



► PIT oe USB

PILZ

THE SPIRIT OF SAFETY

Operating Manual-1005599-EN-03

- Control and signal devices



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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SD means Secure Digital

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Introduction

Validity of documentation

This documentation is valid for the product PIT oe USB. 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

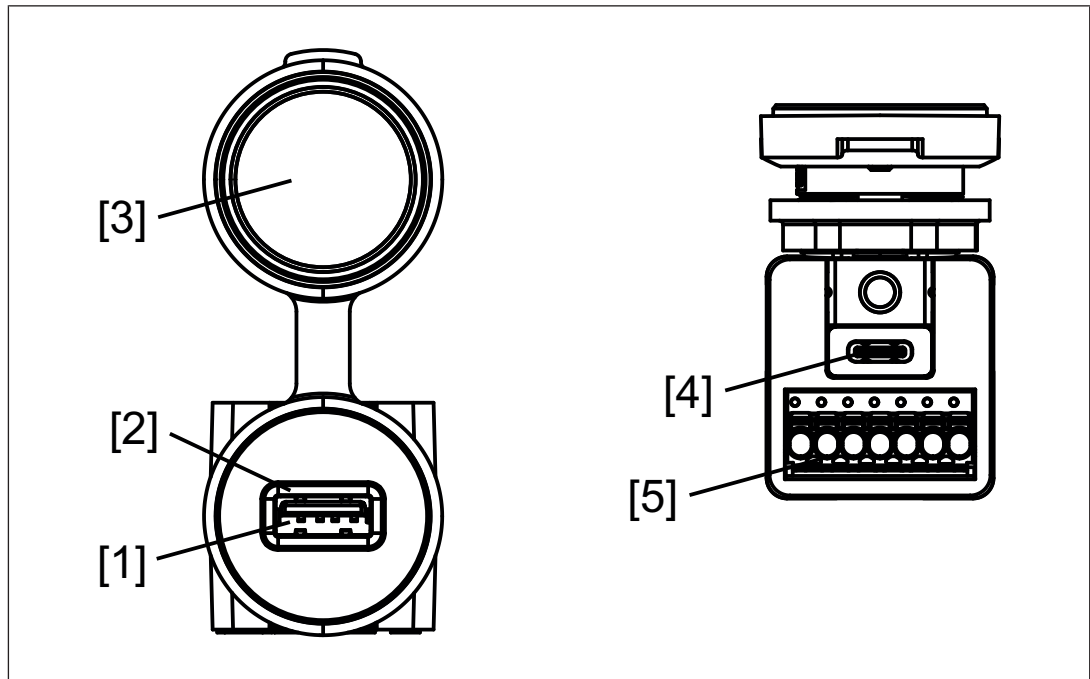
This gives advice on applications and provides information on special features.

Overview

Device features

- ▶ Activatable USB interface
- ▶ Protective cap to protect against contamination, protective class IP65
- ▶ For mounting cutouts D22 (diameter 22.3 mm +0.4 mm/-0.0 mm) in accordance with EN 60947-5-1 with anti-rotation device

Device view



Legend

- [1] Activatable USB interface
- [2] LED indicator
- [3] Protective cap
- [4] USB device interface
- [5] Plug-in terminal block

Safety

Intended use

The PIT oe USB is an activatable USB interface. In conjunction with an authentication system, e.g. PITreader, the USB interface can be activated or deactivated for the different permission levels.

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 chapter entitled Technical Details).



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. In order to inspect, assess and handle products, devices, systems, plant and machinery, this person must be familiar with 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

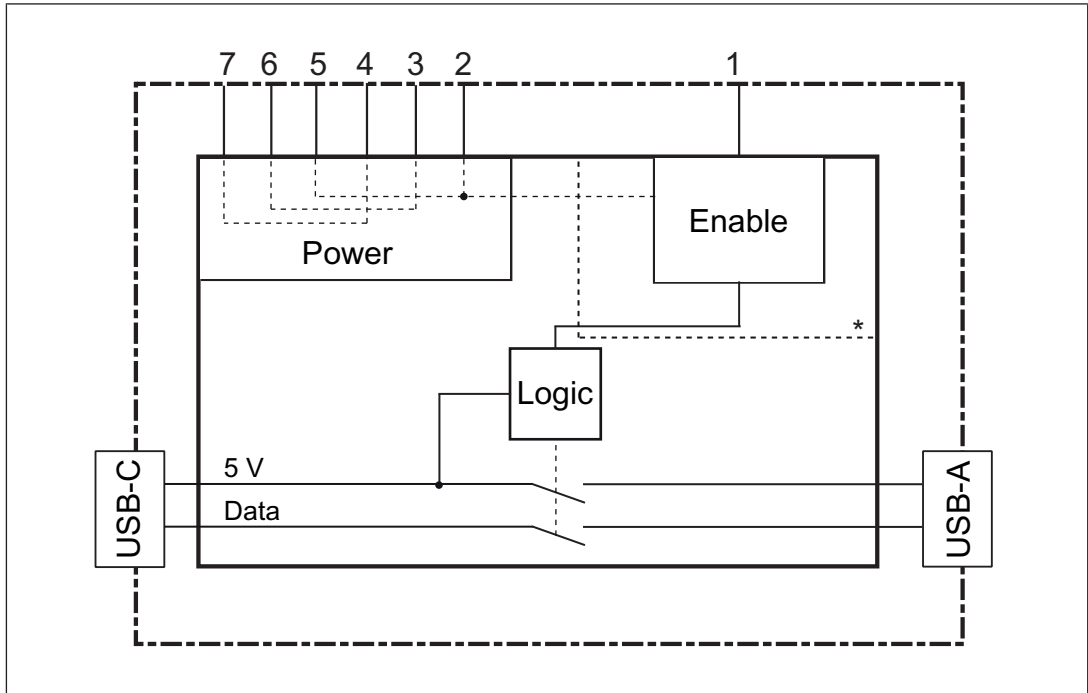
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

Function description

The PIT oe USB is an activatable USB interface. In conjunction with an authentication system, e.g. PITreader, the USB interface can be activated or deactivated for different permission levels.

The USB interface is activated when there is a high signal (24 V) at the input.

Block diagram



*Galvanic isolation

Operating states





Legend



LED on



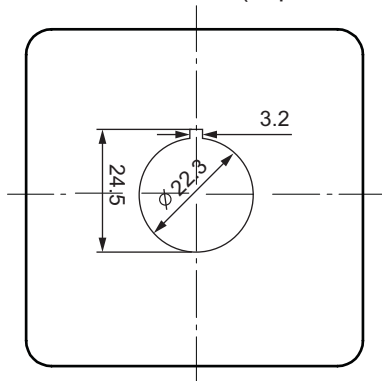
LED off

State	Meaning
	USB interface is not activated
	USB interface is activated, a USB device has not yet been plugged in
	USB interface is activated, a USB device has been plugged in
	USB interface is activated, an error has been detected (overcurrent)

Installation and removal

Installation

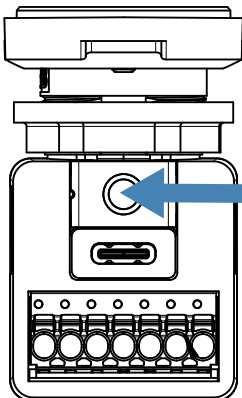
- ▶ Install the device in the front panel of a control cabinet or in a control console.
Material thickness: 2 ... 6 mm.
- ▶ Provide the front panel of the control cabinet or control console with a mounting cutout (\varnothing 22.3 mm $+0.4$ mm/ -0.0 mm, D22 in accordance with EN 60947-5-1) and give the cutout a recess for the latch (to protect against twisting):



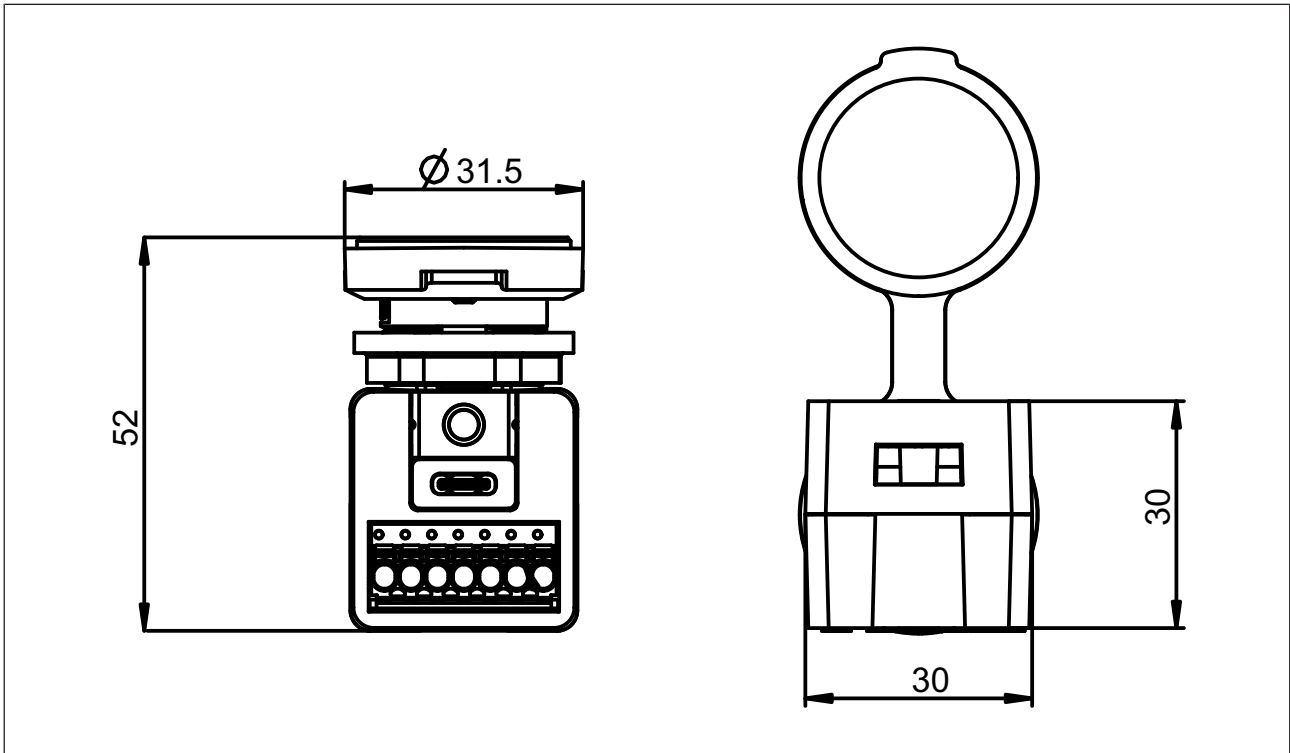
- ▶ Align the sealing cap in the required direction.
- ▶ Guide the upper section of the PIT oe USB into the mounting cutout and fix it from the other side using the plastic nut (M22). Note the torque setting of 1.3 ... 2.1 Nm. We recommend that you use the installation wrench "PIT es wrench" for fixing the plastic nut (see [Order reference \[16\]](#)).
- ▶ Insert the housing of the PIT oe USB into the upper section until it locks in position.
- ▶ If you install several devices next to one another you should maintain a distance of 40 mm between devices.

Removal

To remove the device, press both buttons on the side of the housing while pulling gently on the lower section.



Dimensions in mm



Wiring

General wiring guidelines

**NOTICE**

The PIT oe USB may only be connected to cables that are supplied via SELV/PELV power supplies. The power supply must meet the regulations for extra low voltages with protective separation (SELV, PELV).

**NOTICE**

Guideline for UL certification:

The device shall be supplied from an isolating transformer having a secondary Listed fuse rated either:

- max 5 amps for voltages 0~20 V (0~28.3 Vp), or
- 100/Vp for voltages of 20~30 V (28.3~42.4 Vp).

- ▶ The supply lines (0 V, 24 V) and the functional earth can be looped through to the next device. The current on the supply lines must not exceed 2 A.

USB interface

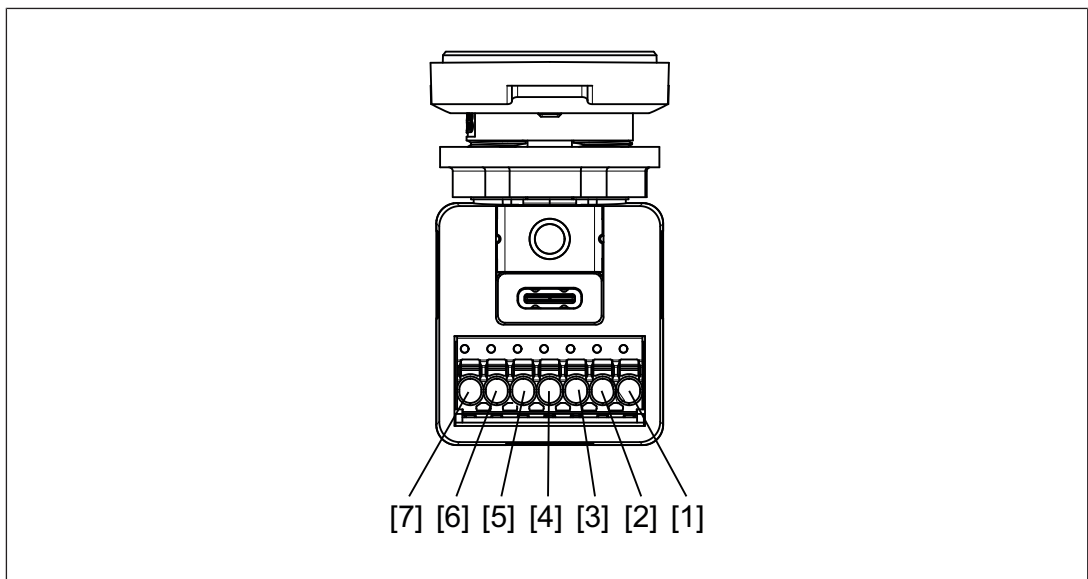
Please note the following properties when using USB cables and USB sticks:

- ▶ The USB connection cable must be double shielded (foil and braid).
- ▶ The USB-C connector on the USB connection cable must be less than 13.5 x 6.0 mm.
- ▶ The USB connection cable should be as short as possible. A USB connection cable of max. 3 m length may be connected to each of the two interfaces (USB device interface and USB host interface). If you use USB cable on both interfaces, the two cables together may not be longer than 6 m.
- ▶ Use USB sticks with metallic housings.
- ▶ Use industrial-quality USB sticks. Important features include temperature range, mechanical stability and the number of possible write cycles, for example.
- ▶ If you connect a USB hard drive with a current requirement of over 0.5 A, it will need to be supplied via an external current source (externally supplied hub or power supply).

Supply voltage

The product is supplied via the USB host interface.

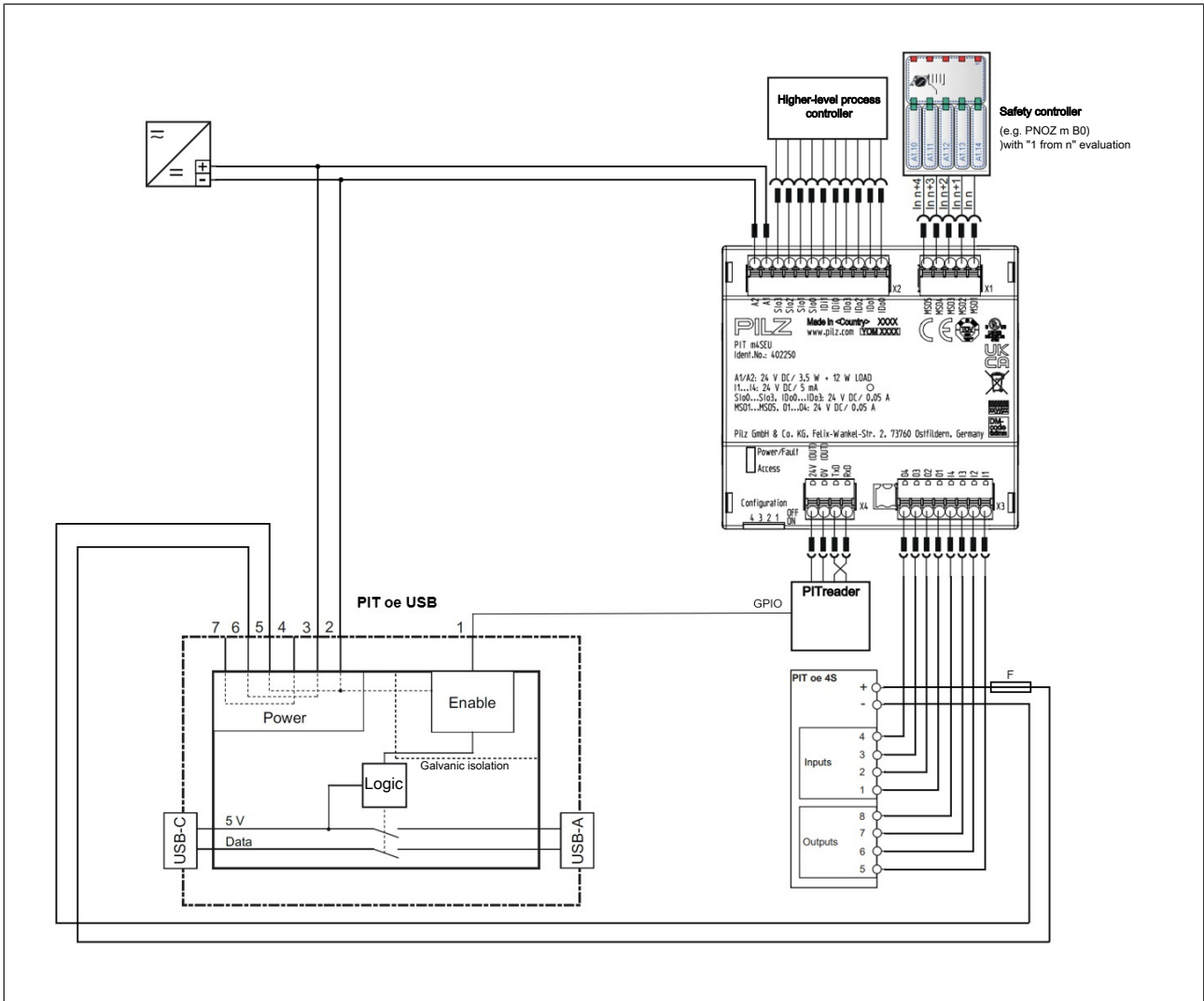
Terminal configuration



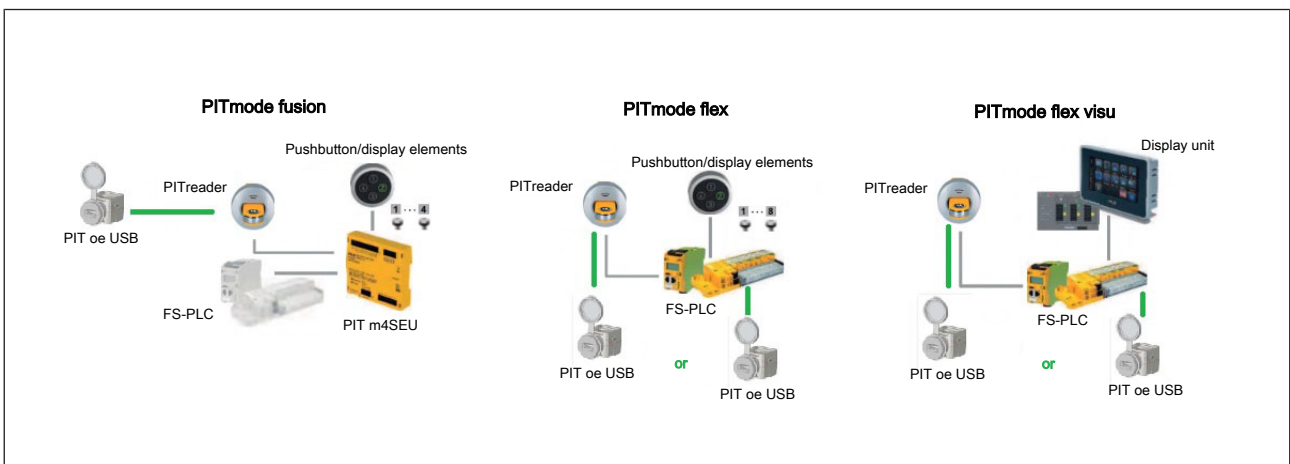
Legend

- 1 Signal
- 2 0 V
- 3 24 V
- 4 Functional earth
- 5 0 V
- 6 24 V
- 7 Functional earth

Connection example



Example of use in Pilz systems



Maintenance and testing

It is not necessary to perform maintenance work on the product in normal operation. Please return any faulty products to Pilz.

Technical details

General	
Certifications	CE, UKCA, UL Recognized Component
Electrical data	
Duty cycle	100 %
Status indicator	LED
Inputs	
Voltage at inputs	24 V DC
Input current range	3,5 - 10,8 mA
Galvanic isolation	Yes
USB interface	
Number of USB Hosts	1
Type of USB host interface	USB 2.0 Type A
Number of USB devices	1
Max. transmission rate	480 MBit/s
Max. current	0,5 A
Max. cable length	3 m
Environmental data	
Climatic suitability	EN 60068-2-1, EN 60068-2-2
Ambient temperature	
in accordance with the standard	EN 60068-2-14
Temperature range	-30 - 60 °C
Storage temperature	
Temperature range	-40 - 85 °C
Climatic suitability	
in accordance with the standard	EN 60068-2-78
Humidity	93 % r. h. at 40 °C
Max. operating height above SL	2000 m
EMC	EN 61131-2 (Zone B)
Vibration	
in accordance with the standard	EN 60068-2-6
Frequency	8,4 - 150 Hz
Acceleration	1g
Shock stress	
in accordance with the standard	EN 60068-2-27
Acceleration	15g
Duration	11 ms
Airgap creepage	
in accordance with the standard	EN 61131-2
Overvoltage category	II
Pollution degree	2

Environmental data

Protection type	
in accordance with the standard	EN 60529
Housing	IP20
in accordance with UL	Type 1 Enclosure
Mounting area (e.g. control cabinet)	IP65

Mechanical data

Mounting position	Any
Max. cable length	30 m
Connection type	Spring-loaded terminal, plug-in
Mounting type	plug-in
Max. fixing screws torque settings	1,3 - 2,1 Nm
Conductor cross section with spring-loaded terminals	
1 core flexible without crimp connector	0,25 - 1,5 mm², 24 - 16 AWG
1 conductor flexible with crimp connector with plastic collar	0,25 - 0,75 mm²
1 conductor flexible with crimp connector without plastic collar	0,25 - 1,5 mm²
Stripping length with spring-loaded terminals	9 mm
Dimensions	
Width	31,2 mm
Depth	55 mm
Weight	30 g

Order reference**Product**

Product type	Features	Order no.
PIT oe USB	Activatable USB interface	402313

Accessories

Product type	Features	Order no.
PIT es wrench	Installation wrench for PIT es pushbutton	400222

► Support

Technical support is available from Pilz round the clock.

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

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