




Delayed PZE X5V



Contact expander module for increasing the number of available contacts

Approvals

	PZE X5V
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Unit features

- ▶ Positive-guided relay outputs:
 - 5 safety contacts (N/O), delay-on de-energisation
- ▶ Cancellation of delay time
- ▶ 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 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.

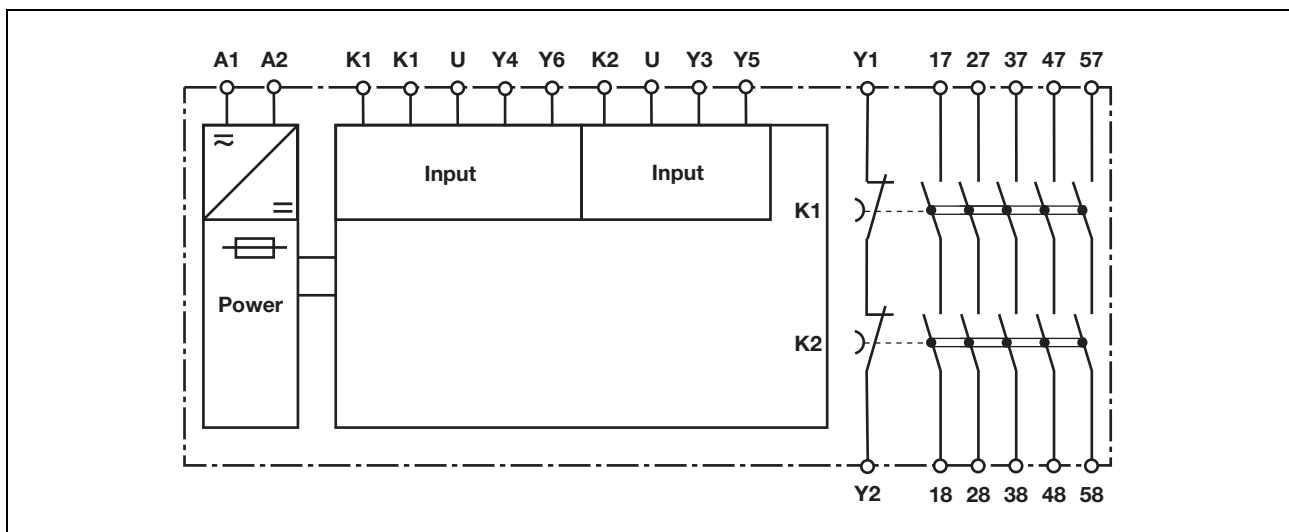
The delay-on de-energisation safety contacts may only be used up to category 3.

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

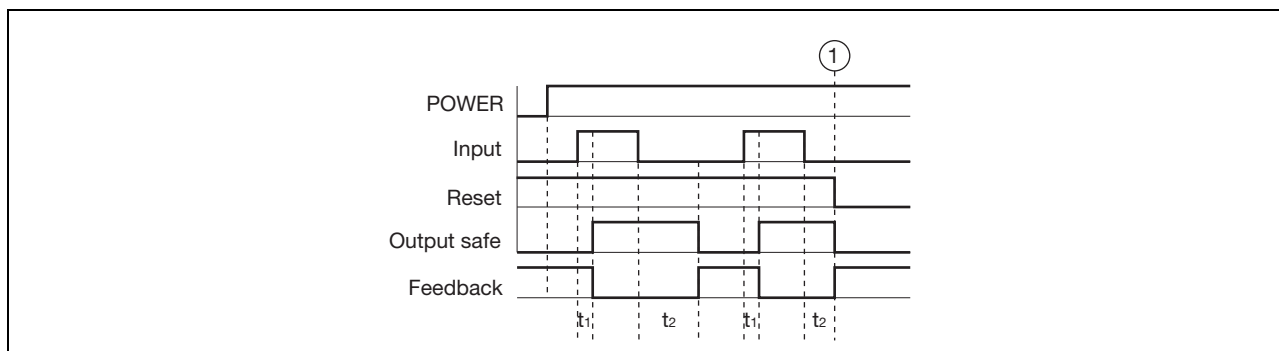


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Function description

- ▶ Single-channel operation: one input circuit affects both output relays
- ▶ 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-Y6, K2-U-Y3-Y5
- ▶ ①: Cancellation of delay time
- ▶ Output safe: Safety contacts 17-18, 27-28, 37-38, 47-48, 57-58
- ▶ Feedback: Feedback loop Y1-Y2
- ▶ t₁: Switch-on delay
- ▶ t₂: 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, 57-58 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:

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

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

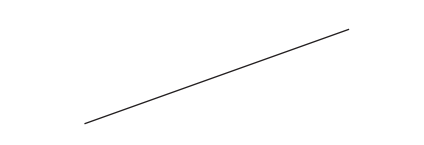
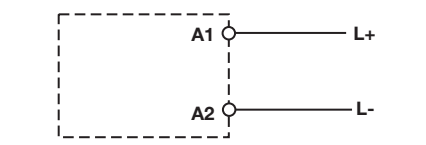
R_l / km = cable resistance/km

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

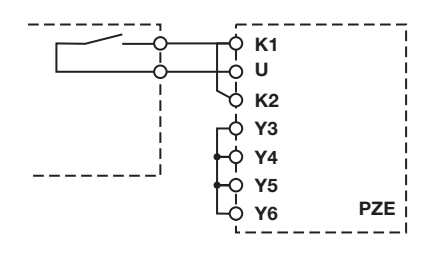
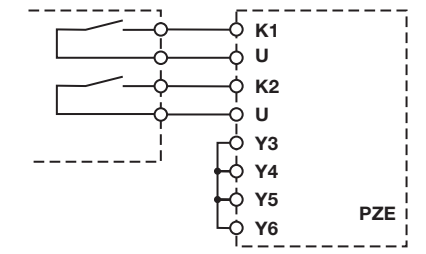
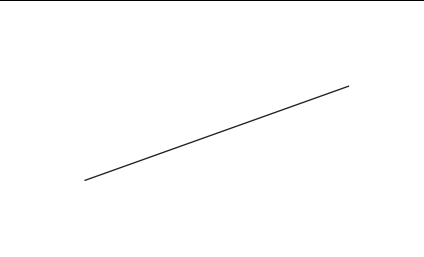
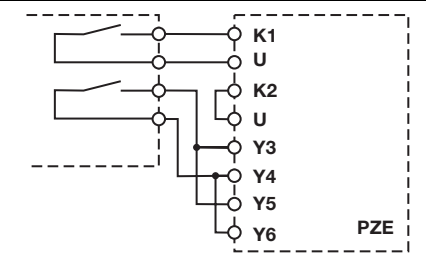
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Preparing for operation


▶ 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

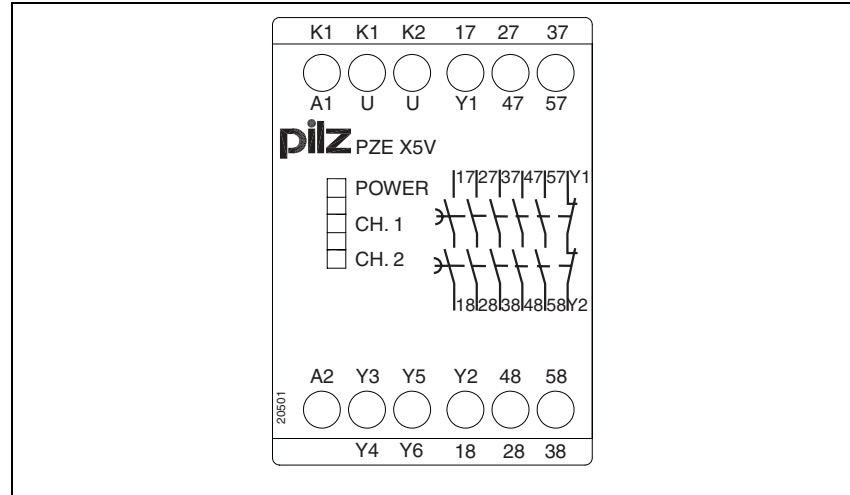
Y1 and Y2 are feedback loop inputs on the base unit	
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▶ Cancellation of delay time

N/C contacts between Y3-Y5 and Y4-Y6	
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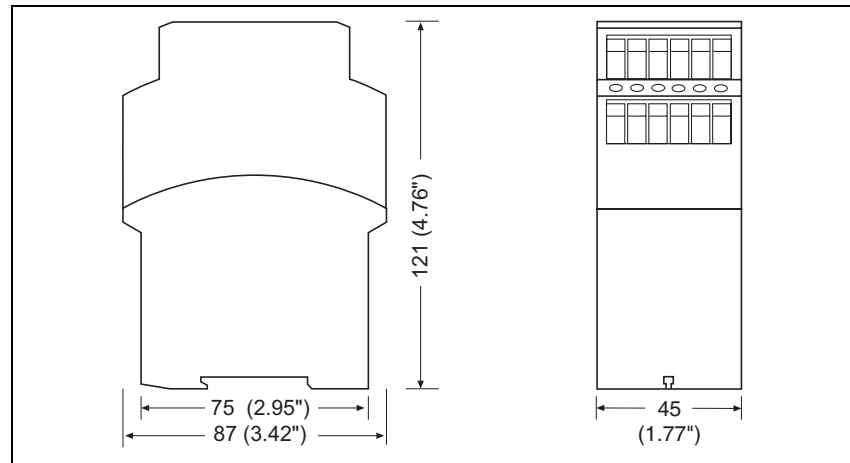
Terminal configuration



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

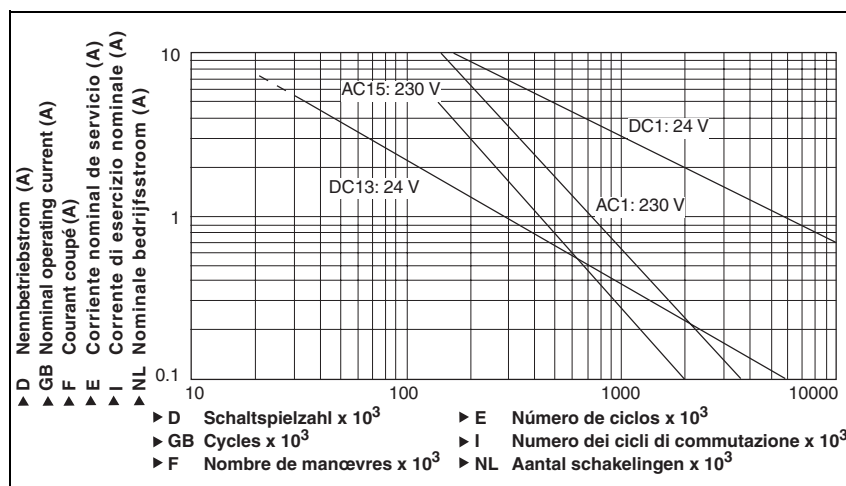


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Notice

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



Technical details	
Electrical data	
Supply voltage U_B DC	24 V, 48 V
Voltage tolerance	-15 % / +10 %
Power consumption at U_B DC	4 W Order no.: 774590 3.5 W Order no.: 774592, 774593
Residual ripple DC	20 %
Voltage and current at input circuit	48 VDC, 35 mA Order no.: 774590 24 VDC, 35 mA Order no.: 774592, 774593
Output contacts in accordance with EN 954-1 , Category 3	Safety contacts (N/O), delayed (<30 s): 5
Utilisation category in accordance with EN 60947-4-1 AC1: 240 V	I_{min} : 0.01 A , I_{max} : 8 A P_{max} : 2000 VA
DC1: 24 V	I_{min} : 0.01 A , I_{max} : 8 A P_{max} : 200 W
Utilisation category in accordance with EN 60947-5-1 AC15: 230 V DC13 (6 cycles/min): 24 V	I_{max} : 5 A I_{max} : 7 A
Contact material	AgSnO₂ + 0.2 µm Au
External contact fuse protection (EN 60947-5-1)	
Blow-out fuse, quick	10 A
Blow-out fuse, slow	6 A
Circuit breaker	6 A, 24 VAC/DC, characteristic B/C
Max. overall cable resistance R_{lmax} Input circuits, reset circuits	
single-channel at U_B DC	100 Ohm
dual-channel without detect. of shorts across contacts at U_B DC	200 Ohm
dual-channel with detect. of shorts across contacts at U_B DC	7 Ohm
Times	
Switch-on delay	
with automatic reset typ.	35 ms
with automatic reset max.	50 ms
with automatic reset after power on typ.	35 ms
with automatic reset after power on max.	50 ms
Delay time t_v	
Fixed	1.5 s Order no.: 774592 3 s Order no.: 774590, 774593
Time accuracy	-50 % / + 50 %

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Supply interruption before de-energisation	0.7 s Order no.: 774592
Supply voltage	0.7 s Order no.: 774590, 774593
Input circuit	1.4 s Order no.: 774592
	1.4 s Order no.: 774590, 774593
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. 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	0.20 – 4.00 mm²
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	0.20 – 2.50 mm²
without crimp connectors or with TWIN crimp connectors	0.20 – 2.50 mm²
Torque setting with screw terminals	0.6 Nm
Dimensions (H x W x D)	
with screw terminals	87 mm x 45 mm x 121 mm
Weight	300 g Order no.: 774590
	305 g Order no.: 774592, 774593

The standards current on **10/04** apply.

Max. continuous current	
Number of contacts	I_{max} (A) at U_B DC
1	8 A
2	8 A
3	6.5 A
4	5.6 A
5	5 A

Order reference				
Type			Terminals	Order no.
PZE X5V	24 VDC	1.5 s fixed	Screw terminals	774 592
PZE X5V	24 VDC	3 s fixed	Screw terminals	774 593
PZE X5V	48 VDC	3 s fixed	Screw terminals	774 590