

Category 4, EN 954-1 PNOZ e3vp



Safety gate monitor in accordance with EN 60204-1 (VDE 0113-1), 12/97 and IEC 60204-1, 10/97

Features

- Evaluation device for safety sensor PSEN 2.1p-10, PSEN 2.1p-11 and position switches
- Monitored or automatic reset can be selected
- 2 safety outputs using semiconductor technology, delay time can be set
- 1 auxiliary output using semiconductor technology can be switched to a diagnostic output
- One AND and one OR input to form logic AND/OR connections between several units
- Monitoring of shorts across contacts can be selected
- Self test after U_B is applied
- Permanent self monitoring
- Periodic switch-off test on the safety outputs

Approval

	PNOZ e3vp
	●
	●
	●

Technical details		PNOZ e3vp
Application range	In accordance with EN 954-1, 07/96 Category 2, 3 or 4 Safety gate monitoring	
Electrical data		
Supply voltage	24 VDC	
Tolerance	80 ... 125 %	
Power consumption	With no load: 2 W	
Residual ripple DC	20 %	
Outputs	2 safety outputs delayed/ instantaneous 1 auxiliary output	
Switching capability	$U_B < 26.5$ V: 2 outputs under load: 2 A/50 W 1 output under load: 2.7 A/70 W $U_B > 26.5$ V: 2 outputs under load: 1.5 A/40 W 1 output under load: 2.2 A/50 W	
Voltage and current at		
Input, reset and feedback circuit	24 VDC, 5 mA	
Auxiliary output and test pulse outputs	24 VDC/0.5 A	
AND/OR inputs	24 V/5 mA DC	
Times		
Delay time	PNOZ e3vp 10 s: 0/0,15/0,5/1/2/3/5/7/10 s PNOZ e3vp 300 s: 0/15/25/50/100/150/ 200/250/300 s Accuracy: +/-1 % Repetition accuracy: +/-1 %	
Delay-on energisation	Monitored reset: 180 ms Automatic reset: 100 ms	
Delay-on de-energisation	35 ms	
Switch-on delay	3 s (after initial start when U_B is applied)	
Switch-on delay at S35/S36	120 ms	
Simultaneity channel 1/2	∞	
Supply interruption before de-energisation	Max. 20 ms	
Mechanical data		
Cross section of external conductors	1 core Flexible: 0.25 ... 2.5 mm ² 2 core with the same cross section Flexible with crimp connectors, no plastic sleeve: 0.25 ... 1 mm ² Flexible, without crimp connectors or with TWIN crimp connectors: 0.25 ... 1.5 mm ²	
Torque setting for connection terminals	0.5 ... 0.6 Nm (screws)	
Dimensions (H x W x D)	87 x 22.5 x 121 mm	
Weight	170 g	

Description

- 22.5 mm P-99 housing, DIN rail mounting
- Outputs use semiconductor technology, short-circuit protected:
 - 2 safety outputs instantaneous/delayed
 - 1 auxiliary output
 - 2 test pulse outputs
- Connection options for
 - Safety sensor PSEN 2.1p-10

and PSEN 2.1p-11

- Position switch with N/C / N/O combination
 - Reset button
 - One AND and one OR input
 - Delay can be set via jumpers
 - Auxiliary output can be switched to a diagnostic output.
- Ability to program your own driver to read diagnostic data. The CD "PLC drivers for PNOZelog" is also available as an accessory.

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This contains ready-programmed drivers for the following PLCs:
- SIMATIC S7

- LEDs for supply voltage, switch status and fault in channel 1/2
- Shorts across contacts are monitored via the test pulse outputs

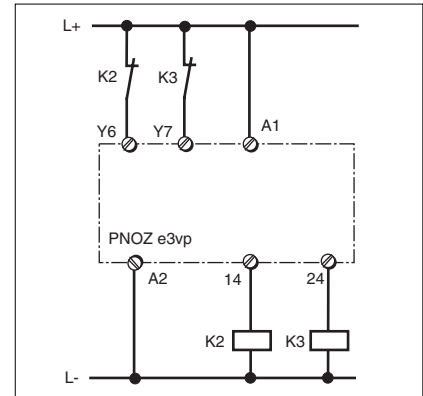
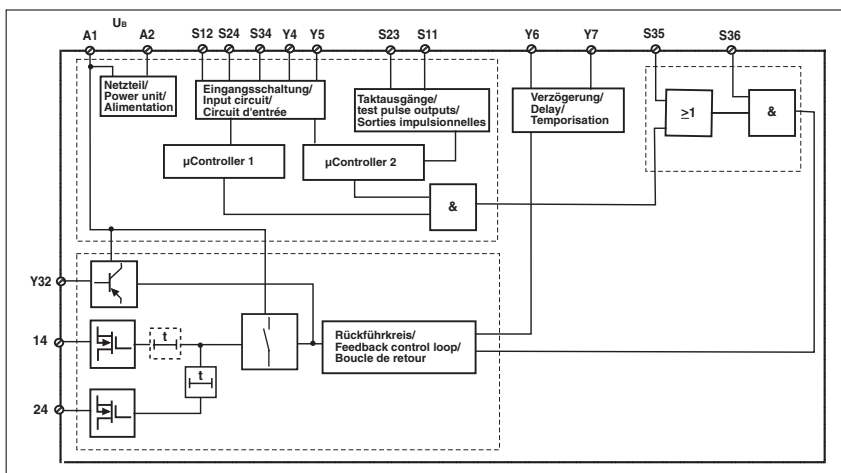
- Increase in the number of safety contacts available by connecting expander modules

Operating modes

- Dual-channel operation
- Automatic reset
- Monitored manual reset

- Increase in safety contacts
The number of output contacts can be increased by using expander modules or relays/contactors with positive-guided contacts.

Internal wiring diagram



Key

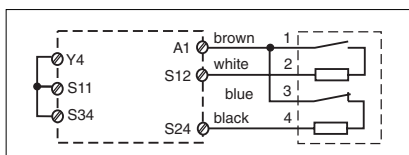
S3: Reset button

External wiring

The AND input is inactive in all the examples.

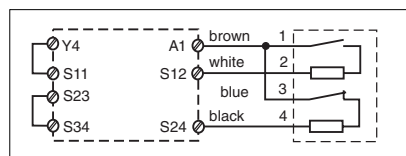
● Example 1

Dual-channel safety gate control with automatic reset, without detection of shorts across contacts and start-up test



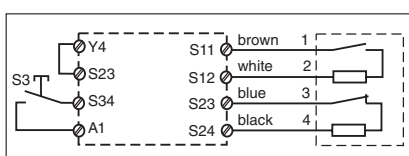
● Example 3

Dual-channel safety gate control with automatic reset, without detection of shorts across contacts and with start-up test



● Example 2

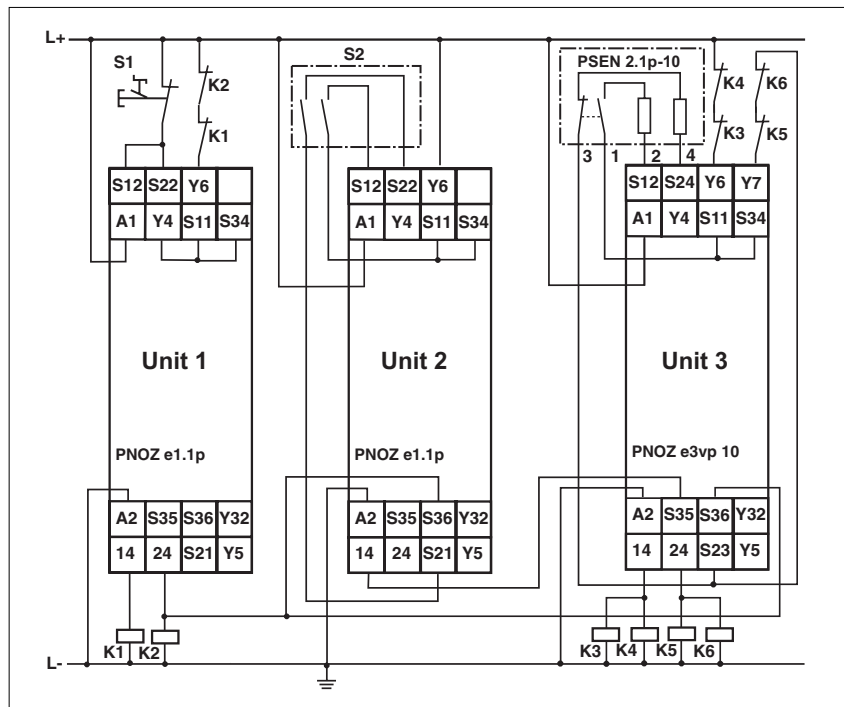
Dual-channel safety gate control with monitored reset, with detection of shorts across contacts and without start-up test



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Connection example

Safety gate application (Unit 3) with
S2 enabling switch for set-up mode
(Unit 2) and master E-STOP (Unit 1),
delay time Unit 3: 0.5 s



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General data

Unless stated otherwise in the technical details for the specific unit.

Electrical data

Frequency range AC	50 ... 60 Hz
Residual ripple DC	160 %
Contact material	AgSnO ₂
Continuous duty	100 %

Environmental data

EMC	EN 60947-5-1, 11/97
Vibration in accordance with EN 60068-2-6, 01/00	Frequency: 10 ... 55 Hz, Amplitude: 0.35 mm
Climatic suitability	DIN IEC 60068-2-3, 12/86
Airgap creepage	DIN VDE 0110 Part 1, 04/97
Ambient temperature	-10 ... +55 °C
Storage temperature	-40 ... +85 °C

Mechanical data

Torque setting for connection terminals	0.6 Nm (screws)
Mounting position	Any
Housing material	Front: ABS UL 94 V0 Housing: PPO UL 94 V0
Protection types	Mounting: IP54 Housing: IP40 Terminals: IP20

Units have been tested in accordance with the standards valid at the time of development.

Order reference

Type	U _B	t _v	Order no.
PNOZ e3vp	24 VDC	10 s	774 137
PNOZ e3vp	24 VDC	300 s	774 138

Accessories

Description	Order no.
PLC drivers for PNOZelog	874 130... ¹⁾

¹⁾ When ordering: please state the type of licence you require after the order number (..B for basic licence, ..K for copy licence, ..G for general licence, ..U for update licence), e.g. 301 400B.