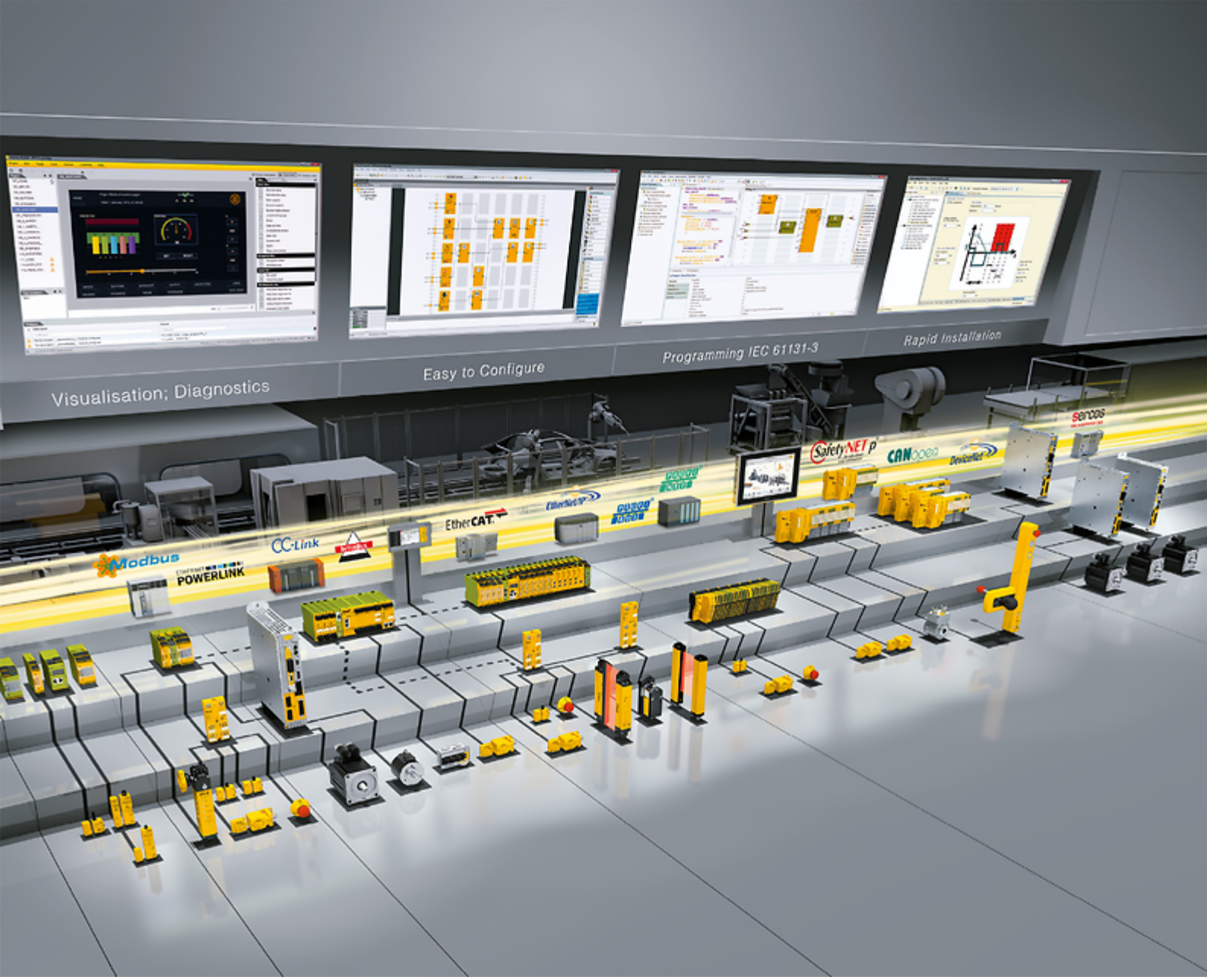

PNOZ pe2p

PILZ
THE SPIRIT OF SAFETY

- Safety relays

Operating Manual-21035-EN-06

This document is the original document.

Where unavoidable, for reasons of readability, the masculine form has been selected when formulating this document. We do assure you that all persons are regarded without discrimination and on an equal basis.

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Introduction

Validity of documentation

This documentation is valid for the product PNOZ pe2p. 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.

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.

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.

Safety

Intended use

The PNOZ pe2p bus interface, together with an expansion module of the PNOZpower modular safety system, are used for the safety-related interruption of a safety circuit.

The bus interface consists of a

- Coupling plug with screw terminals for connecting to a master controller
- Terminator for terminating the PNOZpower bus

It is actuated by

- PNOZmulti range units,
- PSS range output modules,
- PNOZelog range units.

The bus interface may only be used in conjunction with units that evaluate a feedback loop.

Improper use

The following is deemed improper use in particular

- Any component, technical or electrical modification to the product,
- Use of the product outside the areas described in this operating manual,
- Use of the product outside the technical details (see Technical details [📖 10]).

NOTICE

EMC-compliant electrical installation

The product is designed for use in an industrial environment. The product may cause interference if installed in other environments. If installed in other environments, measures should be taken to comply with the applicable standards and directives for the respective installation site with regard to interference.

Safety regulations

Use of qualified personnel

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by persons who are competent to do so.

A competent person is a qualified and knowledgeable person who, because of their training, experience and current professional activity, has the specialist knowledge required. To be able to inspect, assess and operate devices, systems and machines, the person has to be informed of the state of the art and the applicable national, European and international laws, directives and standards.

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 the section entitled Safety
- Have a good knowledge of the generic and specialist standards applicable to the specific application.

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.).

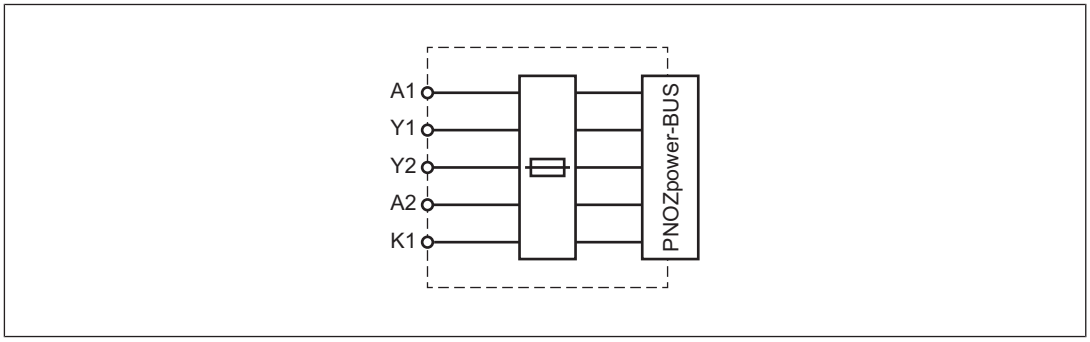
Disposal

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

Unit features

- Actuated via safety contacts or safe semiconductor outputs
- Expansion module control output via PNOZpower bus
- Max. 6 expansion modules can be connected via jumpers
- Plug-in connection terminals

Block diagram/terminal configuration



Function Description

The bus interface PNOZ pe2p, in conjunction with the expansion modules, is used to expand a safety circuit. It is driven from a master controller (e.g. safe outputs on a PSS).
The unit is ready for operation when when supply voltage is applied and the feedback loop Y1-Y2 is closed

- 24 V DC are available at the terminal K1 (e.g. the PSS output has a high signal):
  - At the expansion module control output connected to the PNOZpower bus there is a high signal.
- 0 V DC are available at the terminal K1 (e.g. the PSS output has a low signal):
  - At the expansion module control output connected to the PNOZpower bus there is a low signal.

NOTICE

When controlling an expansion module via the den PNOZpower bus the switch-on delay/delay-on de-energisation of the controlling device and the expansion module are added together.

Operating modes

- Single-channel operation: no redundancy in the input circuit, earth faults in the start circuit are detected depending on the master controller.

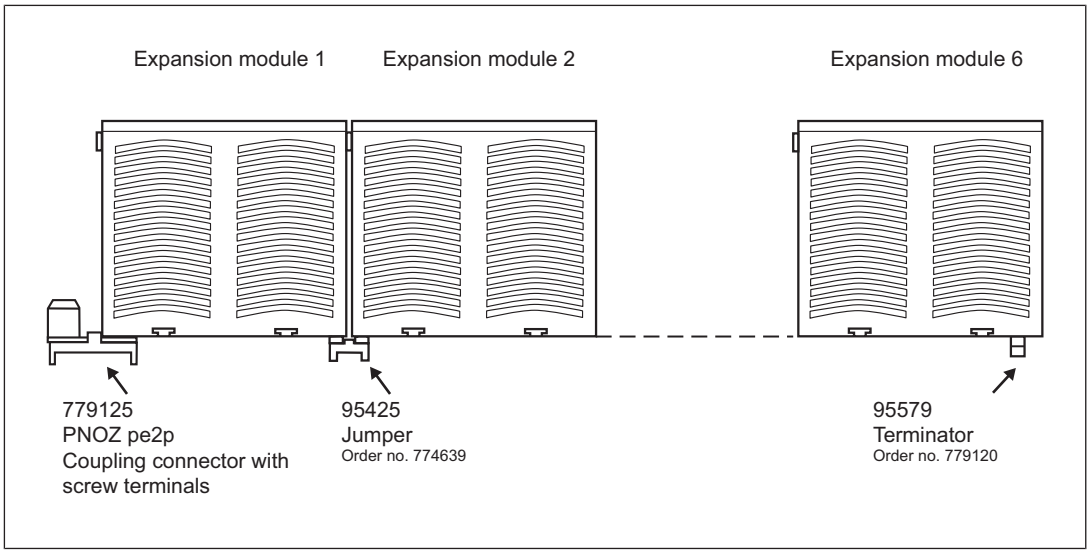
Installation

- The unit should be installed in a control cabinet with a protection type of at least IP54.
- Connect the bus interface to the first expansion module via the coupling connector.

NOTICE

Always fit a terminator to the first and last device.

- Only use terminators, jumpers and terminals of the modular safety system PNOZpower.
- Layout:
  - The PNOZ pe2p is installed on the left of the first expansion module.
- Maximum hardware:
  - 1 bus interface
  - 6 expansion modules



WARNING!

Risk of electrocution!

When voltage is applied, contact with live components could result in serious or even fatal injury from an electric shock.

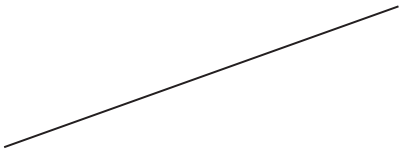
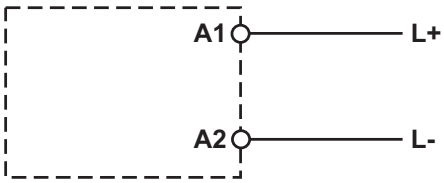
The plug-in connection terminals should only be connected and disconnected when the voltage is switched off.

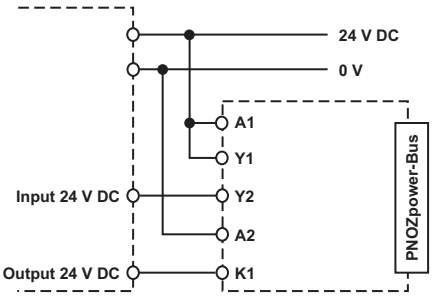
Wiring

Please note:

- Information given in the "Technical details [10]" must be followed.
- Max. cable runs I_{max} at the input circuit and feedback loop: Short circuits and earth faults are detected by the master controller. The maximum cable runs is therefore dependent on the master controller.
- Use copper wiring with a temperature stability of 60/75 °C.
- To prevent EMC interferences (particularly common-mode interferences) the measures described in EN 60204-1 must be executed. This includes the separate routing of cables of the control circuits (input, start and feedback loop) from other cables for energy transmission or the shielding of cables, for example.
- The bus interface and input circuits of the safety control system/ the safety relay must always be supplied by a single power supply.
- The power supply must comply with the regulations for extra low voltages with protective electrical separation (SELV, PELV) in accordance with VDE 0100, Part 410.

Preparing for operation

Supply voltage	AC	DC
		

Connection	
Control via safety system (PNOZmulti, PSS) or safety relay (PNOZelog)	

Operation

NOTICE

The safety function should be checked after initial commissioning and each time the plant/machine is changed. The safety functions may only be checked by qualified personnel.

Signal statuses of the inputs and outputs

- K1: PNOZpower input circuit
  - "1" signal (+24 VDC): Expansion modules are actuated
  - "0" signal (0 V): Expansion modules are not actuated
- Y2: Feedback loop output
  - "1" signal (+24 VDC): Safety contacts of the expansion modules open
  - "0" signal (0 V): Safety contacts of the expansion modules closed

Technical details

General	
Certifications	**CE, EAC, TÜV, UKCA, cULus Listed**
Electrical data	
Supply voltage	
Voltage	**24 V**
Kind	**DC**
Voltage tolerance	**-15 %/+10 %**
Residual ripple DC	**160 %**
Duty cycle	**100 %**
Inputs	
Number	**1**
Voltage at	
Input circuit DC	**24 V**
Feedback loop DC	**24 V**
Current at	
Input circuit DC	**30 mA**
Feedback loop DC	**1 A**
Environmental data	
Climatic suitability	**EN 60068-2-78**
Ambient temperature	
Temperature range	**-10 - 55 °C**
Storage temperature	
Temperature range	**-25 - 70 °C**
Climatic suitability	
Humidity	**93 % r. h. at 40 °C**
Condensation during operation	**Not permitted**
EMC	**EN 60947-5-1, EN 61000-6-2, EN 61326-3-1**
Vibration	
In accordance with the standard	**EN 60068-2-6**
Frequency	**10 - 55 Hz**
Amplitude	**0,35 mm**

Environmental data	
Airgap creepage	
In accordance with the standard	**EN 60947-1**
Overvoltage category	**III**
Pollution degree	**2**
Rated insulation voltage	**30 V**
Rated impulse withstand voltage	**0,8 kV**
Protection type	
Housing	**IP 00**
Terminals	**IP20**
Mounting area (e.g. control cabinet)	**IP54**
Mechanical data	
Mounting position	**horizontally on mounting rail**
Connection type	**Screw terminal**
Mounting type	**Fixed**
Conductor cross section with screw terminals	
1 core flexible	**0,5 - 1,5 mm², 28 - 14 AWG**
2 core with the same cross section, flexible with crimp connectors, no plastic sleeve	**0,5 - 1,5 mm², 28 - 14 AWG**
2 core with the same cross section, flexible without crimp connectors or with TWIN crimp connectors	**0,5 - 1,5 mm², 28 - 14 AWG**
Torque setting with screw terminals	**0,25 Nm**
Stripping length with screw terminals	**6 mm**
Dimensions	
Height	**29 mm**
Width	**23,5 mm**
Depth	**22,5 mm**
Weight	**15 g**

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

Order reference

Product type	Features	Connection type	Order no.
PNOZ pe2p	24 V DC	Screw terminals	779125

EC declaration of conformity

This product/these products meet the requirements of the directive 2006/42/EC for machinery of the European Parliament and of the Council. The complete EC Declaration of Conformity is available on the Internet at www.pilz.com/support/downloads.
Representative: Norbert Fröhlich, Pilz GmbH & Co. KG, Felix-Wankel-Str. 2, 73760 Ostfildern, Germany

UKCA-Declaration of Conformity

This product(s) complies with following UK legislation: Supply of Machinery (Safety) Regulation 2008.
The complete UKCA Declaration of Conformity is available on the Internet at www.pilz.com/support/downloads.

Representative: Pilz Automation Technology, Pilz House, Little Colliers Field, Corby, Northamptonshire, NN18 8TJ United Kingdom, eMail: mail@pilz.co.uk

Support

Technical support is available from Pilz round the clock.

Americas
Brazil
+55 11 97569-2804
Canada
+1 888 315 7459
Mexico
+52 55 5572 1300
USA (toll-free)
+1 877-PILZUSA (745-9872)

Asia
China
+86 21 60880878-216
Japan
+81 45 471-2281
South Korea
+82 31 778 3300

Australia and Oceania
Australia
+61 3 95600621
New Zealand
+64 9 6345350

Europe
Austria
+43 1 7986263-0
Belgium, Luxembourg
+32 9 3217570
France
+33 3 88104003
Germany
+49 711 3409-444
Ireland
+353 21 4804983
Italy, Malta
+39 0362 1826711
Scandinavia
+45 74436332
Spain
+34 938497433
Switzerland
+41 62 88979-32
The Netherlands
+31 347 320477
Turkey
+90 216 5775552
United Kingdom
+44 1536 462203

You can reach our international hotline on:
+49 711 3409-222
support@pilz.com

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BLUEcoMPETENCE Alliance Member
Partner of the Engineering Industry Sustainability Initiative

BRANDS OF THE CENTURY PILZ 2019 GERMAN STANDARDS

Quality Management ISO 9001:2015 REG. NO. 2462
Environmental Management ISO 14001 REG. NO. 2462
Energy Management ISO 50001 REG. NO. 2462

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We are represented internationally. Please refer to our homepage www.pilz.com for further details or contact our headquarters.

Headquarters: Pilz GmbH & Co. KG, Felix-Wankel-Straße 2, 73760 Ostfildern, Germany
Telephone: +49 711 3409-0, Telefax: +49 711 3409-133, E-Mail: info@pilz.com, Internet: www.pilz.com

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