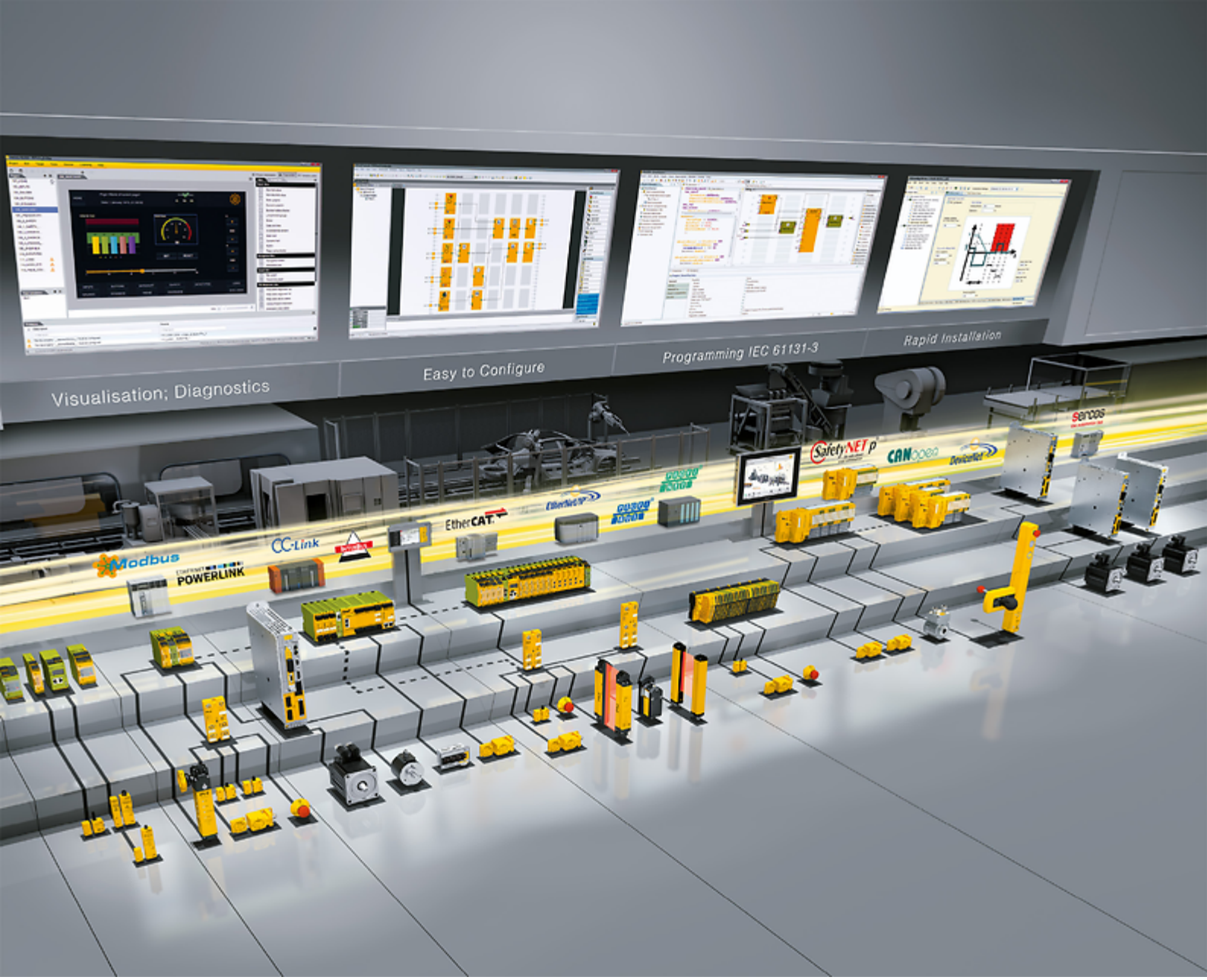


PNOZ mc0p

PILZ
THE SPIRIT OF SAFETY

- Configurable, safe small controllers PNOZmulti Classic

Operating Manual-21249-EN-04

1 Introduction

1.1 Validity of documentation

This documentation is valid for the product PNOZ mc0p. It is valid until new documentation is published.

This operating manual explains the function and operation, describes the installation and provides guidelines on how to connect the product.

1.2 Using the documentation

This document is intended for instruction. Only install and commission the product if you have read and understood this document. The document should be retained for future reference.

1.3 Definition of symbols

Information that is particularly important is identified as follows:

DANGER!

This warning must be heeded! It warns of a hazardous situation that poses an immediate threat of serious injury and death and indicates preventive measures that can be taken.

WARNING!

This warning must be heeded! It warns of a hazardous situation that could lead to serious injury and death and indicates preventive measures that can be taken.

CAUTION!

This refers to a hazard that can lead to a less serious or minor injury plus material damage, and also provides information on preventive measures that can be taken.

NOTICE

This describes a situation in which the product or devices could be damaged and also provides information on preventive measures that can be taken. It also highlights areas within the text that are of particular importance.

INFORMATION

This gives advice on applications and provides information on special features.

2 Overview

2.1 Scope

- Expansion module PNOZ mc0p
- Jumper

2.2 Unit features

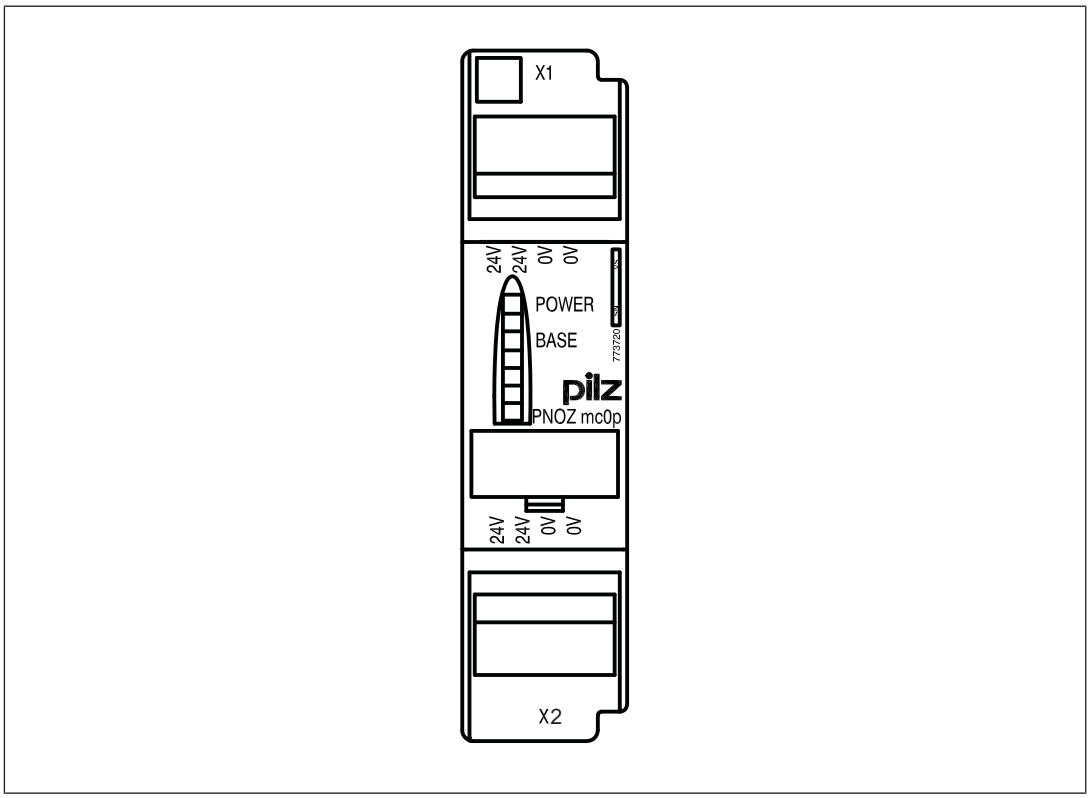
Application of the product PNOZ mc0p:

Power supply used to supply voltage to the fieldbus modules PNOZ mc5p or PNOZ mc5.1p LWL.

The product has the following features:

- Interface to connect the base unit and a fieldbus module
- Galvanic isolation
- Max. 1 fieldbus module (PNOZ mc5p or PNOZ mc5.1p LWL) can be connected
- Supply voltage 24 V DC
- Status indicators
- Please refer to the document "PNOZmulti System Expansion" for the PNOZmulti base units that can be connected.

2.3 Front view



3 Safety

3.1 Intended use

The expansion module may only be connected to a base unit from the PNOZmulti system (please refer to the document "PNOZmulti System Expansion" for details of the base units that can be connected).

The configurable small control systems PNOZmulti are used for the safety-related interruption of safety circuits and are designed for use in:

- E-STOP equipment
- Safety circuits in accordance with VDE 0113 Part 1 and EN 60204-1

The module may only be used to supply voltage to the following fieldbus modules:

- PNOZ mc5p INTERBUS
- PNOZ mc5.1p INTERBUS LWL

3.2 System requirements

Please refer to the "Product Modifications PNOZmulti" document in the "Version overview" section for details of which versions of the base unit and PNOZmulti Configurator can be used for this product.

3.3 Safety regulations

3.3.1 Use of qualified personnel

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by competent persons.

A competent person is someone who, because of their training, experience and current professional activity, has the specialist knowledge required to test, assess and operate the work equipment, devices, systems, plant and machinery in accordance with the general standards and guidelines for safety technology.

It is the company's responsibility only to employ personnel who

- Are familiar with the basic regulations concerning health and safety / accident prevention,
- Have read and understood the information provided in this description under "Safety",
- And have a good knowledge of the generic and specialist standards applicable to the specific application.

3.3.2 Warranty and liability

All claims to warranty and liability will be rendered invalid if

- The product was used contrary to the purpose for which it is intended,
- Damage can be attributed to not having followed the guidelines in the manual,
- Operating personnel are not suitably qualified,
- Any type of modification has been made (e.g. exchanging components on the PCB boards, soldering work etc.).

3.3.3 Disposal

- When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

3.3.4 For your safety

The unit meets all the necessary conditions for safe operation. However, you should always ensure that the following safety requirements are met:

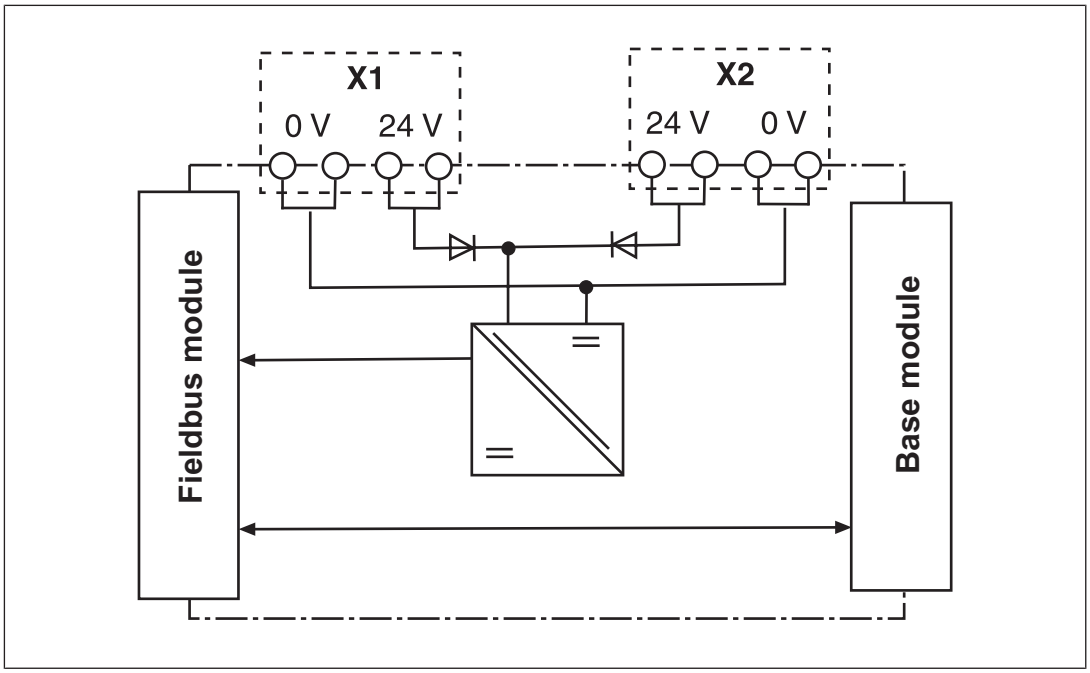
- This operating manual only describes the basic functions of the unit. The expanded functions are described in the PNOZmulti Configurator's online help. Only use these functions once you have read and understood the documentations.
- Do not open the housing or make any unauthorised modifications.
- Please make sure you shut down the supply voltage when performing maintenance work (e.g. exchanging contactors).

4 Function description

4.1 Functions

The PNOZ mc0p power supply provides the fieldbus module with the necessary internal supply voltage. This way the fieldbus module remains available even when the base unit is switched off. The power supply is connected to the base unit and fieldbus module via jumpers. When the 24 VDC supply voltage is applied, the “POWER” LED is lit. The “BASE” LED is lit when supply voltage is applied to the base unit.

4.2 Block diagram



5 Installation

5.1 General installation guidelines

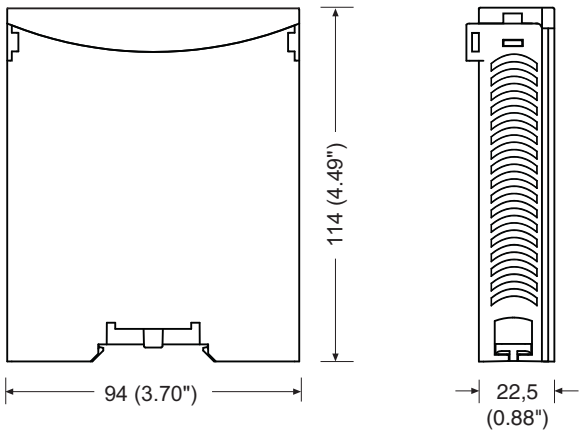
- The control system should be installed in a control cabinet with a protection type of at least IP54. Fit the control system to a horizontal mounting rail. The venting slots must face upward and downward. Other mounting positions could destroy the control system.
- Use the locking elements on the rear of the unit to attach it to a mounting rail. Connect the control system to the mounting rail in an upright position, so that the earthing springs on the control system are pressed on to the mounting rail.
- The ambient temperature of the devices in the control cabinet must not exceed the figure stated in the technical details. Air conditioning may otherwise be required.
- To comply with EMC requirements, the mounting rail must have a low impedance connection to the control cabinet housing.

NOTICE

Damage due to electrostatic discharge!

Electrostatic discharge can damage components. Ensure against discharge before touching the product, e.g. by touching an earthed, conductive surface or by wearing an earthed armband.

5.2 Dimensions in mm



5.3 Connect power supply to base unit and fieldbus module

Connect the modules as described in the operating instructions for the base units.

- Install the power supply to the left between the base unit and fieldbus module.

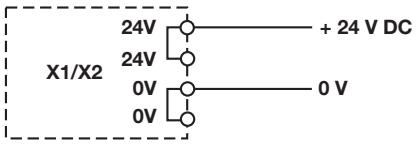
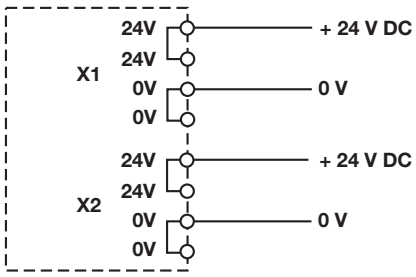
6 Commissioning

6.1 General wiring guidelines

Please note:

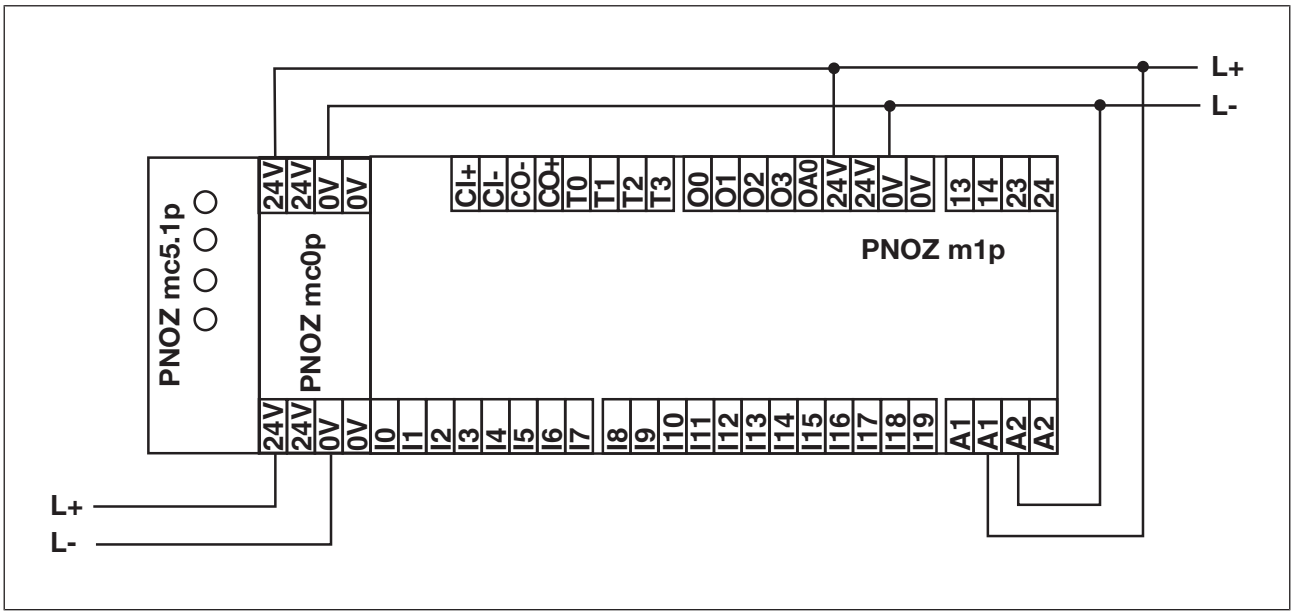
- The PNOZ mc0p can be supplied by a separate power supply (see Connection example [📖 12]). The power supply must meet the regulations for extra low voltages with protective electrical separation (SELV, PELV).
- The torque setting of the screws on the connection terminals is specified under Technical details [📖 14].
- Use copper wiring with a temperature stability of 75 °C.
- Information given in the Technical details [📖 14] must be followed.

6.2 Connection

Supply voltage	AC	DC
Supply voltage from Interbus master only: Connect the supply voltage to **X1** or **X2**. The fieldbus connection is maintained if the base unit is switched off. When the Interbus master is restarted, the power supply to the base unit must be reset.		
Supply voltage from Interbus master and base unit: Example: Connect the supply voltage from the base unit to **X1**. Connect the supply voltage from the Interbus master to **X2**. The fieldbus connection is maintained if the base unit is switched off. When the Interbus master is restarted, the fieldbus is available immediately.		

6.3 Connection example

Redundant power supply



7 Operation

The unit is ready for operation when the "POWER" LED is lit continuously.

Status indicators:

- "POWER" is lit: Supply voltage is applied to PNOZ mc0p.
- "BASE" is lit: Supply voltage applied to base unit.

8 Technical details

General	
Certifications	**CCC, CE, EAC (Eurasian), cULus Listed**
Electrical data	
Supply voltage	
for	**Module supply**
Voltage	**24 V**
Kind	**DC**
Voltage tolerance	**-15 %/+20 %**
Output of external power supply (DC)	**5 W**
Residual ripple DC	**5 %**
Potential isolation	**yes**
Status indicator	**LED**
Times	
Supply interruption before de-energisation	**20 ms**
Environmental data	
Ambient temperature	
In accordance with the standard	**EN 60068-2-14**
Temperature range	**0 - 55 °C**
Storage temperature	
In accordance with the standard	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**
Climatic suitability	
In accordance with the standard	**EN 60068-2-30, EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**
Condensation during operation	**Not permitted**
EMC	**EN 61131-2**
Vibration	
In accordance with the standard	**EN 60068-2-6**
Frequency	**10 - 150 Hz**
Acceleration	**1g**
Shock stress	
In accordance with the standard	**EN 60068-2-27**
Acceleration	**15g**
Duration	**11 ms**
Max. operating height above sea level	**2000 m**
Airgap creepage	
In accordance with the standard	**EN 61131-2**
Overvoltage category	**III**
Pollution degree	**2**
Rated insulation voltage	**30 V**

Environmental data	
Protection type	
In accordance with the standard	**EN 60529**
Mounting area (e.g. control cabinet)	**IP54**
Housing	**IP20**
Terminals	**IP20**
Potential isolation	
Potential isolation between	**Module and system voltage**
Type of potential isolation	**Functional insulation**
Rated surge voltage	**500 V**
Mechanical data	
Mounting position	**horizontally on mounting rail**
DIN rail	
Top hat rail	**35 x 7,5 EN 50022**
Recess width	**27 mm**
Material	
Bottom	**PPO UL 94 V0**
Front	**ABS UL 94 V0**
Connection type	**Spring-loaded terminal, screw terminal**
Conductor cross section with screw terminals	
1 core flexible	**0,25 - 1,5 mm², 24 - 16 AWG**
2 core with the same cross section, flexible without crimp connectors or with TWIN crimp connectors	**0,25 - 0,75 mm², 24 - 20 AWG**
Torque setting with screw terminals	**0,25 Nm**
Stripping length with screw terminals	**7 mm**
Conductor cross section with spring-loaded terminals	
1 core flexible without crimp connector	**0,25 - 1,5 mm², 24 - 16 AWG**
1 core flexible with crimp connector	**0,25 - 0,75 mm², 24 - 20 AWG**
Spring-loaded terminals: Terminal points per connection	**1**
Stripping length with spring-loaded terminals	**9 mm**
Dimensions	
Height	**94 mm**
Width	**22,5 mm**
Depth	**121 mm**
Weight	**125 g**

Where standards are undated, the 2020-07 latest editions shall apply.

9 Order reference

9.1 Product

Product type	Features	Order No.
PNOZ mc0p	Expansion module, power supply for fieldbus modules	773 720

9.2 Accessories

Jumper

Product type	Features	Order No.
KOP-XE	Jumper	774 639

Connection terminals

Product type	Features	Order No.
Set spring terminals	1 set of spring-loaded terminals	783 400
Set screw terminals	1 set of screw terminals	793 400

Support

Technical support is available from Pilz round the clock.

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