



Visualisation; Diagnostics

Easy to Configure

Programming IEC 61131-3

Rapid Installation

PLID d1

► Safety relays

PILZ
THE SPIRIT OF SAFETY

This document is the original document.

All rights to this documentation are reserved by Pilz GmbH & Co. KG. Copies may be made for the user's internal purposes. Suggestions and comments for improving this documentation will be gratefully received.

Source code from third-party manufacturers or open source software has been used for some components. The relevant licence information is available on the Internet on the Pilz homepage.

Pilz®, PIT®, PMI®, PNOZ®, Primo®, PSEN®, PSS®, PVIS®, SafetyBUS p®, SafetyEYE®, SafetyNET p®, the spirit of safety® are registered and protected trademarks of Pilz GmbH & Co. KG in some countries.



SD means Secure Digital

Introduction	4
Validity of documentation.....	4
Using the documentation.....	4
Definition of symbols.....	4
Safety	5
Intended use.....	5
Safety regulations.....	5
Use of qualified personnel.....	5
Warranty and liability.....	6
Disposal.....	6
Unit features	6
Block diagram	6
Function description	6
Installation	7
Wiring	7
Preparing for operation	7
Dimensions in mm	8
Technical details	9
Order reference	10
Product.....	10
Accessories.....	10

Introduction

Validity of documentation

This documentation is valid for the product PLID d1. 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 PLID d1 is used for safe line inspection. It monitors 2-wire lines for

- ▶ Short circuit,
- ▶ Short between contacts,
- ▶ Open circuit.

The PLID d1 may only be used in conjunction with the evaluation device PNOZ e8.1p.

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 manual,
- ▶ Use of the product outside the technical details (see [Technical details](#)  9]).

**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 competent persons.

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.).

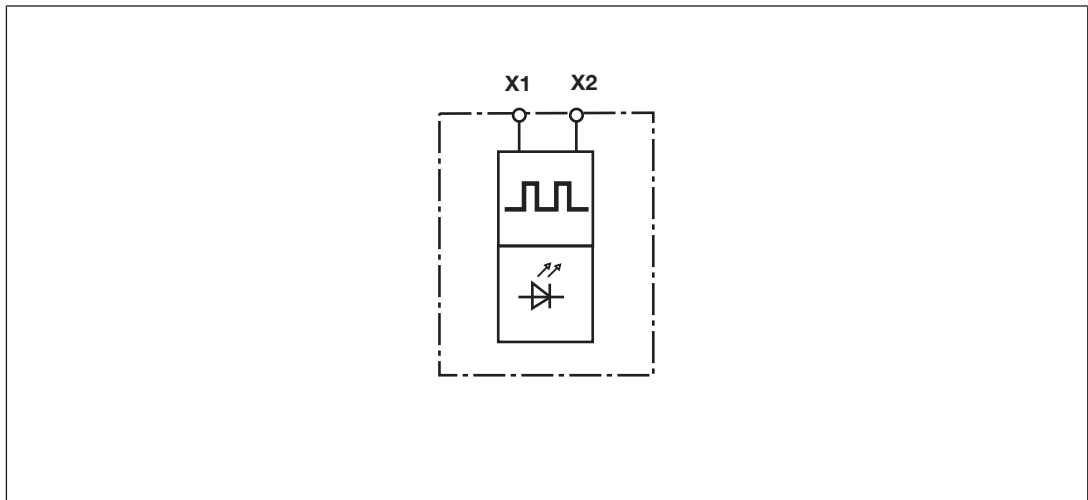
Disposal

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

Unit features

- ▶ Max. length of the inspected line (depending on the line resistance): 3000 m
- ▶ Supply voltage module via evaluation device
- ▶ Installation in pushbutton housing, surface mount housing or control cabinet
- ▶ LED lights when the device is active
- ▶ Either spring-loaded terminals or screw terminals

Block diagram



Function description

The PLID d1 sends a test pulse signal via a contact (E-STOP pushbutton or start button) to the evaluation device PNOZ e8.1p. If the line is error-free, the input circuits are closed and the contact is closed (E-STOP pushbutton or start button) a valid signal is present at the input S36 of the PNOZ e8.1p.


The PLID d1 in combination with PNOZ e8.1p can be used for example instead of a single-channel E-STOP pushbutton or start button. The line inspection is performed when the contact is closed.

Installation

The unit should be secured using 2 M4 pan head screws.


Please note during installation:

- ▶ The unit should be installed in a single mounting area with a protection type of at least IP54.
- ▶ Make sure that the unit is fixed securely.
- ▶ Protect the cable and connector from mechanical stress by using strain relief.


A mounting bracket is available for control cabinet installation (see [Order reference](#)  10]).

Wiring

Please note:

- ▶ Information given in the "[Technical details](#)  9]" must be followed.
- ▶ Calculation of the max. cable length l_{\max} in the input circuit:

$$l_{\max} = \frac{R_{l_{\max}}}{R_l / \text{km}}$$

$R_{l_{\max}}$ = max. overall cable resistance (see [Technical details](#)  9])

R_l / km = cable resistance/km

- ▶ The cable length between PLID d1 and contact (E-STOP pushbutton or start button) should be as short as possible.
- ▶ Where one line is to be monitored, only use one PLID d1 and one evaluation device. Route the line so that it is protected.

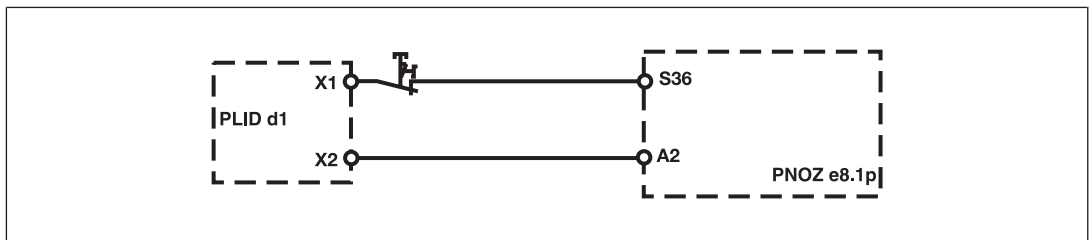
Preparing for operation

Connect the PLID d1 to the evaluation device PNOZ e8.1p:

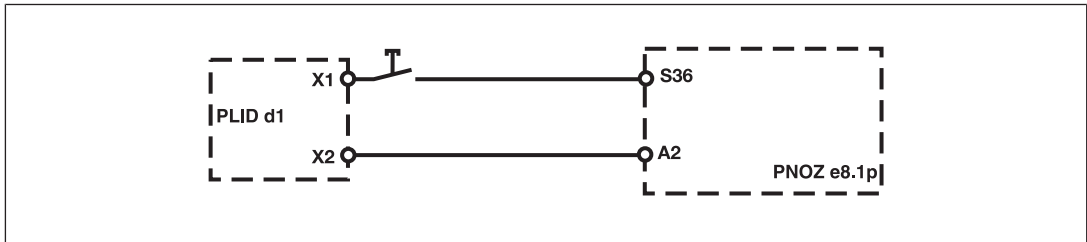
- ▶ Connect terminal X1 to terminal S36 on the PNOZ e8.1p
- ▶ Connect terminal X2 to terminal A2 on the PNOZ e8.1p

The evaluation device PNOZ e8.1p should be wired as described in the unit's operating manual. Ensure the wiring and EMC requirements of IEC 60204-1 are met.

Connection example with N/C contact (continuous test)



Connection example with N/O contact (manual test)



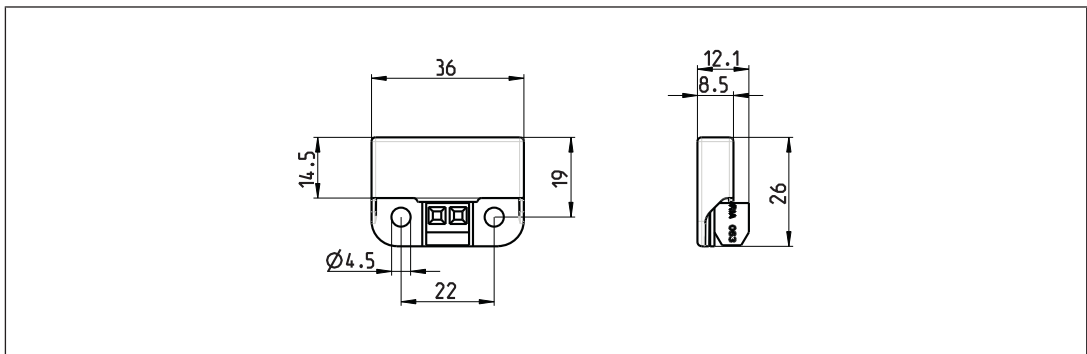
CAUTION!

A short circuit on the pushbutton or on the supply line to the pushbutton is not monitored!

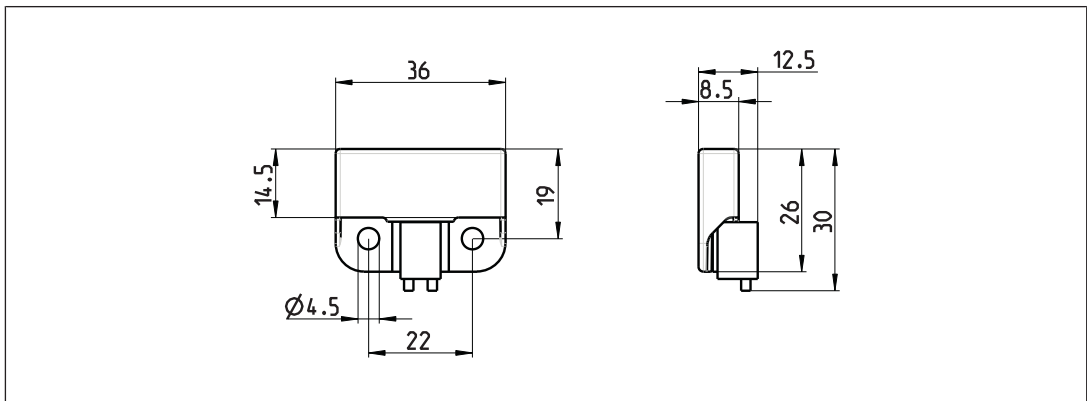
Use appropriate measures to prevent a short circuit on the pushbutton.

Dimensions in mm

PLID d1 (screw terminals)



PLID d1 C (spring-loaded terminals)



Technical details

General	774260	784260
Certifications	TÜV, UL/cUL	TÜV, UL/cUL
Electrical data	774260	784260
Supply voltage		
internal	Via evaluation device	Via evaluation device
Voltage	24 V	24 V
Power consumption	0,2 W	0,2 W
Duty cycle	100 %	100 %
Inputs	774260	784260
Max. overall cable resistance RI-max		
Single-channel at UB DC	220 Ohm	220 Ohm
Max. line capacitance	450 nF	450 nF
Environmental data	774260	784260
Climatic suitability	EN 60068-2-78	EN 60068-2-78
Ambient temperature		
Temperature range	-30 - 70 °C	-30 - 70 °C
Storage temperature		
Temperature range	-40 - 70 °C	-40 - 70 °C
Climatic suitability		
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C
Condensation during operation	Not permitted	Not permitted
EMC	EN 60947-5-1, EN 61000-6-2, EN 61000-6-4	EN 60947-5-1, EN 61000-6-2, EN 61000-6-4
Vibration		
In accordance with the standard	EN 60068-2-6	EN 60068-2-6
Frequency	10 - 55 Hz	10 - 55 Hz
Amplitude	0,35 mm	0,35 mm
Airgap creepage		
In accordance with the standard	EN 60947-1	EN 60947-1
Overvoltage category	III	III
Pollution degree	2	2
Rated insulation voltage	30 V	30 V
Rated impulse withstand voltage	0,8 kV	0,8 kV
Protection type		
Housing	IP40	IP40
Terminals	IP20	IP20
Mounting area (e.g. control cabinet)	IP54	IP54
Mechanical data	774260	784260
Mounting position	Any	Any
Max. cable length	3000 m	3000 m

Mechanical data	774260	784260
Material		
Bottom	PC	PC
Connection type	Screw terminal	Spring-loaded terminal
Mounting type	Fixed	Fixed
Conductor cross section with screw terminals		
1 core flexible	0,5 - 1,5 mm ² , 22 - 14 AWG	–
Torque setting with screw terminals	0,5 Nm	–
Conductor cross section with spring-loaded terminals: Flexible with/without crimp connector	–	0,5 - 1,5 mm ² , 22 - 14 AWG
Spring-loaded terminals: Terminal points per connection	–	1
Stripping length with spring-loaded terminals	–	9 mm
Dimensions		
Height	36 mm	36 mm
Width	26 mm	30 mm
Depth	12,1 mm	12,5 mm
Weight	10 g	10 g

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



INFORMATION

Please refer to the technical details of the operating manual PNOZ e8.1p. for safety-related characteristic data.

Order reference

Product

Product type	Features	Connection type	Order no.
PLID d1	24 VDC	Screw terminals	774 260
PLID d1 C	24 VDC	Spring-loaded terminals	784 260
PNOZ e8.1p	24 VDC	Screw terminals	774 198
PNOZ e8.1p C	24 VDC	Spring-loaded terminals	784 198

Accessories

Product type	Features	Order no.
PSEN bracket	Mounting bracket	532 110

▶ 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

Pilz develops environmentally-friendly products using ecological materials and energy-saving technologies. Offices and production facilities are ecologically designed, environmentally-aware and energy-saving. So Pilz offers sustainability, plus the security of using energy-efficient products and environmentally-friendly solutions.



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

PILZ
THE SPIRIT OF SAFETY

1002227-EN-04, 2021-02 Printed in Germany
© Pilz GmbH & Co. KG, 2019

CECE®, CHRE®, CMSE®, InduraNET p®, Leansafe®, Master of Safety®, Master of Security®, PAS4000®, PAScale®, PASconfig®, Pilz®, PIT®, PLID®, PMCPirimo®, PMCPiritego®, PMCTendo®, PMD®, PMJ®, PNOZ®, PRCM®, PRM®, PRMNET p®, PSEN®, PSENi®, PSS®, PVS®, SafetyBUS p®, SafetyEYE®, THE SPIRIT OF SAFETY® are registered and protected trademarks of Pilz GmbH & Co. KG in some countries. We would point out that product features may vary from the details stated in this document, depending on the status at the time of publication and the scope of the equipment. We accept no responsibility for the validity, accuracy and entirety of the text and graphics presented in this information. Please contact our Technical Support if you have any questions.