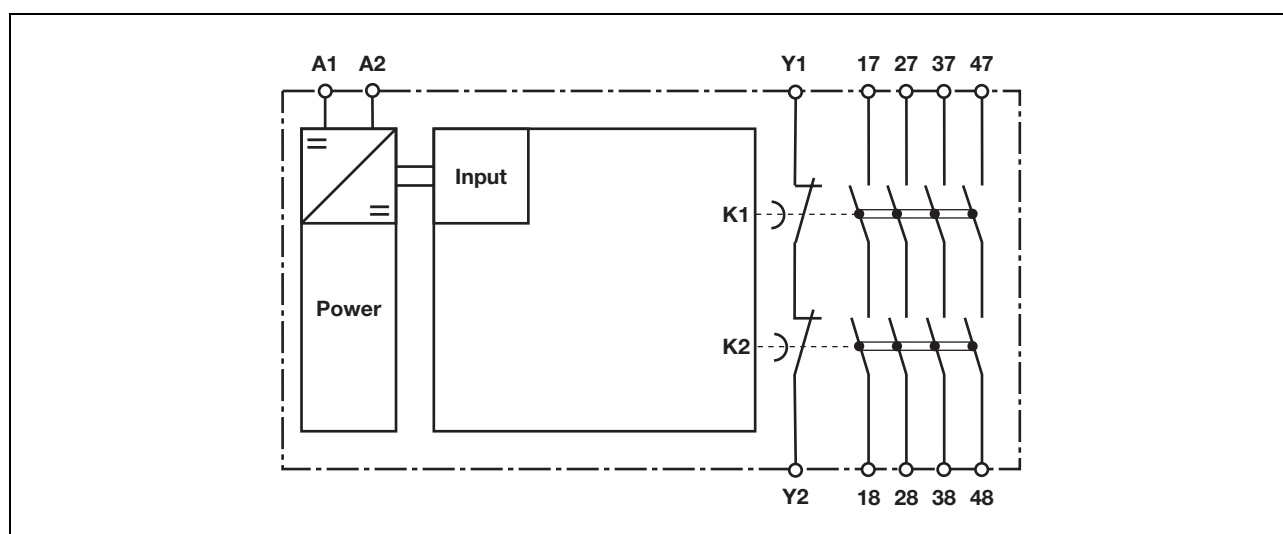
The delay-on de-energisation safety contacts may only be used up to category 3.

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

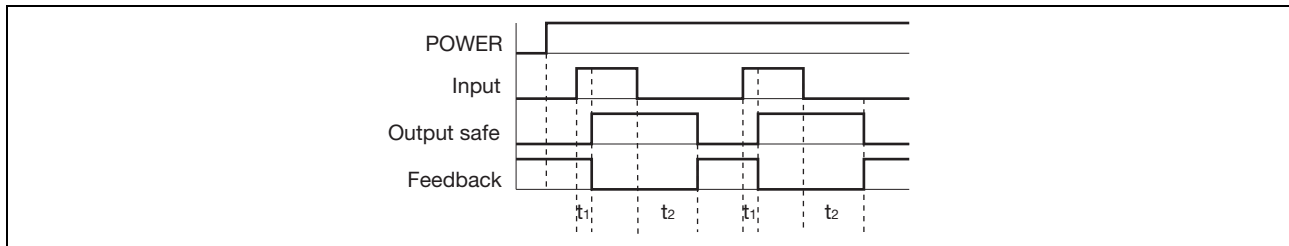


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Function description

- ▶ Single-channel operation: one input circuit affects both output relays

Timing diagram



Key

- ▶ Power: Supply voltage
- ▶ Input: Input circuits A1
- ▶ Output safe: Safety contacts 17-18, 27-28, 37-38, 47-48
- ▶ 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 17-18, 27-28, 37-38, 47-48 are delay-on de-energisation safety contacts.
- ▶ To prevent contact welding, a fuse should be connected before the output contacts (see technical details).
- ▶ Calculation of the max. cable runs I_{max} in the input circuit:

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

R_{lmax} = max. overall cable resistance (see technical details)


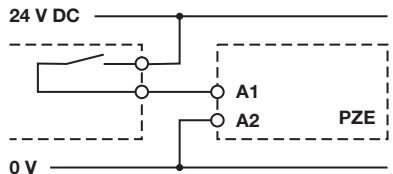
R_l / km = cable resistance/km

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

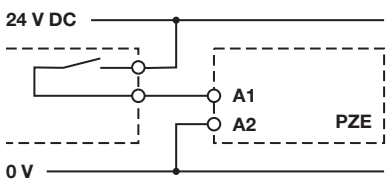
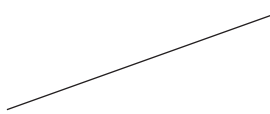
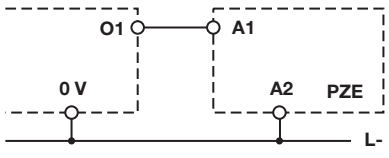
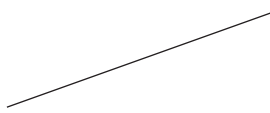
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Preparing for operation

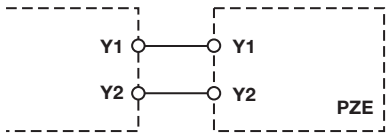
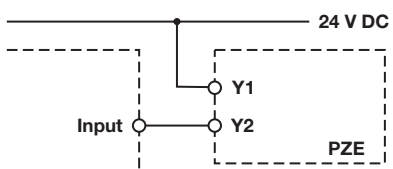
► Supply voltage

Supply voltage	AC	DC
		

► Input circuit

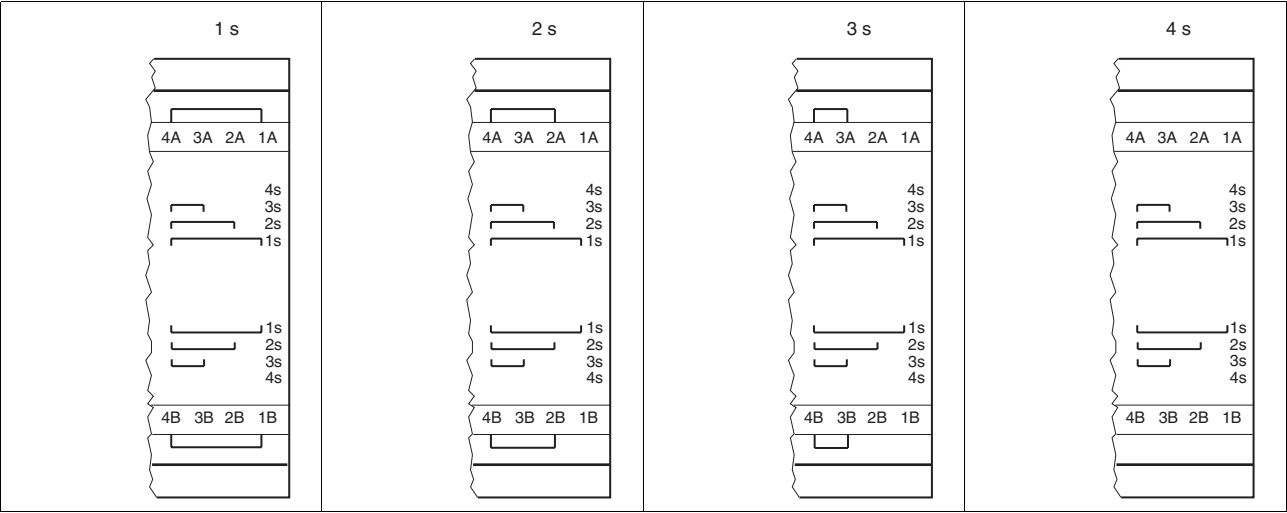
Input circuit	Single-channel	Dual-channel
Base unit: PNOZ X safety relay Driven via safety contacts		
Base unit: PNOZelog safety relay Driven via semiconductor outputs (24 VDC)		

► Feedback loop

Feedback loop	Base unit: Safety relay PNOZ X	Base unit: Safety relay PNOZelog
Y1, Y2 and Input are inputs on the base unit; they evaluate the feedback loop		

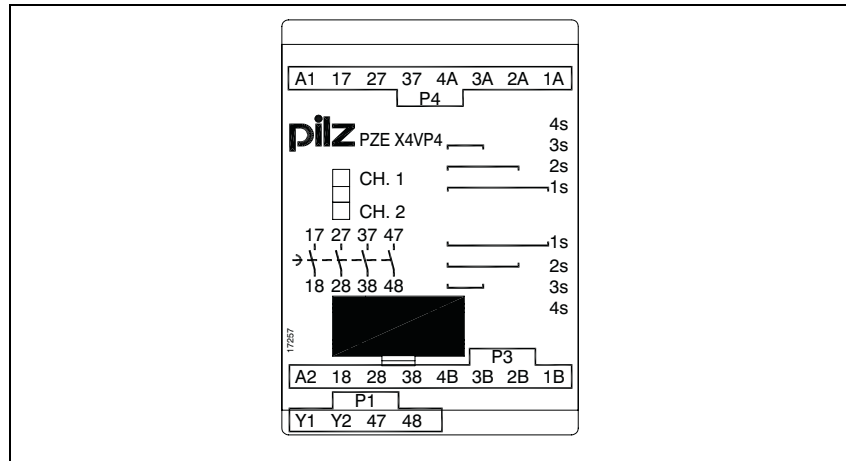
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► Setting the delay time



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Terminal configuration

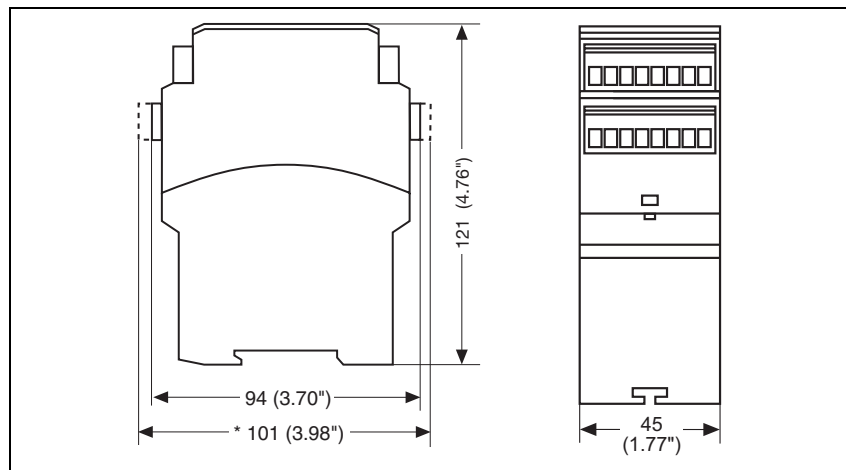


Installation

- ▶ 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

* with cage clamp terminals

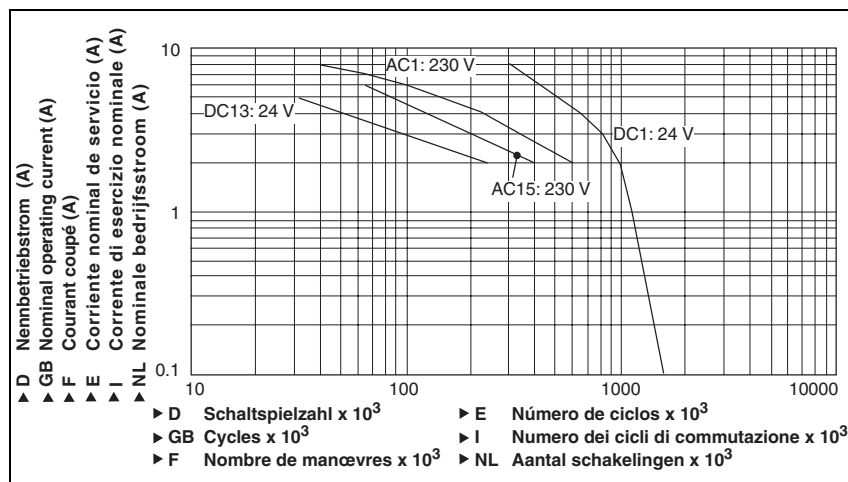


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Notice

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



Technical details

Electrical data

Supply voltage	
Supply voltage U_B DC	24 V
Voltage tolerance	-15 %/+10 %
Power consumption at U_B DC	2.5 W
Residual ripple DC	20 %
Voltage and current at input circuit DC: 24.0 V	70.0 mA
Output contacts in accordance with EN 954-1	Safety contacts (N/O), delayed: 4
Utilisation category in accordance with EN 60947-4-1	
Safety contacts, delayed: AC1 at 240 V	$I_{min}: 0.01 A, I_{max}: 5.0 A$ $P_{max}: 1,200 VA$
Safety contacts, delayed: DC1 at 24 V	$I_{min}: 0.01 A, I_{max}: 5.0 A$ $P_{max}: 120 W$
Utilisation category in accordance with EN 60947-5-1	
Safety contacts, delayed: AC15 at 230 V	$I_{max}: 5.0 A$
Safety contacts, delayed: DC13 at 24 V (6 cycles/min)	$I_{max}: 4.0 A$
Contact material	AgSnO2 + 0.2 µm Au
External contact fuse protection to EN 60947-5-1	
Blow-out fuse, quick	
Safety contacts:	6 A
Blow-out fuse, slow	
Safety contacts:	4 A
Circuit breaker 24 VAC/DC, characteristic B/C	
Safety contacts:	4 A
Max. overall cable resistance R_{lmax} per input circuit single-channel at U_B DC	30 Ohm
Times	
Switch-on delay	
with automatic reset after power on typ.	230 ms
with automatic reset after power on max.	400 ms
Delay time t_V : selectable	1.00 s; 2.00 s; 3.00 s; 4.00 s Order no.: 777586 1.00 s; 2.00 s; 3.00 s; 4.00 s Order no.: 787586
Time accuracy	-50 %/+50 %
Supply interruption before de-energisation	20 ms

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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
Airgap creepage	VDE 0110-1
Ambient temperature	-10 - 55 °C
Storage temperature	-40 - 85 °C
Protection type	
Mounting (e.g. control 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 - 2.50 mm ² , 24 - 12 AWG Order no.: 777586
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	0.25 - 1.00 mm ² , 24 - 16 AWG Order no.: 777586
without crimp connectors or with TWIN crimp connectors	0.20 - 1.50 mm ² , 24 - 16 AWG Order no.: 777586
Torque setting with screw terminals	0.50 Nm Order no.: 777586
Max. cross section of external conductors with cage clamp terminals: flexible without crimp connectors	0.20 - 1.50 mm ² , 24 - 16 AWG Order no.: 787586
Cage clamp terminals: terminal points per connection	2 Order no.: 787586
Stripping length	8 mm Order no.: 787586
Dimensions	
Height	101.0 mm Order no.: 787586 94.0 mm Order no.: 777586
Width	45.0 mm
Depth	121.0 mm
Weight	300 g Order no.: 787586 305 g Order no.: 777586

The current versions **01/03** of the standards apply.

Order reference					
Type	Features			Terminals	Order no.
PZE X4VP4 C	24 VDC	4 s selectable		Cage clamp terminals	787 586
PZE X4VP4	24 VDC	4 s selectable		Screw terminals	777 586