

## Up to Category 2, EN 954-1 PNOZ X7



### Unit features

- ▶ Positive-guided relay outputs:
  - 2 safety contacts (N/O), instantaneous
- ▶ Connection options for:
  - E-STOP pushbutton
  - Reset button
- ▶ LED indicator for:
  - Switch status channel 1/2
  - Supply voltage
- ▶ See order reference for unit types



### Safety features

The relay conforms to the following safety criteria:

- ▶ The circuit is redundant with built-in self-monitoring.
- ▶ The safety function remains effective in the case of a component failure.
- ▶ The correct opening and closing of the safety function relays is tested automatically in each on-off cycle.

Safety relay for monitoring E-STOP pushbuttons.

### Approvals

	PNOZ X7
	◆
	◆

### Unit description

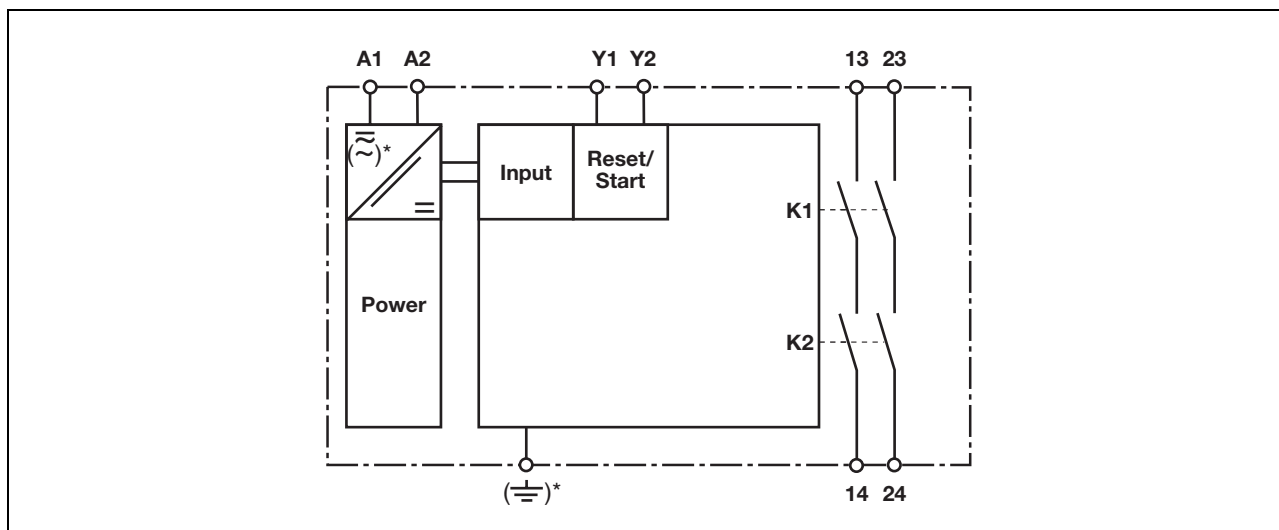
The safety relay meets the requirements of EN 60204-1 and IEC 60204-1 and may be used in applications with

- ▶ E-STOP pushbuttons

The safety relay is not suitable for non-contact barriers because

- ▶ a dynamic start is not possible
- ▶ the unit can be started during the delay-on de-energisation time.

### Block diagram



\*Only when  $U_B = 42 - 240 \text{ VAC}$

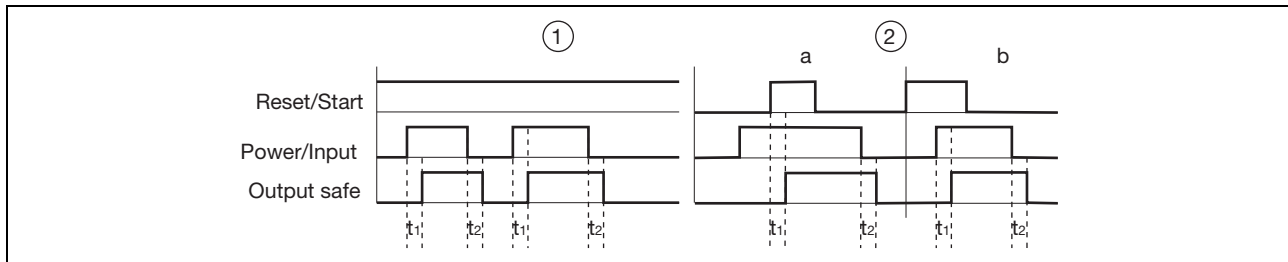
Galvanic isolation only when  $U_B = 42 - 240 \text{ VAC}$

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### Function description

- ▶ Single-channel operation: no redundancy in the input circuit, earth faults in the reset and input circuit are detected.
- ▶ Automatic start: Unit is active once the input circuit has been closed.
- ▶ Manual reset: Unit is active once the input circuit is closed and then the reset circuit is closed.
- ▶ Increase in the number of available contacts by connecting contact expander modules or external contactors/relays.

### Timing diagram



### Key

- ▶ Power: Supply voltage
- ▶ Reset/start: Reset circuit Y1-Y2
- ▶ Input: Input circuits A1
- ▶ Output safe: Safety contacts 13-14, 23-24
- ▶ ①: Automatic reset
- ▶ ②: Manual reset
- ▶ a: Input circuit closes before reset circuit
- ▶ b: Reset circuit closes before input circuit
- ▶ t<sub>1</sub>: Switch-on delay
- ▶ t<sub>2</sub>: Delay-on de-energisation

### Wiring

#### Please note:

- ▶ Information given in the “Technical details” must be followed.
- ▶ Outputs 13-14, 23-24 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.

PNOZ X7 AC: The cable runs depend on the cable capacitance.

- ▶ Loop circuit, 1 phase: max.  $l_r = 1$  km
- ▶ Stub circuit: Cable capacitance  $C_L$  and therefore the cable runs  $l_s$  are dependent on the supply voltage  $U_B$

Cable capacitance  $C_L$  depends on the supply voltage  $U_B$

$U_B$ [V]	42	48	110	115	120	230	240
$C_L$ [nF]	37.5	37.5	37.5	37.5	37.5	7.5	7.5

