



► PIT es6/PIT esb6

PILZ
THE SPIRIT OF SAFETY

Operating instructions-22138-EN-07
- Control and signal devices



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SD means Secure Digital

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Introduction

Validity of documentation

This documentation is valid for the product PIT es6/PIT esb6. 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 E-STOP pushbutton is intended for use in safety circuits in accordance with:

- ▶ EN 60204-1
- ▶ EN ISO 13849-1

**CAUTION!**

It must not be possible to defeat the E-STOP pushbuttons. Otherwise material damage and severe injuries may result, depending on the application. The E-STOP pushbutton may **not** be used in place of other safety measures.

E-STOP pushbutton with key-release:

The key must be removed immediately after release and must be kept safely.

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 chapter entitled "[Technical details](#) [ 10]").

Safety regulations

Safety assessment

Before using a device, a safety assessment in accordance with the Machinery Directive is required.

The product as an individual component fulfils the functional safety requirements in accordance with EN ISO 13849 and EN IEC 62061. However, this does not guarantee the functional safety of the overall plant/machine. To achieve the relevant safety level of the overall plant/machine's required safety functions, each safety function needs to be considered separately.

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

- ▶ In safety-related applications, please comply with the mission time T_M in the safety-related characteristic data.
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

For your safety

The unit meets all the necessary conditions for safe operation. However, please note the following:

- ▶ Check the function of the pushbutton before commissioning for the first time and then at regular intervals (at least annually).

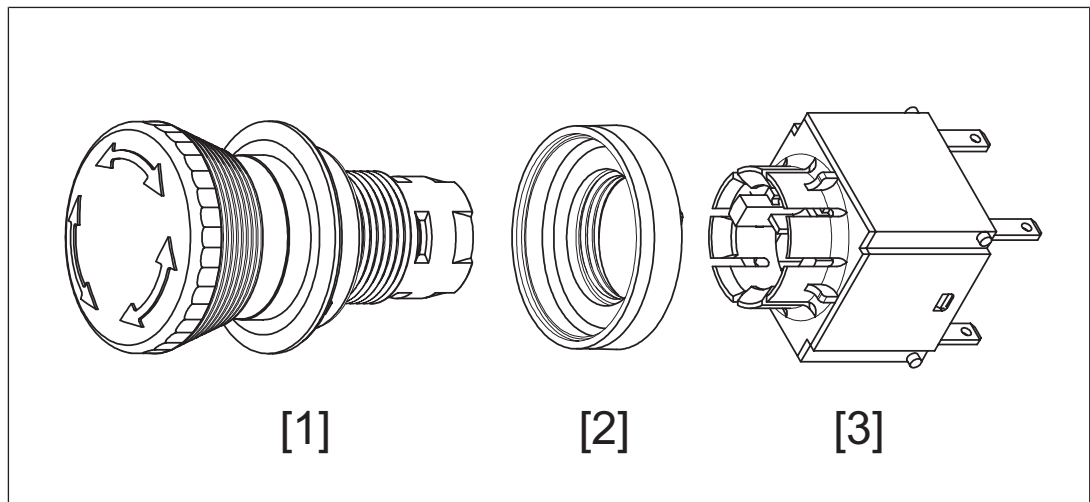
Unit features

PIT es are E-STOP pushbuttons. They are used to shut down plant and machine sections in order to reduce or avert imminent or existing hazards to persons and damage to machinery or materials.

Features:

- ▶ Turn in either direction to release the E-STOP pushbutton
- ▶ Contact blocks for panel mounting with screw connection or flat connector
- ▶ Safety contact block with flat connector

Surface mount housing



Legend:

- ▶ [1]: Actuator
- ▶ [2]: Plastic nut
- ▶ [3]: Contact block with flat connector

Installation



CAUTION!

The pushbutton should always be installed with the supply voltage switched off.

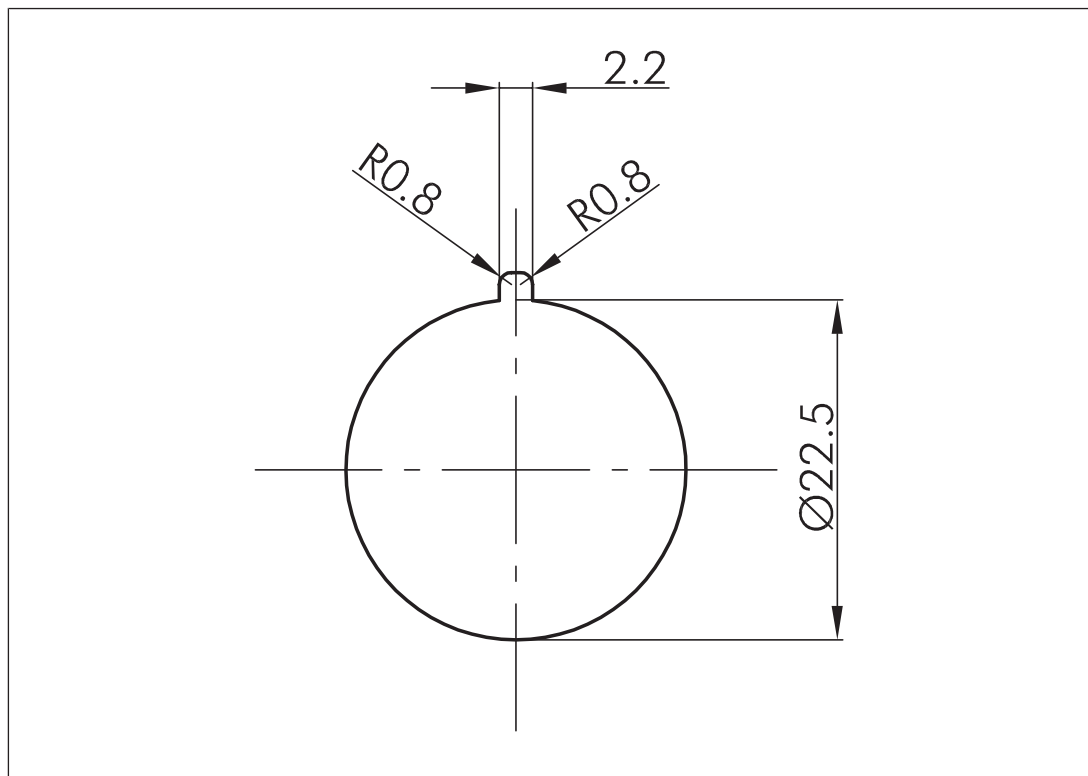
Panel mount version



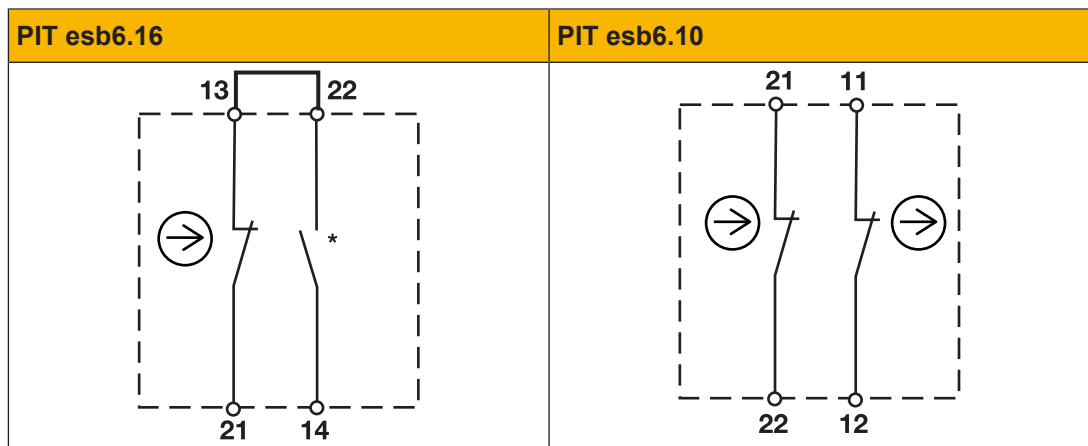
NOTICE

Use a mounting plate with a smooth surface to ensure a tight seal.

- ▶ Prepare another opening in the mounting plate (see diagram).
- ▶ Guide the thread of the E-STOP pushbutton into the mounting plate opening and secure it using the plastic nut (size 24 spanner). Note the max. torque setting of 1.5 Nm.



Wiring



*The contact is closed when the actuator is snapped in place.

Attach the contact block to the actuator neck.



NOTICE

Always twist to insert and remove the contact block. Otherwise you may damage the mounting ring.

Operation

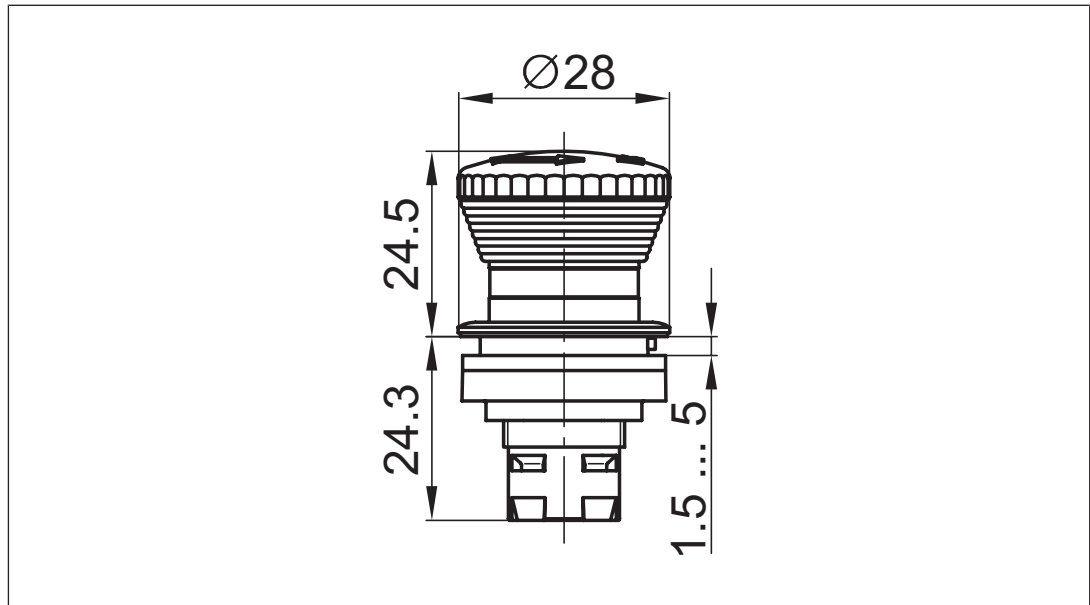


NOTICE

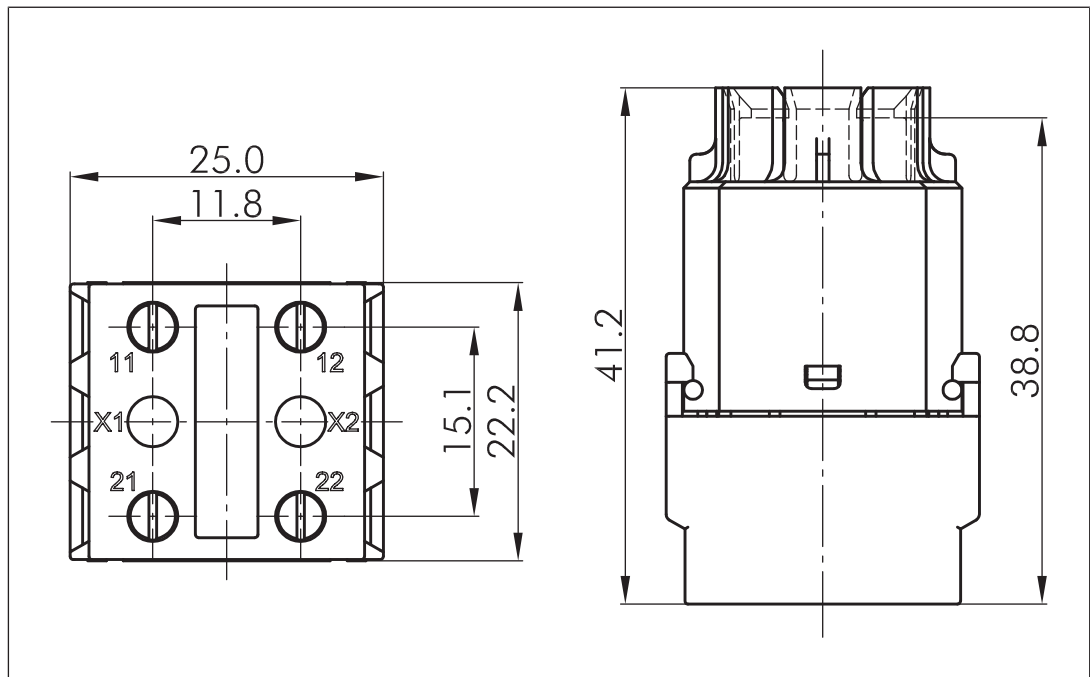
Check the function of the emergency stop device before commissioning for the first time and then at regular intervals (at least annually).

Dimensions

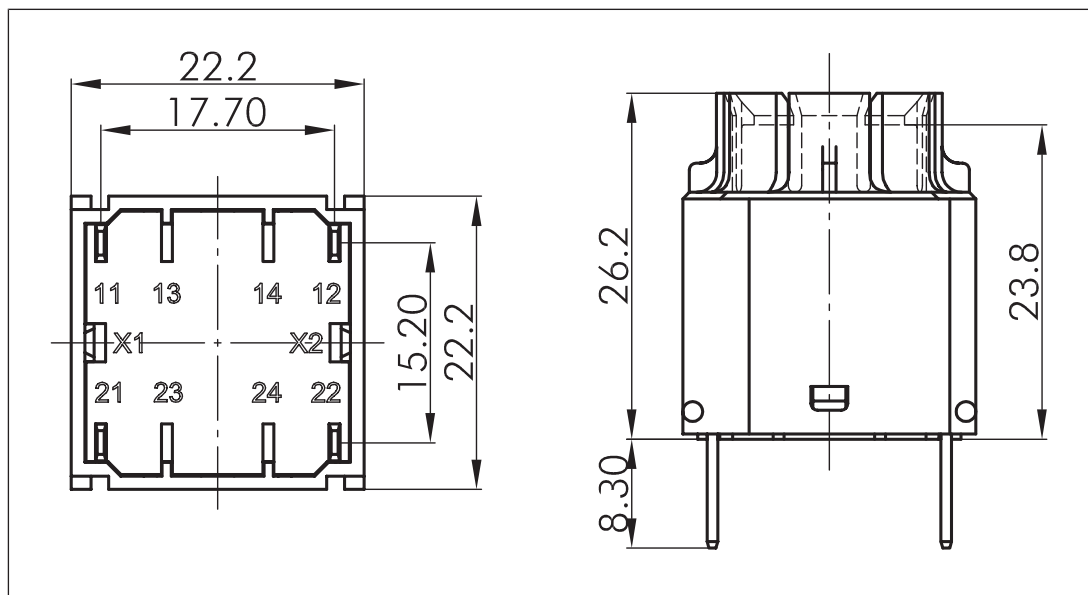
PIT es6.10



PIT esb6.10



PIT esb6.16



Technical details E-STOP pushbuttons

Order no. 400610

General

Certifications	CE, EAC, TÜV, UKCA, cCSAus
Self-monitored	No
Lighting	No

Environmental data

Ambient temperature	
Temperature range	-30 - 70 °C
Storage temperature	
Temperature range	-50 - 85 °C
Protection type	
Housing	IP65

Mechanical data

Mounting position	Any
Mechanical life	30,000 cycles
Torque setting, mounting nut	1,0 ... 1,5 Nm
Dimensions	
Height	24,5 mm
Diameter of pushbutton	28 mm
Weight	17 g

Where standards are undated, the 2017-08 latest editions shall apply.

Technical details Contact blocks

Order no. 400360, 400366

General	400360	400366
Certifications	CE, EAC, TÜV, UKCA, cCSAus	CE, EAC, TÜV, UKCA, cCSAus
Self-monitored	No	Yes
Electrical data	400360	400366
Short circuit protection (SCPD)	6 A Char. C	6 A Char. C
Conditional short circuit current	1.000 A	1.000 A
Volume resistance	20 mOhm	20 mOhm
Min. contact current	1 mA	1 mA
Emergency stop	400360	400366
Utilisation category		
in accordance with the standard	EN 60947-5-1	EN 60947-5-1
AC15 at	240 V	240 V
Current	1,5 A	1,5 A
DC13 at	24 V, 60 V, 125 V, 250 V	24 V, 60 V, 125 V, 250 V
Current	0,2 A, 0,4 A, 1 A, 2 A	0,2 A, 0,4 A, 1 A, 2 A
Conventional thermal current	6 A	6 A
Contact material	AgNi	AgNi
Pushbutton	400360	400366
Electrical life	1,000,000 cycles	1,000,000 cycles
Times	400360	400366
Bounce time	10 ms	10 ms
Environmental data	400360	400366
Ambient temperature		
Temperature range	-30 - 70 °C	-30 - 70 °C
Storage temperature		
Temperature range	-50 - 85 °C	-50 - 85 °C
Airgap creepage		
Pollution degree	3	3
Rated insulation voltage	250 V	250 V
Rated impulse withstand voltage	2,5 kV	2,5 kV
Protection type		
Component parts	IP20	IP00
Mechanical data	400360	400366
Mechanical life	1,000,000 cycles	1,000,000 cycles
Connection type	Screw terminal	Flat connector
Stripping length with screw terminals	8 mm	—
Dimensions		
Height	41,2 mm	52,6 mm
Width	22,2 mm	22,2 mm
Depth	25 mm	22,2 mm

Mechanical data	400360	400366
Weight	17 g	9 g

Where standards are undated, the 2017-08 latest editions shall apply.

Technical details Sets

Order no. 400620

General	
Certifications	CE, EAC, TÜV, UKCA
Self-monitored	No
Lighting	No
Electrical data	
Short circuit protection (SCPD)	6 A Char. D
Conditional short circuit current	1.000 A
Volume resistance	20 mOhm
Min. contact current	1 mA
Emergency stop	
Utilisation category	
in accordance with the standard	EN 60947-5-1
AC15 at	240 V
Current	1,5 A
DC13 at	24 V, 60 V, 125 V, 250 V
Current	0,2 A, 0,4 A, 1 A, 2 A
Conventional thermal current	6 A
Contact material	AgNi
Times	
Bounce time	10 ms
Environmental data	
Ambient temperature	
Temperature range	-30 - 70 °C
Storage temperature	
Temperature range	-50 - 85 °C
Airgap creepage	
Pollution degree	3
Rated insulation voltage	250 V
Rated impulse withstand voltage	2,5 kV
Protection type	
Housing	IP65
Component parts	IP20
Mechanical data	
Mechanical life	30,000 cycles
Connection type	Screw terminal
Stripping length with screw terminals	8 mm

Mechanical data

Dimensions

Height	80 mm
Width	28 mm
Depth	28 mm
Diameter of pushbutton	28 mm

Weight	33 g
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Where standards are undated, the 2017-08 latest editions shall apply.

Please note that the ambient temperature is reduced when using illuminated E-STOP push-buttons.

Safety characteristic data**NOTICE**

You must comply with the safety characteristic data in order to achieve the required safety level for your plant/machine.

Safety characteristic data

B10d in accordance with EN ISO 13849-1:2015 and EN 62061	127.500
λ_{d0}/λ in accordance with EN 62061	0,20

The safety characteristic data only apply when using the product with contact block and E-STOP pushbutton.

Order reference**E-STOP pushbutton**

Product type	Features	Order no.
PIT es6.10	E-STOP pushbutton	400610

Contact blocks

Product type	Features	Order no.
PIT esb6.10	2 N/C, screw terminal	400360
PIT esb6.16	1 N/C, 1 N/O, flat connector	400366

Sets

Product type	Features	Order no.
PIT es Set6.1	E-STOP pushbutton and PIT esb6.10	400620

EC declaration of conformity

This product/these products meet the requirements of the directive 2006/42/EC on machinery of the European Parliament and of the Council. The complete EC Declaration of Conformity is available on the Internet at www.pilz.com/downloads.

Representative: 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/downloads.

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

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Technical support is available from Pilz round the clock.

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