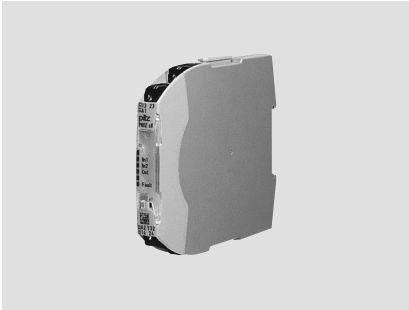


## up to PL c of EN ISO 13849-1 PNOZ s8



Contact expansion module for increasing the number of available contacts

### Unit features

- ▶ Relay outputs:
  - 2 safety contacts (N/O), instantaneous
- ▶ 1 semiconductor output
- ▶ LED indicator for:
  - Input status, channel 1
  - Input status, channel 2
  - Switch status of the safety contacts
  - Error
- ▶ Plug-in connection terminals (either spring-loaded terminal or screw terminal)

### Safety features

The unit meets the following safety requirements:

- ▶ The unit monitors its own output contacts.
- ▶ 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.

### Approvals

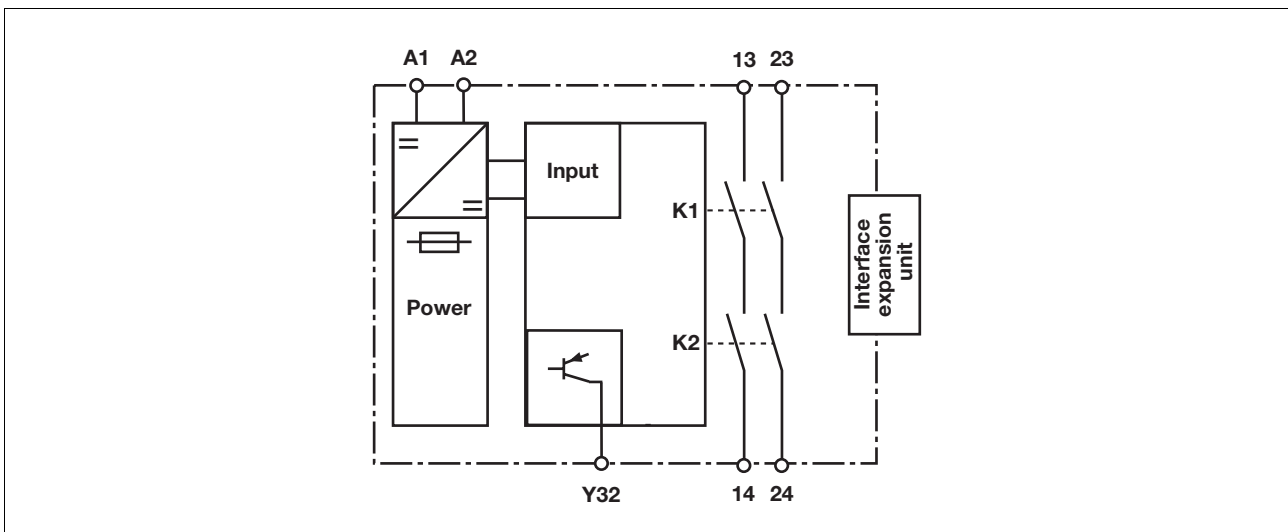
	PNOZ s8
	◆
	◆
	◆

### Unit description

The unit meets the requirements of EN 60947-5-1, EN 60204-1 and VDE 0113-1. The contact expansion module is used to increase the number of instantaneous safety contacts available on a base unit. Base units are all safety relays with feedback loop monitoring.

The category that can be achieved in accordance with EN 954-1 and EN ISO 13849-1 depends on the category of the base unit. The contact expansion module may not exceed this.

### Block diagram



## up to PL c of EN ISO 13849-1 PNOZ s8

### Function description

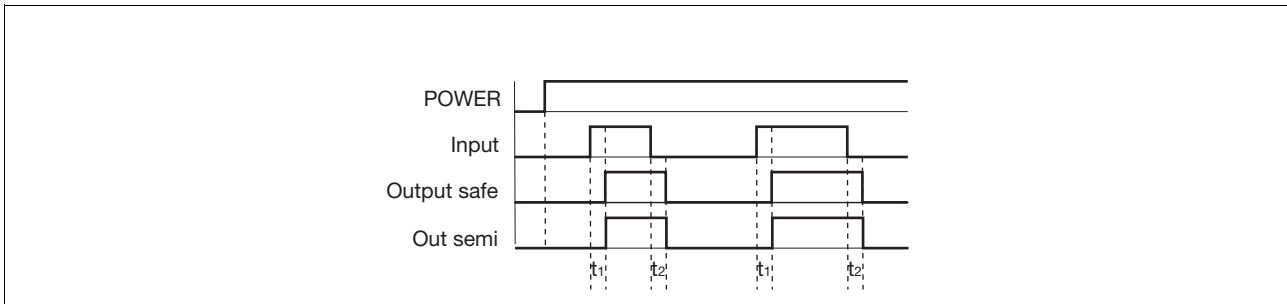
with PNOZsigma base unit:

- ▶ Dual-channel operation via PNOZsigma connector

without PNOZsigma base unit:

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

### Timing diagram



### Key

- ▶ Power: Supply voltage
- ▶ Input: Input circuits A1
- ▶ Output safe: Safety contacts 13-14, 23-24
- ▶ Out semi: Semiconductor output Y32
- ▶  $t_1$ : 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 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.

## up to PL c of EN ISO 13849-1 PNOZ s8

### Preparing for operation

#### ▶ Supply voltage

Supply voltage	AC	DC

#### ▶ Input circuit

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

#### ▶ Feedback loop

with PNOZsigma base unit:  
The feedback loop is connected and evaluated via the connector.

without PNOZsigma base unit:  
Feedback loop does not need to be monitored because the contact ex-

pansion block monitors its own output contacts.

#### ▶ Semiconductor output

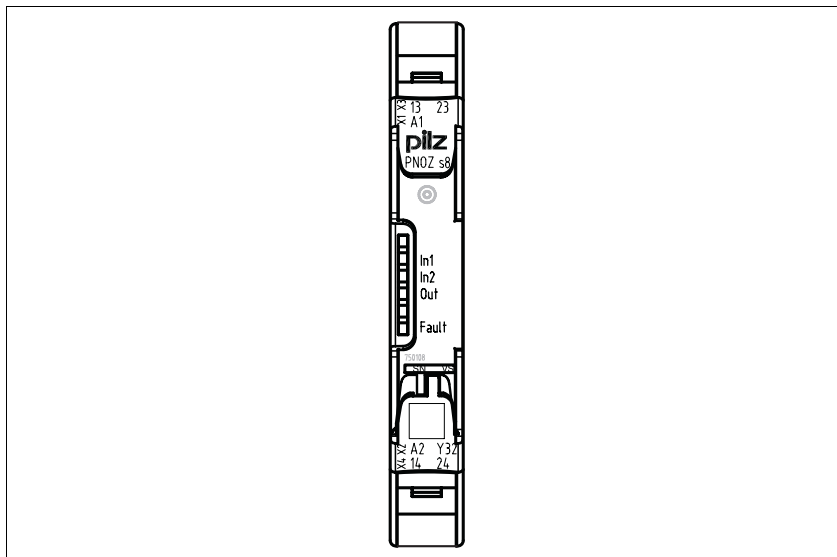
<p>*Connect together the 0V connections on all the external power supplies</p>

### INFORMATION

If a base unit and a contact expander module from the PNOZsigma range are connected via the connector, no additional wiring is necessary. Do not connect A1 to the contact expander module!

## up to PL c of EN ISO 13849-1 PNOZ s8

### Terminal configuration



### Installation

#### Install contact expander module without base unit:

- ▶ Ensure that the plug terminator is inserted at the side of the unit.

#### Connect base unit and PNOZsigma contact expander module:

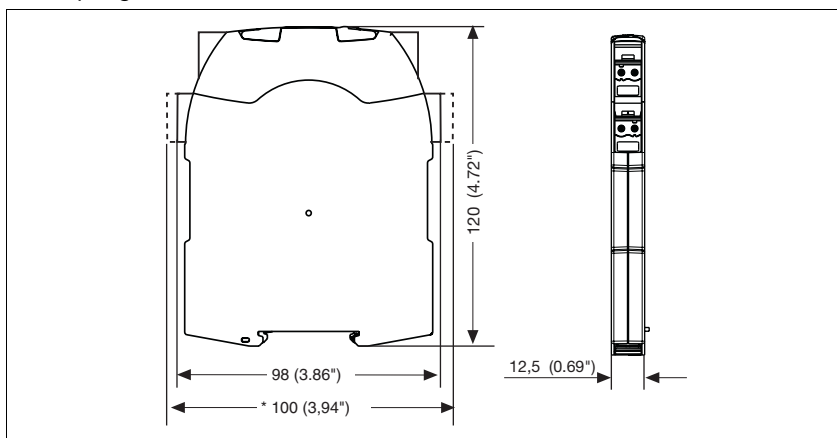
- ▶ Remove the plug terminator at the side of the base unit and at the contact expander module
- ▶ Connect the base unit and the contact expander module to the supplied connector before mounting the units to the DIN rail.

#### Installation in control cabinet

- ▶ 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 (35 mm).
- ▶ When installed vertically: Secure the unit by using a fixing element (e.g. retaining bracket or end angle).
- ▶ Push the unit upwards or downwards before lifting it from the DIN rail.

### Dimensions

\*with spring-loaded terminals



## up to PL c of EN ISO 13849-1 PNOZ s8

### 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.

Technical details	
<b>Electrical data</b>	
Supply voltage	
Supply voltage $U_B$ DC	<b>24 V</b>
Voltage tolerance	<b>-20 %/+20 %</b>
Power consumption at $U_B$ DC	<b>2.0 W</b>
Residual ripple DC	<b>20 %</b>
Voltage and current at	
Input circuit DC: <b>24.0 V</b>	<b>65.0 mA</b>
Number of output contacts	
Safety contacts (S) instantaneous:	<b>2</b>
Utilisation category in accordance with <b>EN 60947-4-1</b>	
Safety contacts: AC1 at <b>240 V</b>	$I_{min}: 0.02 A, I_{max}: 3.0 A$ $P_{max}: 720 VA$
Safety contacts: DC1 at <b>24 V</b>	$I_{min}: 0.02 A, I_{max}: 3.0 A$ $P_{max}: 72 W$
Utilisation category in accordance with <b>EN 60947-5-1</b>	
Safety contacts: AC15 at <b>230 V</b>	$I_{max}: 1.5 A$
Safety contacts: DC13 at <b>24 V</b> (6 cycles/min)	$I_{max}: 1.5 A$
Contact material	<b>AgSnO2</b>
External contact fuse protection ( $I_k = 1 kA$ ) to <b>EN 60947-5-1</b>	
Blow-out fuse, quick	
Safety contacts:	<b>4 A</b>
Blow-out fuse, slow	
Safety contacts:	<b>2 A</b>
Circuit breaker 24 VAC/DC, characteristic B/C	
Safety contacts:	<b>2 A</b>
Semiconductor outputs (short circuit proof)	<b>24.0 V DC, 20 mA</b>
Max. overall cable resistance $R_{lmax}$ input circuits, reset circuits single-channel at $U_B$ DC	<b>30 Ohm</b>
<b>Safety-related characteristic data</b>	
PL in accordance with <b>EN ISO 13849-1</b>	<b>PL c (Cat. 3)</b>
Category in accordance with <b>EN 954-1</b>	<b>Cat. 3</b>
SIL CL in accordance with <b>EN IEC 62061</b>	<b>SIL CL 2</b>
PFH in accordance with <b>EN IEC 62061</b>	<b>2.00E-07</b>
SIL in accordance with <b>IEC 61511</b>	<b>SIL 2</b>
PFD in accordance with <b>IEC 61511</b>	<b>6.35E-03</b>
$t_M$ in years	<b>20</b>
<b>Times</b>	
Switch-on delay	
with automatic reset after power on typ.	<b>100 ms</b>
with automatic reset after power on max.	<b>150 ms</b>
Delay-on de-energisation	
with E-STOP typ.	<b>30 ms</b>
with E-STOP max.	<b>40 ms</b>
with power failure typ.	<b>30 ms</b>
with power failure max.	<b>40 ms</b>

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Environmental data	
EMC	EN 60947-5-1, EN 61000-6-2, EN 61000-6-4
Vibration to EN 60068-2-6	
Frequency	10 - 55 Hz
Amplitude	0.35 mm
Climatic suitability	EN 60068-2-78
Airgap creepage in accordance with EN 60947-1	
Pollution degree	2
Overvoltage category	III
Rated insulation voltage	250 V
Rated impulse withstand voltage	4.00 kV
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	PC
Front	PC
Cross section of external conductors with screw terminals	
1 core flexible	0.25 - 2.50 mm <sup>2</sup> , 24 - 12 AWG No. 750108
2 core, same cross section, flexible:	
with crimp connectors, without insulating sleeve	0.25 - 1.00 mm <sup>2</sup> , 24 - 16 AWG No. 750108
without crimp connectors or with TWIN crimp connectors	0.20 - 1.50 mm <sup>2</sup> , 24 - 16 AWG No. 750108
Torque setting with screw terminals	0.50 Nm No. 750108
Cross section of external conductors with spring-loaded terminals: Flexible with/without crimp connectors	0.20 - 2.50 mm <sup>2</sup> , 24 - 12 AWG No. 751108
Spring-loaded terminals: Terminal points per connection	2 No. 751108
Stripping length	9 mm No. 751108
Dimensions	
Height	102.0 mm No. 751108 98.0 mm No. 750108
Width	12.5 mm
Depth	120.0 mm
Weight	105 g

No. stands for order number.

All the units used within a safety function must be considered when calculating the safety characteristic data.

The standards current on 2006-04 apply.

Conventional thermal current	
$I_{th}$ (A) at $U_B$ DC	
1 contact	3.00 A
2 contacts	3.00 A

Order reference			
Type	Features	Terminals	Order no.
PNOZ s8	24 VDC	With screw terminal	750 108
PNOZ s8 C	24 VDC	With spring-loaded terminal	751 108