Expansion modules
PNOZ mo2p

Expansion module for connection to a base unit from the PNOZmulti modular safety system

Approvals

	PNOZ mo2p
c(UL)us LISTED	◆
BG-PRÜFZERT	◆
CCC	◆

Unit features

▸ Can be configured in the PNOZmulti Configurator
▸ Positive-guided relay outputs:
  – 1 safety output in accordance with EN 954-1, Cat. 4
    or 2 safety outputs in accordance with EN 954-1, Cat. 2
▸ Status indicators
▸ Plug-in connection terminals (either cage clamp terminal or screw terminal)
▸ Max. 6 PNOZ mo2p units can be connected to the base unit
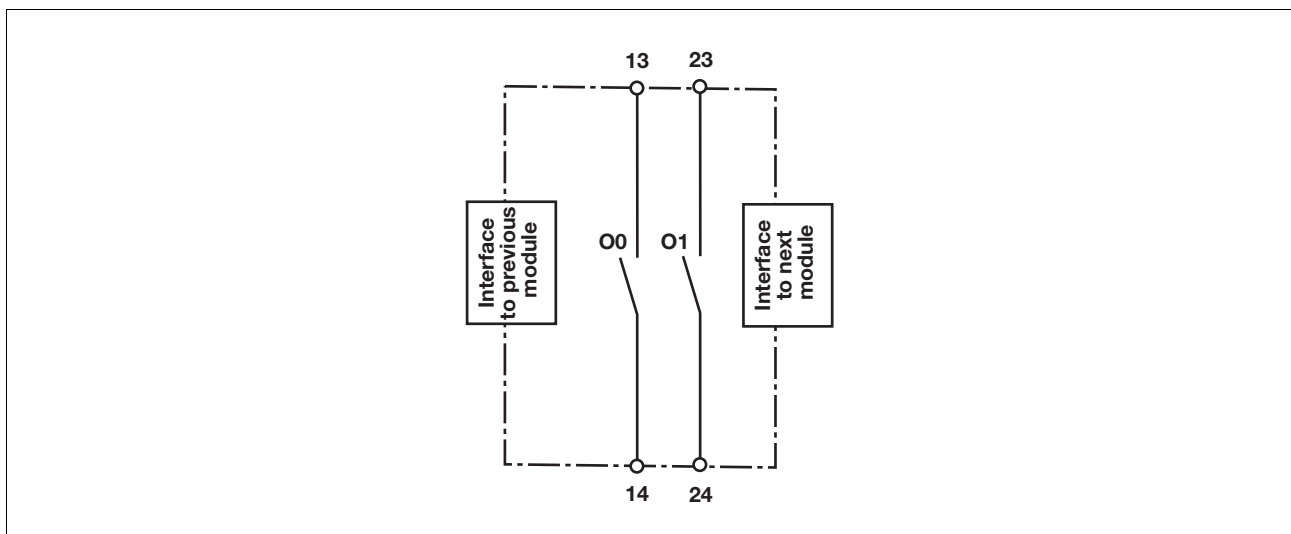
Unit description

The expansion module may only be connected to a base unit from the PNOZmulti modular safety system. The PNOZmulti modular safety system is used for the safety-related interruption of safety circuits and is designed for use in:

▸ Emergency stop equipment
▸ Safety circuits in accordance with VDE 0113 Part 1 and EN 60204-1

Safety features

▸ A defective relay contact will be detected during switching.
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 relay contacts meet the requirements for safe separation through increased insulation compared with all other circuits in the safety system.

Block diagram

Pilz GmbH & Co. KG, Sichere Automation, Felix-Wankel-Straße 2, 73760 Ostfildern, Germany
Telephone: +49 711 3409-0, Telefax: +49 711 3409-133, E-Mail: pilz.gmbh@pilz.de

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Function description

The expansion module provides additional relay outputs.
The function of the outputs on the safety system depends on the safety circuit created using the PNOZmulti

Wiring

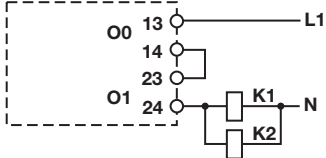The wiring is defined in the circuit diagram in the Configurator.
Please note:
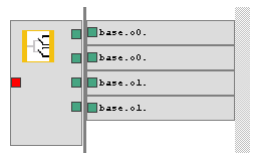▸ Information given in the "Technical details" must be followed.
▸ Outputs O0 and O1 are relay outputs.
▸ Use copper wire that can withstand 75 °C.
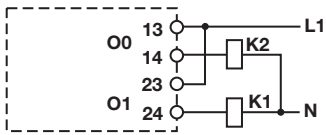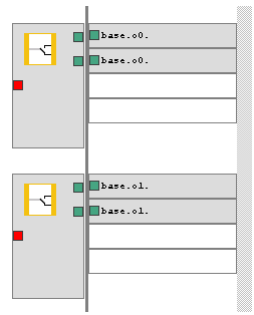
Configurator. A chip card is used to download the safety circuit to the base unit. The base unit has 2 microcontrollers that monitor each other. They evaluate the input circuits on the base unit and expansion modules and

switch the outputs on the base unit and expansion modules accordingly. The online help on the PNOZmulti Configurator contains descriptions of the operating modes and all the functions of the PNOZmulti safety system, plus connection examples.

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Preparing for operation

▸ Relay outputs

Redundant		
Single		

▸ Feedback loop

Feedback loop	Redundant output	
Contacts from external contactors		

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Terminal configuration
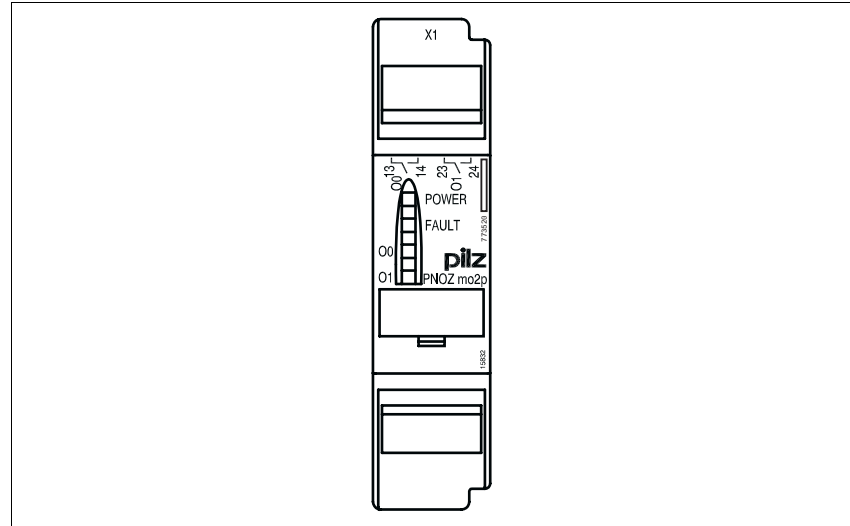
Installation

▶ The safety system should be in-
  stalled in a control cabinet with a
  protection type of at least IP54. Fit
  the safety system to a horizontal
  DIN rail. The venting slots must face
  upward and downward. Other
  mounting positions could damage
  the safety system.
▶ Use the notches on the back of the
  unit to attach it to a DIN rail. Con-
  nect the safety system to the DIN
  rail in an upright position, so that
  the earthing springs on the safety
  system are pressed on to the DIN
  rail.
▶ To comply with EMC requirements,
  the DIN rail must have a low imped-
  ance connection to the control cab-
  inet housing.

Dimensions
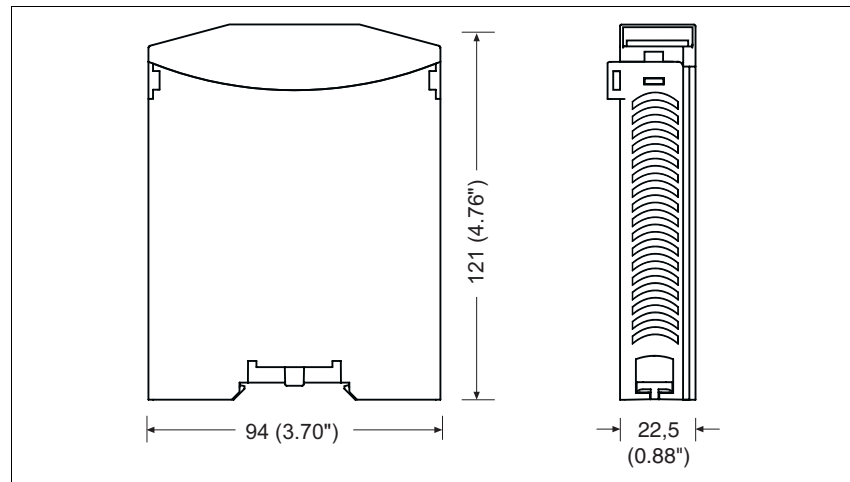
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Notice	This data sheet is only intended for use during configuration. For installation and operation, please refer to the op-	erating instructions supplied with the unit.

Technical details

Electrical data

Supply voltage (U_B)	**24 VDC**
Voltage tolerance	**-15% ... 10%**
Power consumption at U_B without load	**< 2.5 W**
Residual ripple U_B	**+/- 5 %**

Times

Switch-on delay	**5 s (after U_B is applied)**
Supply interruption before de-energisation	**Min. 20 ms**

Relay outputs

Number	
for EN 954-1, 12/96, Cat. 4	**1**
for EN 954-1, 12/96, Cat. 2	**2**
Utilisation category in accordance with	
EN 60947-4-1, 02/01	**AC1: 240 V / 6 A / 1440 VA**
	DC1: 24 V / 6 A / 144 W
EN 60947-5-1, 11/97	**AC15: 230 V / 3 A / 690 VA**
	DC13: 24 V / 3 A / 72 W
Airgap creepage between	**DIN VDE 0110-1, 04/97**
relay contacts	**3 mm**
Relay contacts and other safe circuits	**5.5 mm**
Contact fuse protection in accordance with EN 60947-5-1, 08/00	
Blow-out fuse	**6 A quick or slow**
Circuit breaker 24 VDC	**6 A (characteristic B + C)**
Switch-off delay	**50 ms**
Status indicator	**LED**

Environmental data

Vibration in accordance with **EN 60068-2-6, 04/95**	
Frequency:	**10 ... 55 Hz**
Amplitude:	**0.35 mm**
Climatic suitability	**DIN IEC 60068-2-3, 12/86**
EMC	**EN 60947-5-1, 01/00**
Ambient temperature	**0 ... + 55 °C**
Storage temperature	**-25 ... + 70 °C**

Mechanical data

Protection type	
Mounting (e.g. cabinet)	**IP54**
Housing	**IP20**
Terminals	**IP20**
DIN rail	
Top hat rail	**35 x 7.5 EN 50022**
Inner width	**27 mm**
Cable cross section	
Rigid single-core, flexible multi-core or multi-core	
with crimp connector	**0.5 ... 2.5 mm2**
Flexible multi-core with plastic sleeve	**0.5 ... 1.5 mm2**
Torque setting for connection terminals (screws)	**0.4 ... 0.5 Nm**
Housing material	
Housing	**PPO UL 94 V0**
Front	**ABS UL 94 V0**
Dimensions (H x W x D)	**94 x 22.5 x 121 mm**
Weight with connector	**170 g**

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Order reference

Type		Features	Order no.
PNOZ mo2p	Expansion module	1 or 2 relay outputs, positive-guided	773 520