PSEN sg2c

PSEN sensor technology

Operating Manual-1003267-EN-02

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SD means Secure Digital

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1 Introduction

1.1 Validity of documentation

This documentation is valid for the product PSENsg2c. 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 Retaining the documentation

This documentation is intended for instruction and 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 of supply

- Safety switch
- Handle unit
- Colour covers for illuminated buttons
- Pin for escape release
- Pin for auxiliary release

2.2 Unit features

- Safe guard locking (only for revolving gates and swing gates)
- Safe interlocking (position monitoring)
- Transponder technology
- 2 safety inputs for series connection of multiple safety switches
- 2 safety outputs
- Guard locking element keeps the safety gate from being opened unintentionally
- Detection of broken bolt tongue and broken guard locking element
- Bolt tongue with drill holes to attach padlocks as a restart interlock
- Auxiliary release for opening the safety gate, when the plant's voltage is switched off
- Escape release for fast manual release of the guard locking in emergency situations from within the danger zone (revolving gates and swing gates)
- Suitable for left and right hinged safety gates
  Note: The handle unit PSEN sg1 actuator is only suitable for revolving gates and swing gates.
- Plug-in spring-loaded terminals
- LED display for:
  - Supply voltage/fault
  - Gate closed
  - State of the hazardous machine
  - Request to stop the machine
  - State of the inputs
  - Bolt tongue engaged
- Depends on device type
  - various pushbuttons, as for example integral E-STOP pushbutton, section stop pushbutton, key switch...
  - Full coding/coding

    see Chapter Device types

3 Safety

3.1 Intended use

The safety gate system is used for guard locking and interlocking swing gates and revolving gates.

It meets the requirements in accordance with:

- EN 60204-1
- EN 60947-5-3
- EN 62061: SIL CL 3
- EN ISO 13849-1: Up to PL e (Cat. 4)
- EN 1088
- EN ISO 14119

The safety level PL e (Cat. 4)/SIL CL 3 can only be achieved when

- The safety outputs use 2-channel processing and
- The solenoid is operated 2-channel via safe relay outputs, suitable for PL e (Cat. 4)/SIL CL 3 applications. Wiring errors should also be excluded using appropriate measures. The potential solutions are the protected cable layout or the use of pulsed semiconductor outputs.

3.2 Safety regulations

3.2.1 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.

3.2.2 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.).

3.2.3 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).

3.3 For your safety



WARNING!

Potential loss of safety function during adjustment and repair work!

When carrying out adjustment and repair work, make sure that the power supply of the plant is switched off and protected against switching on again.



WARNING!

Loss of safety function due to manipulative use of substitute actuating elements!

When substitute actuating elements are used, these have to be installed as described in chapter Install at profile [📖 29]. When substitute actuating elements are used in a manipulative way to defeat the protective device, operating the plant presents a threat to life.
The operator has to consider this in the hazard analysis and he must determine possible countermeasures.

4 Function description

The interlocking and guard locking system prevents the safety gates to the danger zone from opening while the hazardous machine is switched on.

There is a high signal (safety gate closed and locked) at safety outputs X1-3 and X1-4 if the following conditions are met simultaneously:

- Inputs X2-3 and X2-4 are high and
- The bolt tongue is within the response range and
- The guard locking element is engaged in the bolt tongue and
- The escape or auxiliary release pin is in the correct position.

Signal output X1-9 is high if:

- The bolt tongue is within the response rang

There is a low signal (safety gate open and hazardous machine function interlocked) at safety outputs X1-3 and X1-4 if the following occurs:

- Inputs X2-3 or X2-4 are low or
- The guard locking element is outside the bolt tongue or
- The escape or auxiliary release has been operated

If the safety outputs have been shut down by either of the inputs X2-3 or X2-4, they cannot be switched back on until both inputs are low simultaneously.

A High signal has to be present at X1-6 (X2-6) and a Low signal at X1-7 (X2-7) for operating the solenoid after the hazardous movement has been ended.

4.1 Normal /Unlock mode

Normal mode:

The safety gate to the danger zone is not unlocked until the hazardous machine is stopped and the pushbutton for access request has been operated.

- The guard locking element is disengaged from the bolt tongue as soon as there is a high signal at terminals X1-6 and X1-7 or X2-6 and X2-7, followed by operation of the pushbutton for access request.

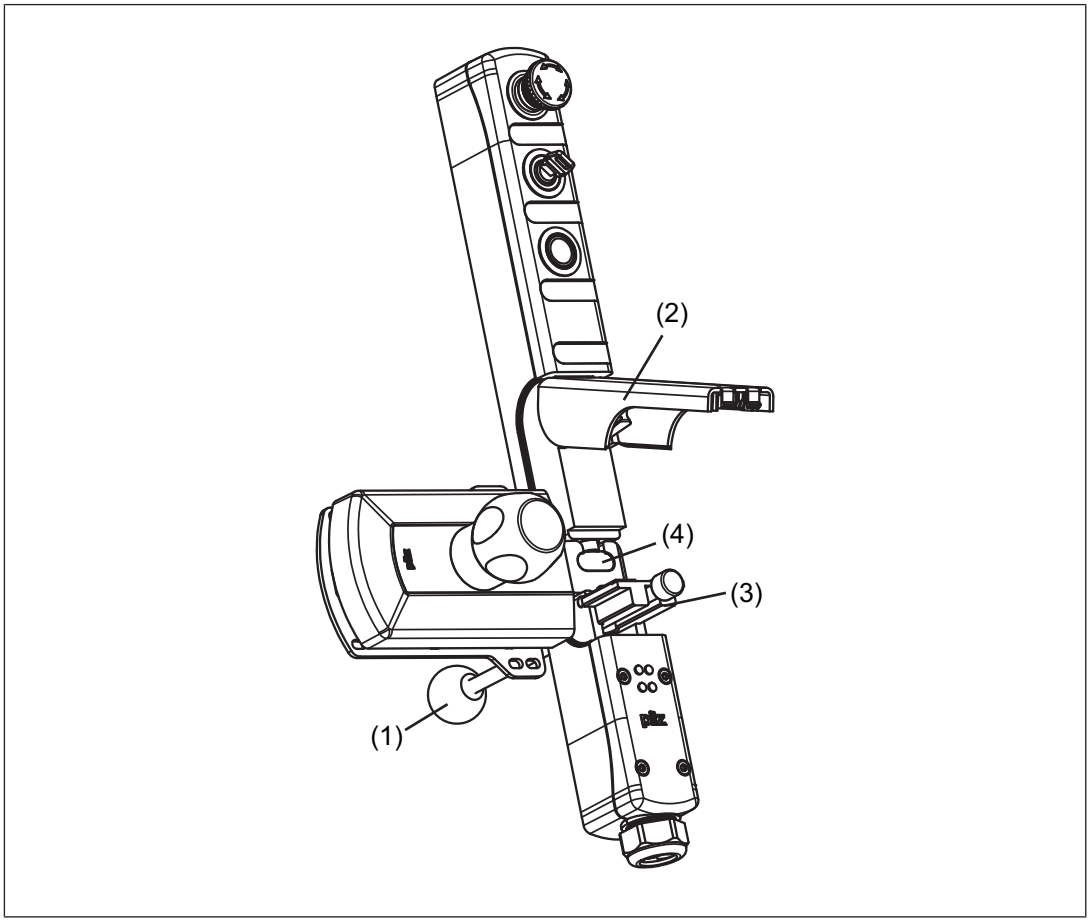
Unlock mode:

The safety gate to the danger zone is unlocked when the hazardous machine is stopped. This enables easier access for cleaning staff once the shift has ended, for example.

- The guard locking element is disengaged from the bolt tongue as soon as there is a high signal at terminals X1-6 and X1-7 or X2-6 and X2-7.

4.2 Escape release

The escape release enables the guard locking to be manually released from within the danger zone.



Mode of operation

Within the danger zone, if the escape release pin (1) is pressed in the direction of the safety gate, the cover on the escape release (2) is removed and the swivel piece (3) folds downwards. The bolt tongue (4) behind the swivel piece is released. The safety gate can be opened immediately, enabling the operator to leave the danger zone.

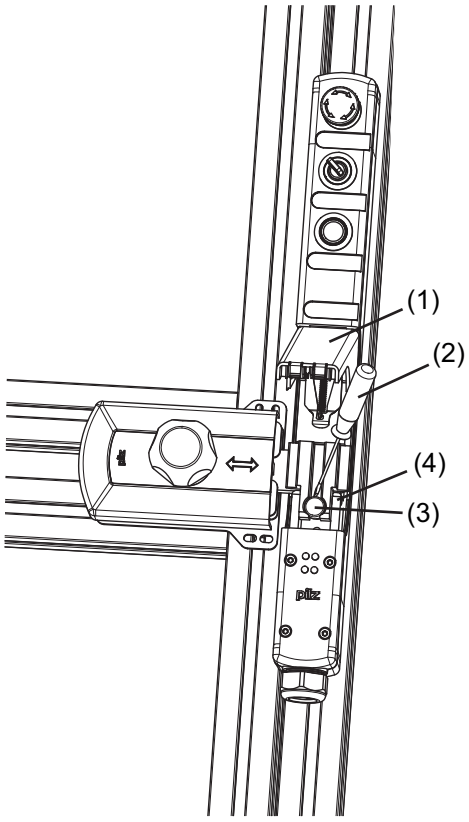
- The escape release pin must only be accessible from the inside of the danger zone.
- The escape release must be regularly inspected and cleaned, as described in the chapter Maintenance [📖 40].

INFORMATION

When the escape or auxiliary release is operated, there is a low signal at the safety outputs X1-3 and X1-4. An error code is issued. The PSENsgate is not ready for operation again until the escape release or auxiliary release has been reset to its unoperated state and the error has been reset.
Please note that the cover of the escape release has to be checked and installed again after operation.

4.3 Auxiliary release

When the plant is powered down, the auxiliary release enables the guard locking device to be released from the access side to the danger zone.



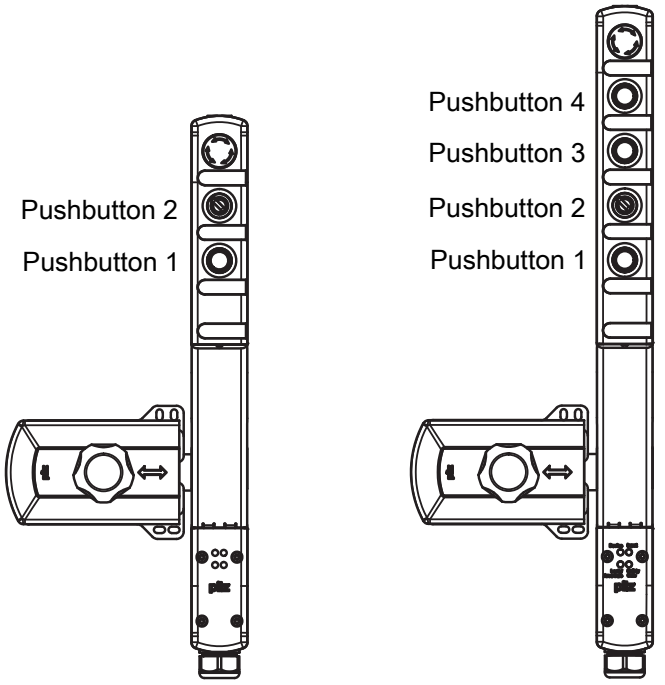
Mode of operation:

Carefully remove the cover on the escape release (1). Use a screwdriver (2) to pull out the escape or auxiliary release pin (3) from the swivel piece (4). The swivel piece folds downwards, the bolt tongue behind the swivel piece is released. The safety gate to the danger zone can be opened.

INFORMATION

When the escape or auxiliary release is operated, there is a low signal at the safety outputs X1-3 and X1-4. An error code is issued. The PSENsgate is not ready for operation again until the escape release or auxiliary release has been reset to its unoperated state and the error has been reset.
Please note that the cover of the escape release has to be checked and installed again after operation.

4.4 Pushbutton



- **Pushbutton 1: Pushbutton for activating the guard locking of the safety gate**

  Pressing the pushbutton for activating the interlock engages the guard locking element into the bolt tongue.

- **Pushbutton 2: Pushbutton for access request and release of the safety gate**

  – Pressing the pushbutton for access request disengages the guard locking element from the bolt tongue when a high signal is present at X1-6 and X1-7 or at X2-6 and X2-7 (solenoid operation).

  – Pressing the pushbutton for access request switches output X1-5 (access request) when a low signal is present at X1-6 and X1-7 or at X2-6 and X2-7 (solenoid operation).

Depending on the design, the device also has:

- **Emergency stop or section stop pushbutton**
- **Pushbutton 3 and pushbutton 4**

  Pushbuttons that can be used depending on the application:

  – Operating a pushbutton switches the pushbutton output

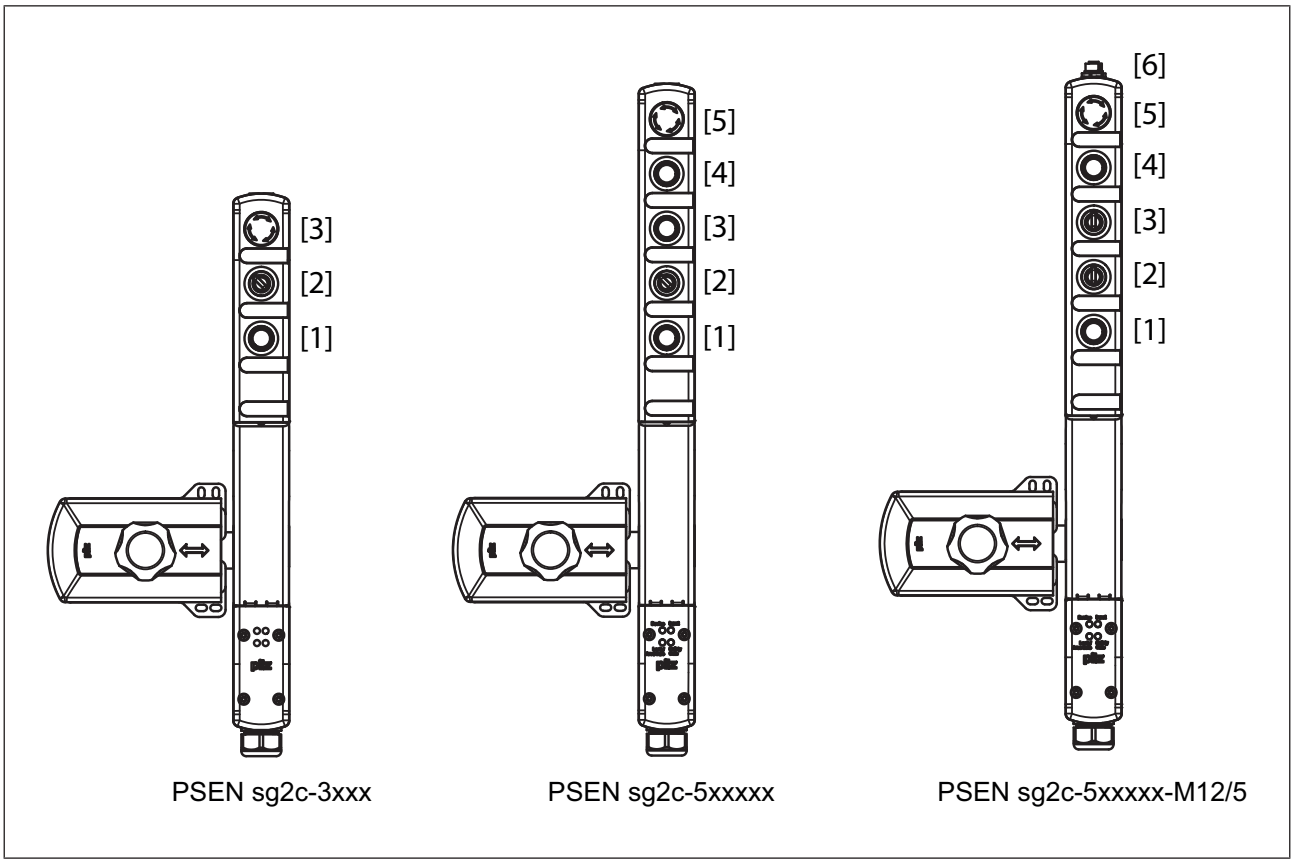
  – The LEDs of the pushbuttons can be operated via the LED inputs.

Further information on the different types of text is can be found in chapter Device types [14].

4.5 Device types

21 different versions are available. They differ in

- number and quality of the pushbuttons
- basic coding of full coding
- M12 connection for enabling switch or no connection



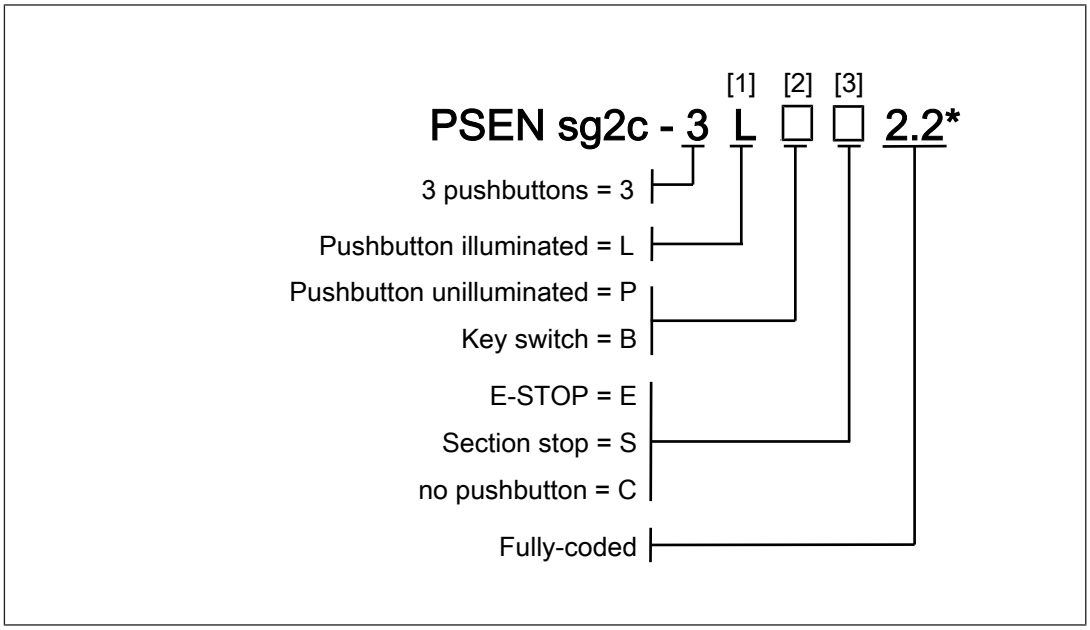
PSEN sg2c-3xxx (3 pushbuttons)

[1] pushbutton 1: Pushbutton for activating the guard locking of the safety gate

[2] pushbutton 2: Pushbutton for access request and release of the safety gate

[3] E-STOP/ or section stop

Name key:



*not included with all versions

Versions:

	Pushbutton 1	Pushbutton 2	E-STOP/ Section stop	Coding
-3LPE	Pushbutton illuminated	Pushbutton unilluminated	E-STOP	coded
-3LBE	Pushbutton illuminated	Key switch	E-STOP	coded
-3LPS	Pushbutton illuminated	Pushbutton unilluminated	Section stop	coded
-3LBS	Pushbutton illuminated	Key switch	Section stop	coded
-3LPC	Pushbutton illuminated	Pushbutton unilluminated	---	coded
-3LBC	Pushbutton illuminated	Key switch	---	coded
-3LPE 2.2	Pushbutton illuminated	Pushbutton unilluminated	E-STOP	fully coded

PSEN sg2c-5-xxxxx and PSEN sg2c-5-xxxxx-M12 (5 pushbuttons):

[1] pushbutton 1: Pushbutton for activating the guard locking of the safety gate

[2] pushbutton 2: Pushbutton for access request and release of the safety gate

[3], [4] pushbuttons 3 - 4: can be used depending on the application

[5] E-STOP/ or section stop

[6] M12 connection for enabling switch

Name key:

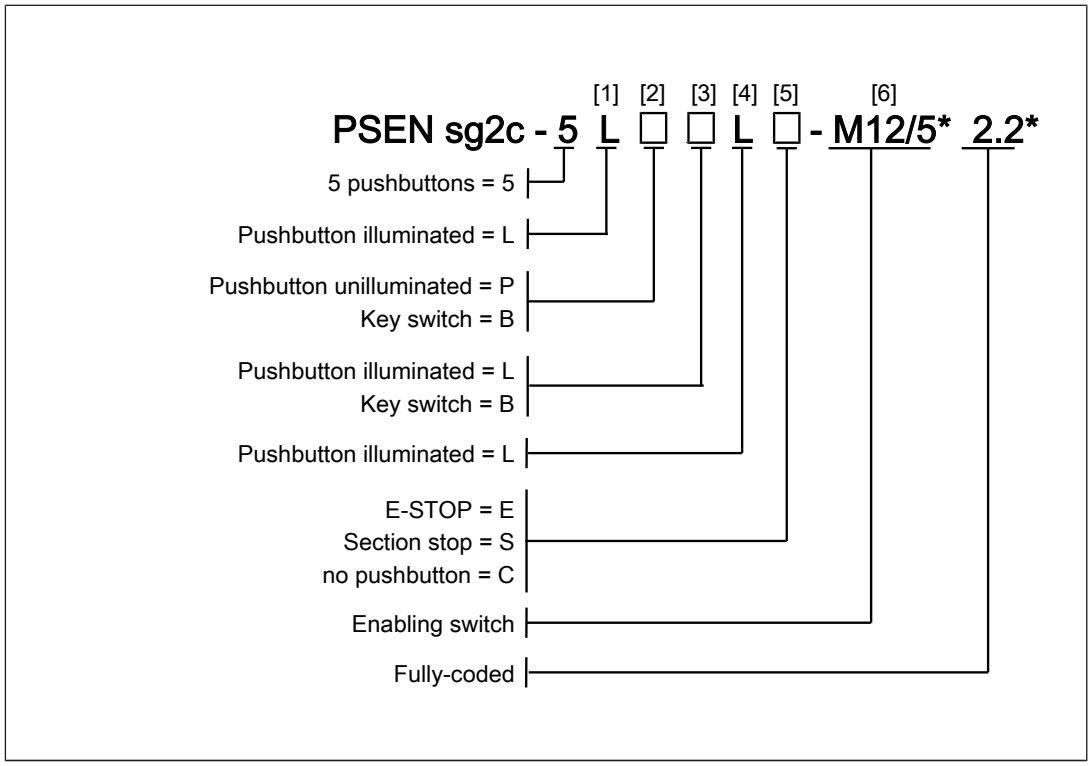


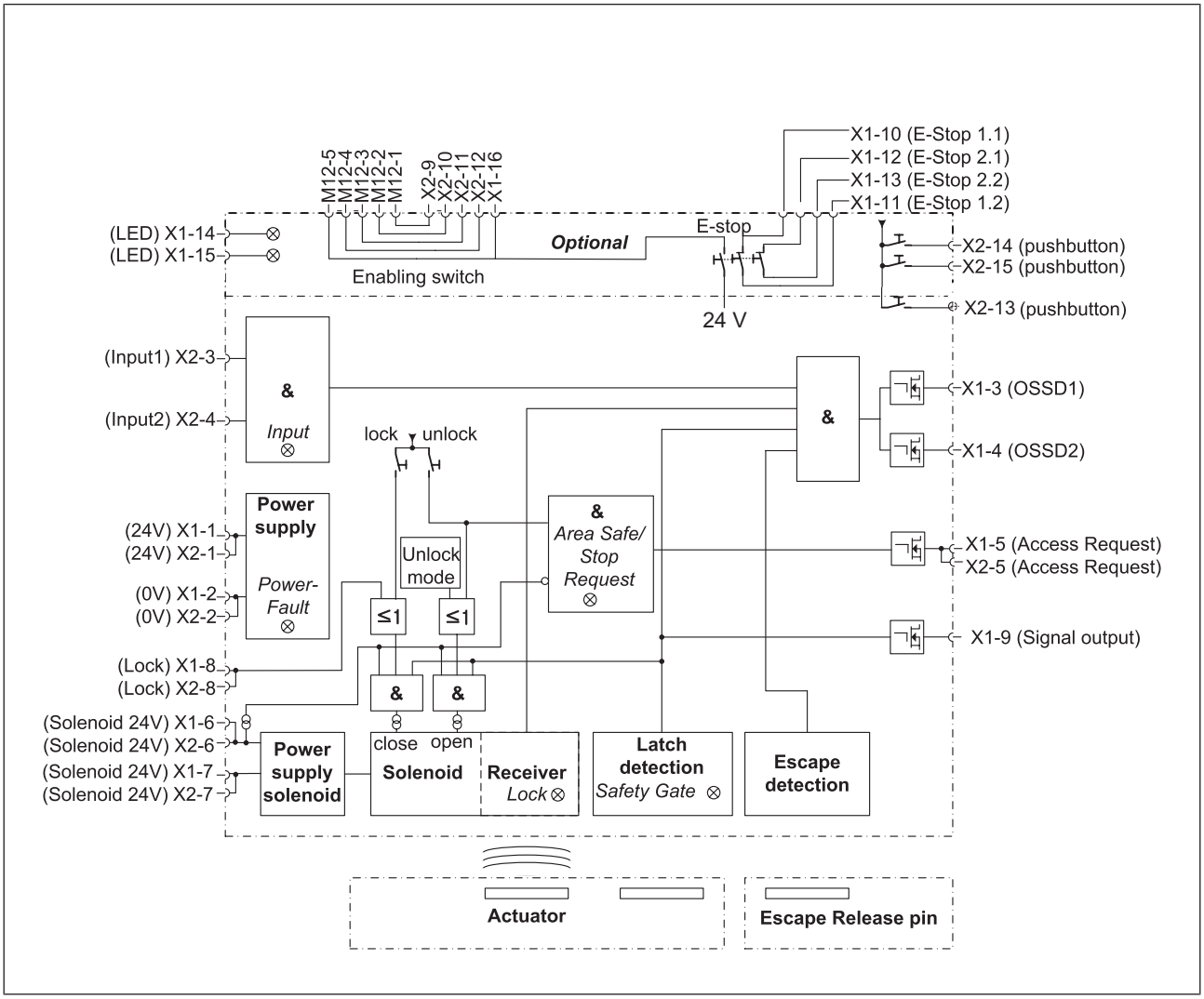
Fig.: *not included with all versions

Versions:

	Pushbutton 1	Pushbutton 2	Pushbutton 3	Pushbutton 4	E-STOP/ Section stop	M12	Coding
-5LPLLE	Pushbutton illuminated	Pushbutton unilluminated	Pushbutton illuminated	Pushbutton illuminated	E-STOP	---	coded
-5LBLLE	Pushbutton illuminated	Key switch	Pushbutton illuminated	Pushbutton illuminated	E-STOP	---	coded
-5LPLLS	Pushbutton illuminated	Pushbutton unilluminated	Pushbutton illuminated	Pushbutton illuminated	Section stop	---	coded

-5LBLLS	Pushbutton illuminated	Key switch	Pushbutton illuminated	Pushbutton illuminated	Section stop	---	coded
-5LPLLC	Pushbutton illuminated	Pushbutton unilluminated	Pushbutton illuminated	Pushbutton illuminated	---	---	coded
-5LBLLC	Pushbutton illuminated	Key switch	Pushbutton illuminated	Pushbutton illuminated	---	---	coded
-5LPKLE-M12/5	Pushbutton illuminated	Pushbutton unilluminated	Key switch	Pushbutton illuminated	E-STOP	Yes	coded
-5LBKLE-M12/5	Pushbutton illuminated	Key switch	Key switch	Pushbutton illuminated	E-STOP	Yes	coded
-5LPKLS-M12/5	Pushbutton illuminated	Pushbutton unilluminated	Key switch	Pushbutton illuminated	Section stop	Yes	coded
-5LBKLS-M12/5	Pushbutton illuminated	Key switch	Key switch	Pushbutton illuminated	Section stop	Yes	coded
-5LPKLC-M12/5	Pushbutton illuminated	Pushbutton unilluminated	Key switch	Pushbutton illuminated	---	---	coded
-5LBKLC-M12/5	Pushbutton illuminated	Key switch	Key switch	Pushbutton illuminated	---	Yes	coded
-5LPLLE 2.2	Pushbutton illuminated	Pushbutton unilluminated	Pushbutton illuminated	Pushbutton illuminated	E-STOP	---	fully coded
-5LPKLE-M12/5 2.2	Pushbutton illuminated	Pushbutton unilluminated	Key switch	Pushbutton illuminated	E-STOP	Yes	fully coded

4.6 Block diagram



5 Wiring

5.1 Notes on cable run

The maximum cable run depends on the voltage drop in the supply voltage conductors for solenoid operation. The level of voltage drop is determined by the

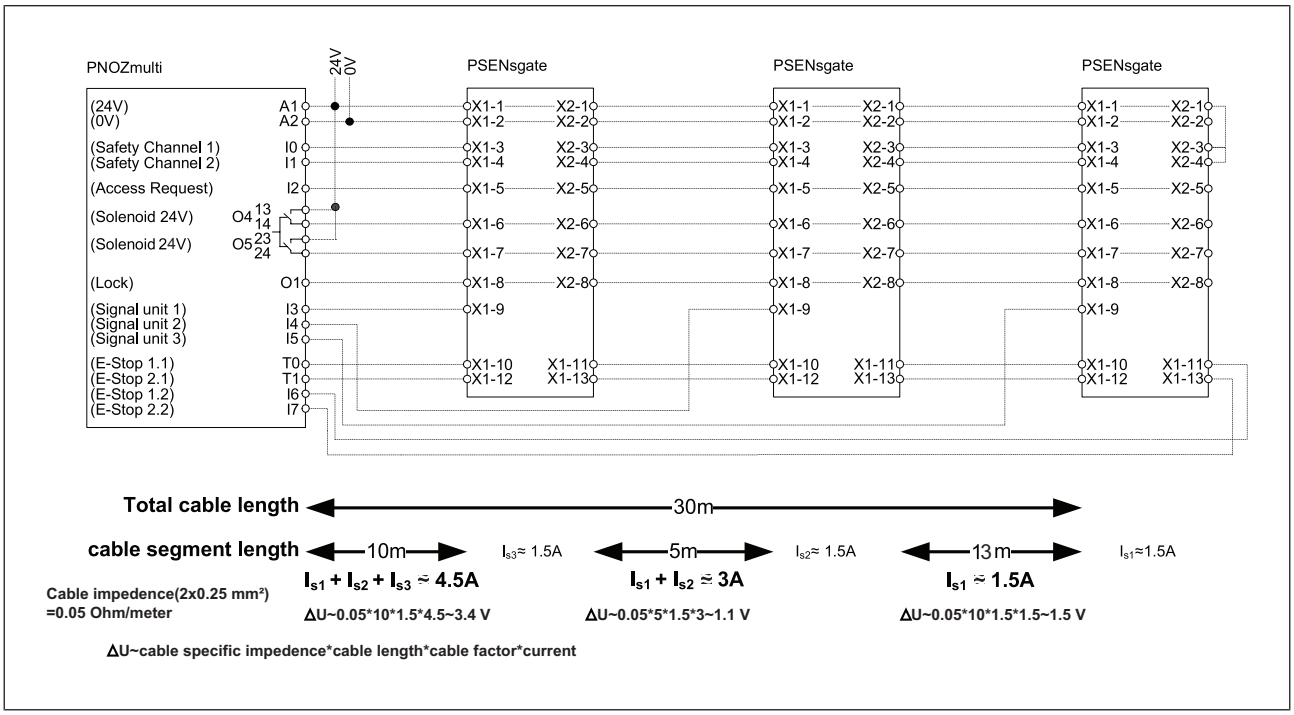
- cable resistance of the cables
- solenoid current of the solenoid

If the voltage drop in the supply voltage conductors becomes too high, the voltage for solenoid operation can permanently be set to the upper tolerance range (see Technical details).

The max. conductor cross section is 10 mm.

Example:

- Connecting 3 safety switches in series
- Total cable run: 25 m
- Conductor cross section: 0.5 mm^2
- Solenoid current per solenoid: 1.5 A
- Voltage for solenoid operation: 24 V



The voltage drop over all the safety switches is 6 V. This means, there are only 18.0 V at the terminals of the last solenoid. The solenoid is no longer operated reliably. If the voltage for operating the solenoid is increased by the max. permitted tolerance to 26.4, there are still 20.4 V at the terminals of the last solenoid. The solenoid switches reliably.

5.2 Recommended cable cross sections

The values in the table are valid for a series connection with max. 3 sensors and a voltage for solenoid operation of 24 V. The solenoid current is 1.5 A per solenoid.

For differing values the conductor cross section must be calculated.

Total cable run [m]	1 safety switches	2 safety switches	3 safety switches
5	0.25 mm², AWG24	0.25 mm², AWG24	0.5 mm², AWG21
10	0.25 mm², AWG24	0.25 mm², AWG24	0.5 mm², AWG21
15	0.25 mm², AWG24	0.25 mm², AWG24	0.5 mm², AWG21
20	0.25 mm², AWG24	0.5 mm², AWG21	x
25	0.25 mm², AWG24	0.5 mm², AWG21	x
30	0.25 mm², AWG24	x	x
40	0.5 mm², AWG21	x	x
50	0.5 mm², AWG21	x	x
60	0.5 mm², AWG21	x	x
70	x	x	x

Cable runs marked with an x are not recommended.

For operating several safety switches with greater cable runs, the cables for solenoid operation (terminals X1-6 and X1-7) have to be carried individually, or several cables have to be used. If more than three safety switches are connected in series or cable runs over 60 m are required, please contact Pilz.

The permitted conductor cross section is at least 0.25 mm². To have a higher conductor cross section, two cable cores can be inserted into a terminal. This adds together the conductor cross sections and halves the cable resistances. In this case, use a terminal lug! The signals important for cable resistance are:

- 24 V (X1-1 or X2-1)
- 0 V (X1-2 or X2-2)
- the two solenoid operation signals (X1-6 and X1-7 or X2-6 and X2-7).

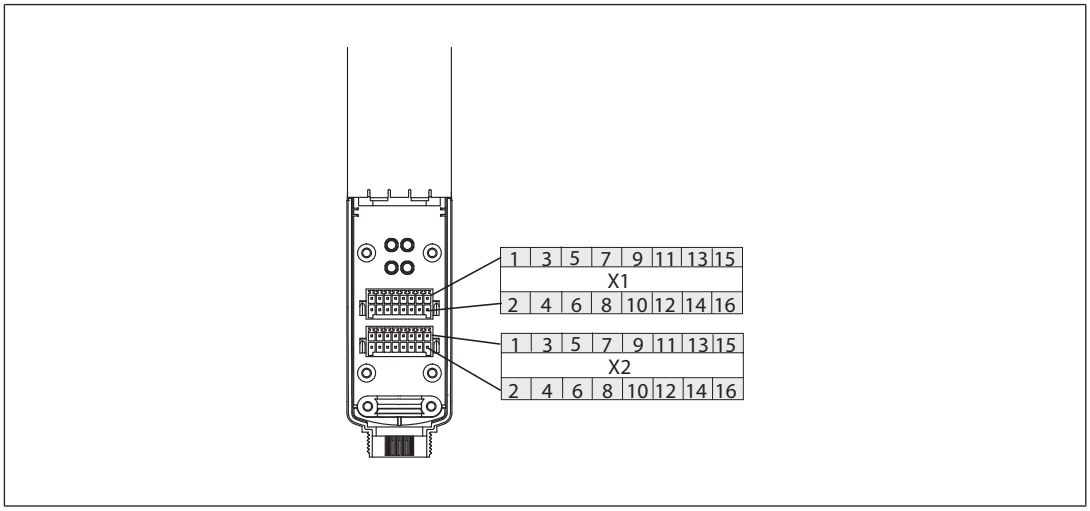
5.3 General wiring guidelines

Please note:

- All metallic surfaces on the safety switch are connected to 0 V via a resistor (100 kOhm) for functional earthing.
- UL requirements:
  - Use copper wiring with a temperature stability of 75 □.
  - Use an LVLC supply (LVLC: limited voltage, limited current).
  - Use multicore cable with a cable diameter of 6 ... 10 mm.
- The permitted conductor cross section for the connectors is 0.25 - 1.0 mm², 23 - 17 AWG.

- When calculating the max. cable run, remember to take into account the chapter "Notes on cable run".

5.4 Terminal configuration



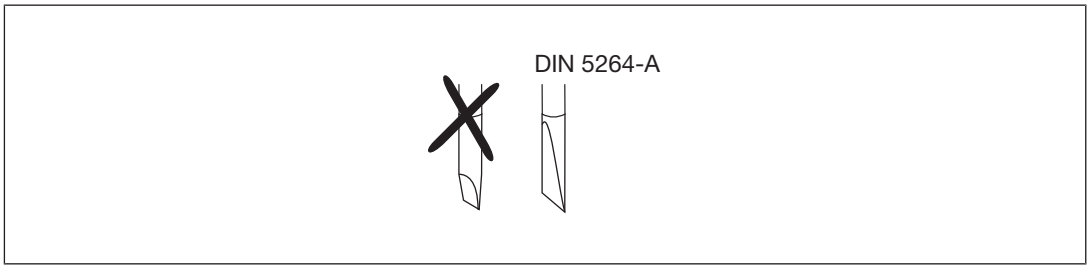
Terminal	PSEN sg2c-3xxx	PSEN sg2c-5xxxx	PSEN sg2c-5xxxx-M12/5
X1-1 - X2-1 linked internally	+24 UB	+24 UB	+24 UB
X1-5 - X2-5 linked internally	0 V	0 V	0 V
X1-3	Safety output channel 1	Safety output channel 1	Safety output channel 1
X1-4	Safety output channel 2	Safety output channel 2	Safety output channel 2
X1-5 - X2-5 linked internally	Output pushbutton for access request [2]	Output pushbutton for access request [2]	Output pushbutton for access request [2]
X1-6 - X2-6 linked internally	Solenoid operation (24 V)	Solenoid operation (24 V)	Solenoid operation (24 V)
X1-7 - X2-7 linked internally	Solenoid operation (24 V)	Solenoid operation (24 V)	Solenoid operation (24 V)
X1-8 - X2-8 linked internally	Input for activating the guard locking of the safety gate	Input for activating the guard locking of the safety gate	Input for activating the guard locking of the safety gate
X1-9	Signal output for state of the bolt tongue	Signal output for state of the bolt tongue	Signal output for state of the bolt tongue
X1-10	Emergency stop 1.1	Emergency stop 1.1	Emergency stop 1.1
X1-11	Emergency stop 1.2	Emergency stop 1.2	Emergency stop 1.2
X1-12	Emergency stop 2.1	Emergency stop 2.1	Emergency stop 2.1
X1-13	Emergency stop 2.2	Emergency stop 2.2	Emergency stop 2.2
X1-14	n.c	Pushbutton 3 LED3	n.c
X1-15	n.c	Pushbutton 4 LED4	Pushbutton 4 LED4

Terminal	PSEN sg2c-3xxx	PSEN sg2c-5xxxx	PSEN sg2c-5xxxx-M12/5
X1-16	Signal output E-STOP	Signal output E-STOP	Enabling switch Pin5 and signal output E-STOP
X2-3	Input, channel 1	Input, channel 1	Input, channel 1
X2-4	Input, channel 2	Input, channel 2	Input, channel 2
X2-9	n.c	n.c	Enabling switch M12 Pin 1 (optional)
X2-10	n.c	n.c	Enabling switch M12 Pin 2 (optional)
X2-11	n.c	n.c	Enabling switch M12 Pin 3 (optional)
X2-12	n.c	n.c	Enabling switch M12 Pin 4 (optional)
X2-13	n.c	Pushbutton 3 channel 1	Pushbutton 3 channel 1
X2-14	n.c	n.c	Pushbutton 3 channel 2
X2-15	n.c	Pushbutton 4 channel 1	Pushbutton 4 channel 1
X2-16	n.c	n.c	n.c

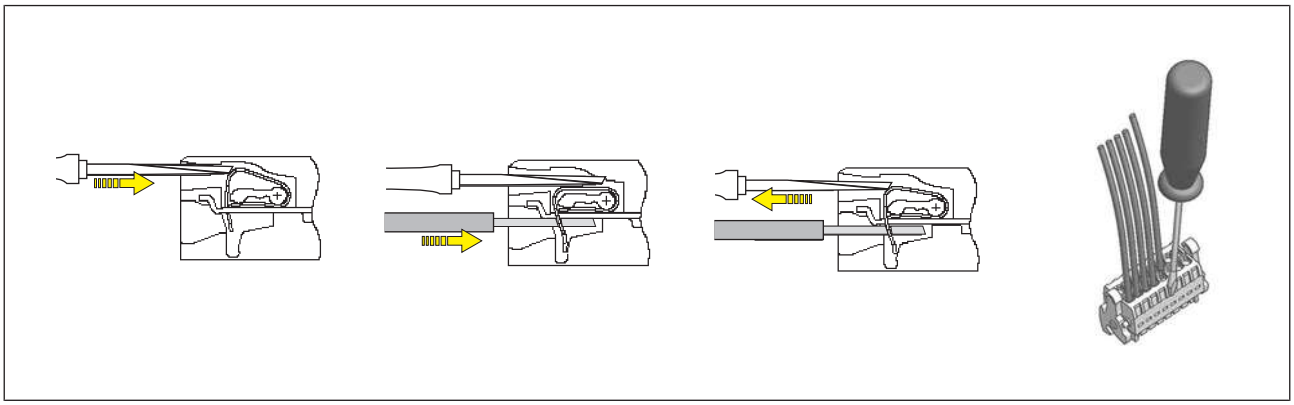
5.5 Wiring the connection terminals

Connecting the cables:

- Use a flat blade screwdriver (DIN 5264-A)!



- Strip the wire back 7 mm.
- Insert the screwdriver into the square hole.
- Insert the stripped wire into the square hole as far as it will go.
- Pull out the screwdriver.
- Check that the cable is firmly seated.



5.6 E-STOP pushbutton connection

CAUTION!

With versions with integral E-STOP pushbutton, the E-STOP pushbutton (terminals X1-10 to X1-13) must be integrated into the plant/machine's E-STOP concept in accordance with EN/IEC 60204.

5.7 Enabling switch connection

Details of the pin assignment of the female 5-pin M12 connector for the enabling switch can be found in the block diagram and the terminal configuration.

We recommend you use the PIT en1.0p-5m-s (order no. 401 110) as the enabling switch.

5.8 EMC requirements

Please note:

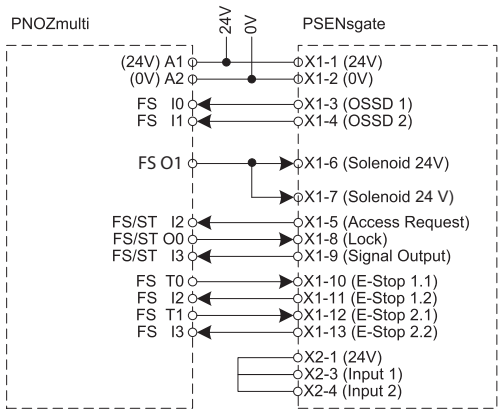
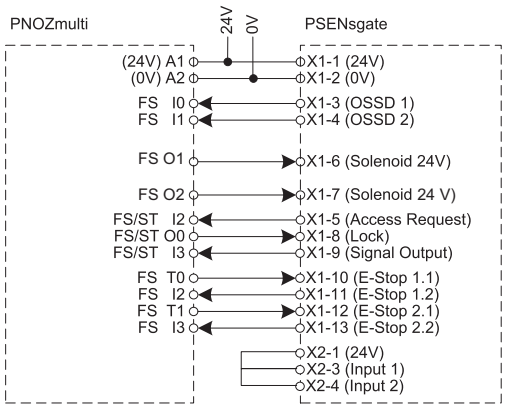
- The power supply must meet the regulations for extra low voltages with protective separation (SELV, PELV).
- The inputs and outputs of the safety switch must have a protective separation to voltages over 60 V AC.
- The supply voltage has to be at the safety switch terminals within the indicated tolerances (see Technical details).
- the supply voltage of the safety switch must be secured with a fuse of type quick between 2 A and 10 A.
- The electrical installation must be performed in accordance with IEC/EN 60204.
- The assured release distance (S_{aO}) can be influenced by external influences (e.g.: temperature, dirt, EMC) (see Technical details).

INFORMATION

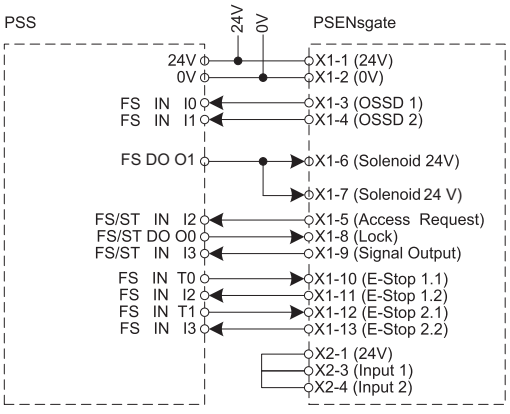
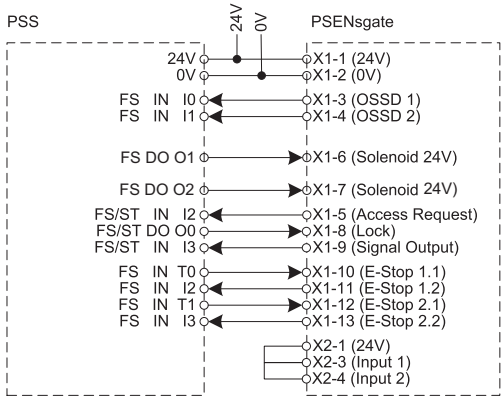
Safety relays with universal power supply or in AC device versions have internal potential isolation and are not suitable as evaluation devices. Only safety relays with a 24 V DC supply voltage are suitable.

5.9 Connection to evaluation devices

5.9.1 Connection examples PNOZmulti

up to PL c/SIL CL 2	PL e/SIL CL 3
	

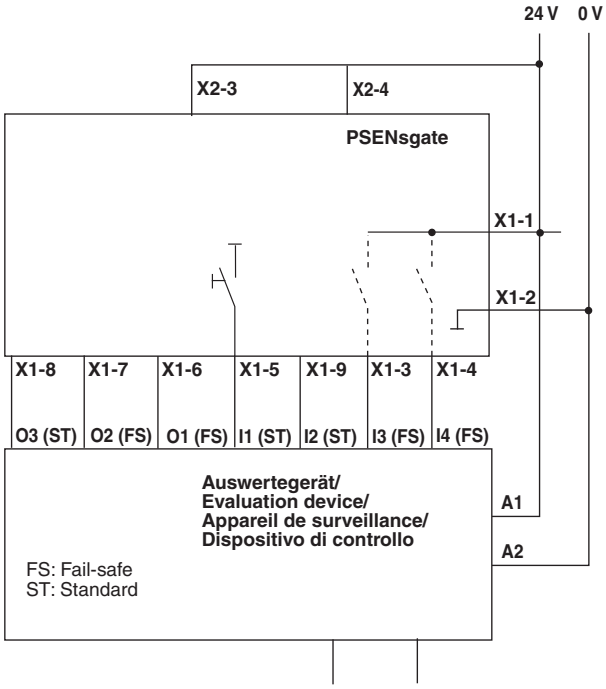
5.9.2 Connection examples PSS

up to PL c/SIL CL 2	PL e/SIL CL 3
	

5.10 Single connection

INFORMATION

When the solenoid is operated in single-channel, only a safety level of PL d (Cat. 2)/SIL CL 2 can be achieved.
To achieve PL e (Cat. 4/SIL CL 3, the solenoid must have dual-channel operation, e. g. via safe pulsed semiconductor outputs with high current load capacity (0.9 A for 50 ms).



5.11 Series connection

CAUTION!

Extension of delay-on de-energisation

When several (n) devices are connected in series, the delay-on de-energisation time adds with the number of interconnected safety switches.
The may. delay-on de-energisation is composed of
max. delay-on de-energisation actuator
+ (n-1) x max. delay-on de-energisation of the inputs
+ delay-on de-energisation of the evaluation device

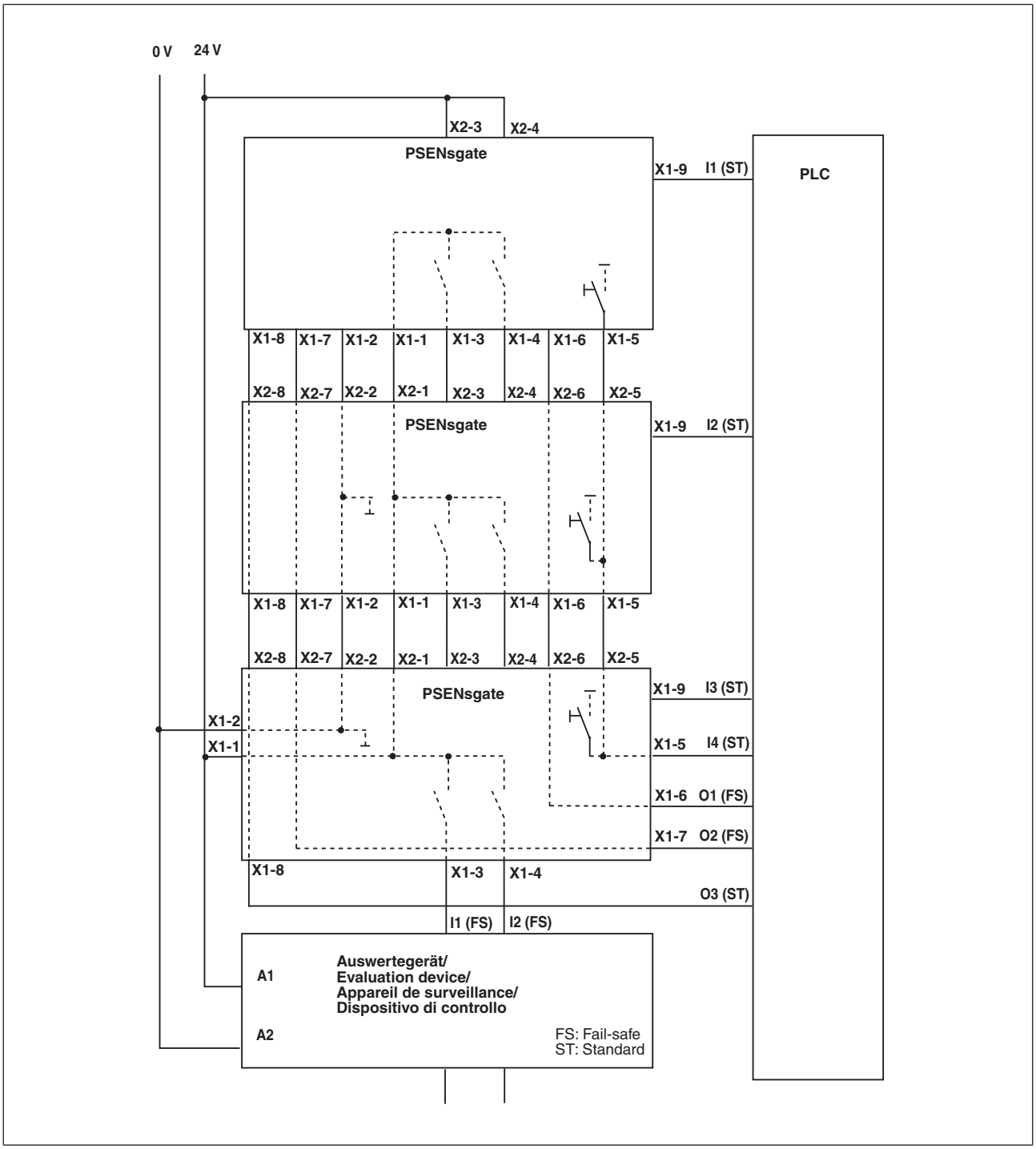


INFORMATION

When the solenoid is operated in single-channel, only a safety level of PL d (Cat. 2) / SIL CL 2 can be achieved.
To achieve PL e (Cat. 4)/SIL CL 3, the solenoid must have dual-channel operation.

For applications with single-channel operation of the solenoid (up to PL d/SIL CL 2) a safe output with 2 A or a momentarily overloadable safe output (1.8 A for 50 ms) can be used.

The device can be switched in series with all safety switches from Pilz. In the connection example the guard locking of safety switches is activated / deactivated via access request (X1-5). The maximum switching current of the solenoid is present only while switching the solenoids for about 50 ms. The solenoids of the safety switches are switched with a low time offset of ca. 1 s, to avoid power surges at the evaluation device.


0 V
24 V
X2-3
X2-4
PSENsgate
X1-9 I1 (ST)
PLC
X1-8 X1-7 X1-2 X1-1 X1-3 X1-4 X1-6 X1-5
X2-8 X2-7 X2-2 X2-1 X2-3 X2-4 X2-6 X2-5
PSENsgate
X1-9 I2 (ST)
X1-8 X1-7 X1-2 X1-1 X1-3 X1-4 X1-6 X1-5
X2-8 X2-7 X2-2 X2-1 X2-3 X2-4 X2-6 X2-5
PSENsgate
X1-9 I3 (ST)
X1-2
X1-1
X1-5 I4 (ST)
X1-6 O1 (FS)
X1-7 O2 (FS)
X1-8
X1-3
X1-4
O3 (ST)
I1 (FS)
I2 (FS)
A1
Auswertegerät/
Evaluation device/
Appareil de surveillance/
Dispositivo di controllo
A2
FS: Fail-safe
ST: Standard

6 Installation

- When installing make sure you comply with the requirements of DIN EN 1088. and EN ISO 14119.
- The safety switch and handle unit should be installed opposite each other in parallel.
- Safety switch and handle unit should be secured only with socket head cap screws M5 - DIN EN ISO 4762.



NOTICE

It must not be possible to operate or remove the handle unit from inside the danger zone. Protect the handle unit from access, e.g. by covers on the hazard side of the door.



INFORMATION

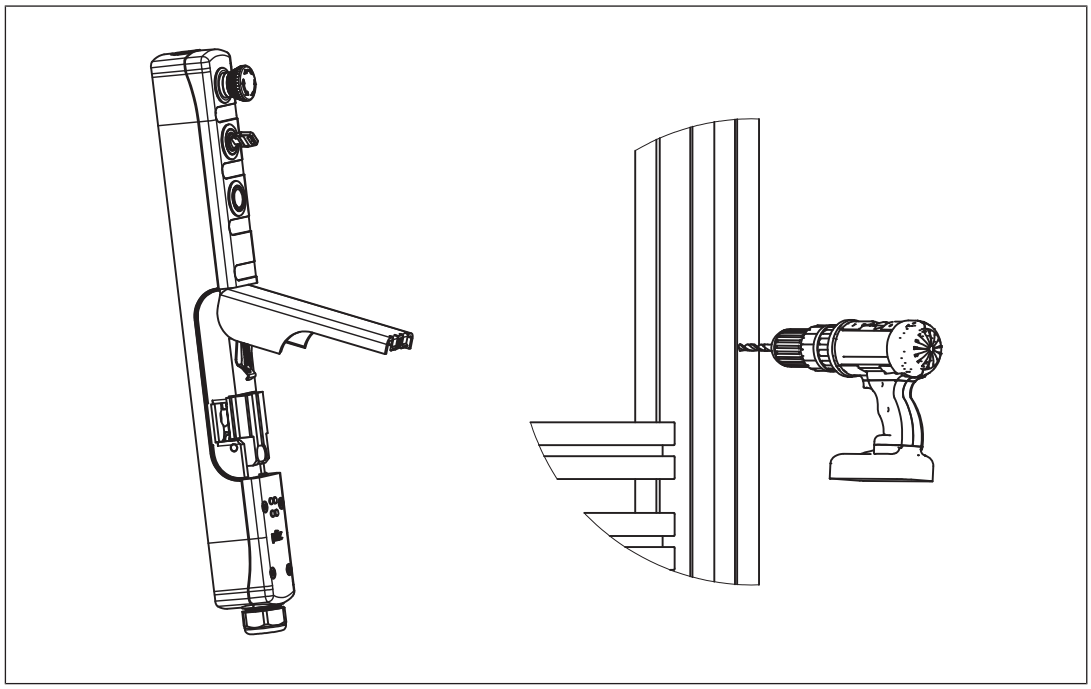
The handle unit should be protected from unauthorised removal and from contamination.

Safety switch and handle unit

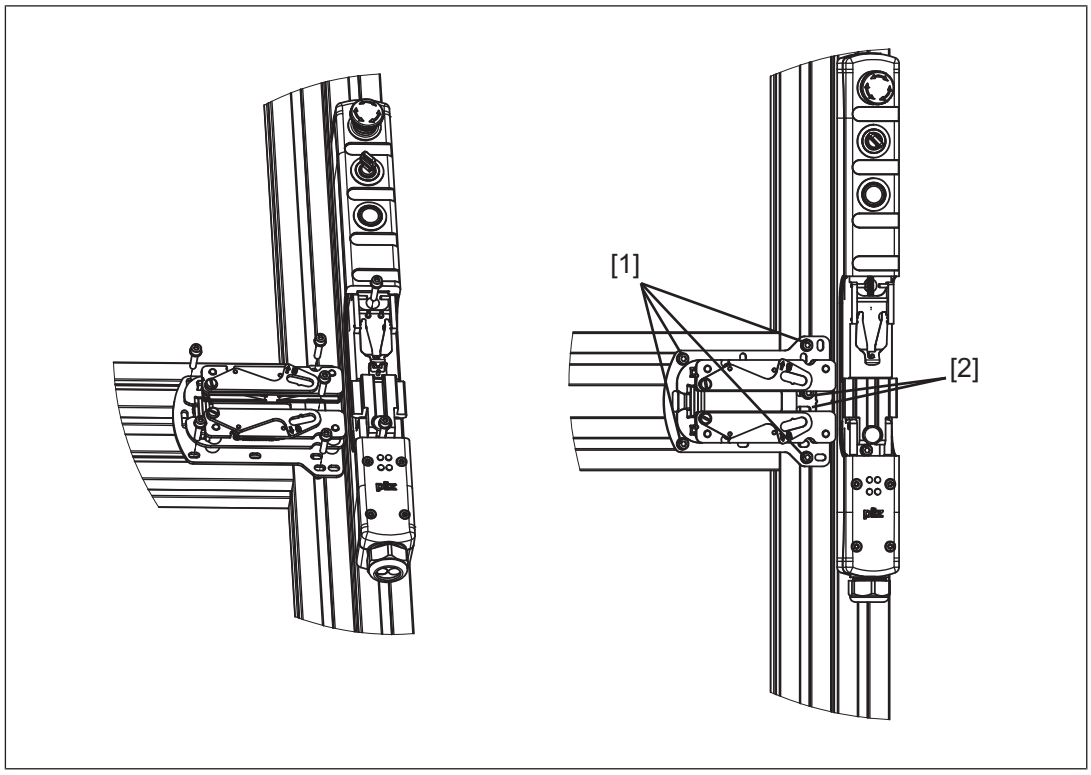
- Should not be exposed to heavy shock or vibration
- Should not be used as a limit stop

6.1 Install at profile

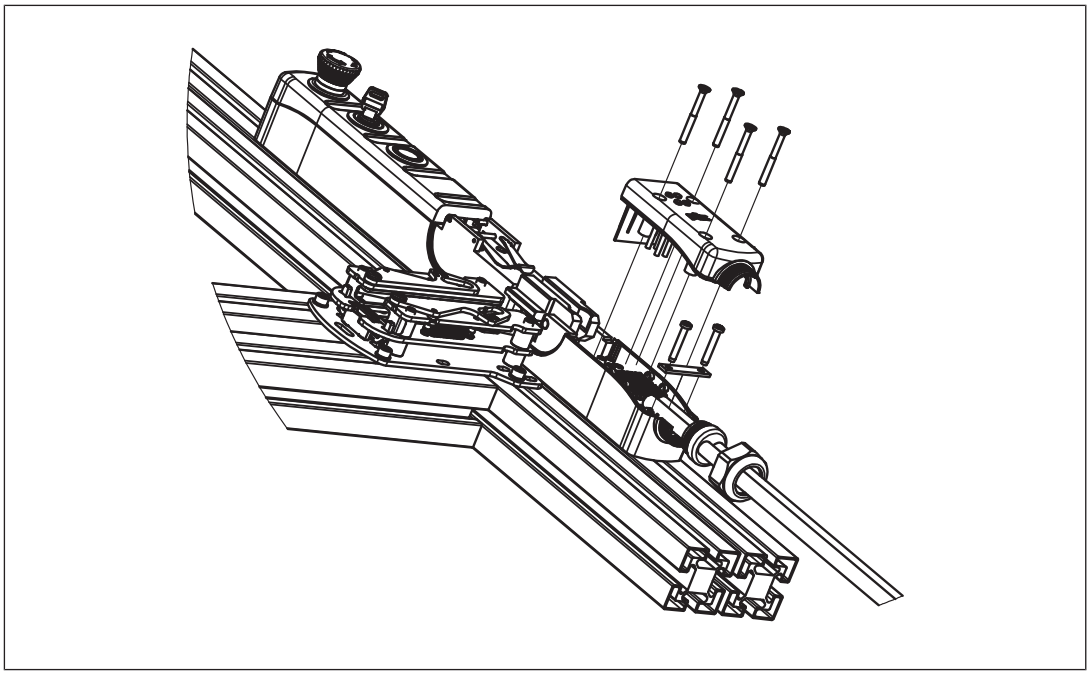
- Open the escape cover in the direction of opening and remove it.
- Prepare hole 9 mm for the escape release and attach profile nuts to the aluminium profile (see also Dimensions for the drill holes [35]).
  The escape release does not require a drill hole.



- Align actuator guide plate and safety switch. Please note the distance between the handle unit and the safety switch (see chapter Adjustment [39]).
- Fix actuator guide plate and safety switch with M5 - DIN EN ISO 4762 - socket head cap screws (hexagon socket, e.g.: Bossard: BN3 (without shaft), galvanised blue, torque setting MA = 5 Nm). Use washer M5 - DIN125A (e.g.: Bossard: BN 715, galvanised blue, dimension: 10 x 5.3 x 1) for this.
  The fixing screws on the safety switch are located under the cover of the escape release. Use an appropriate screw adhesive (e.g. Loctite 2700) to protect the socket head cap screws from working loose.
  When using only the unprotected screws [1] that can be reached at the side for installing the actuator guide plate, one-way screws have to be used for manipulation protection. When using the screws that are protected against manipulation under the bolt tongue [2], this is not necessary.



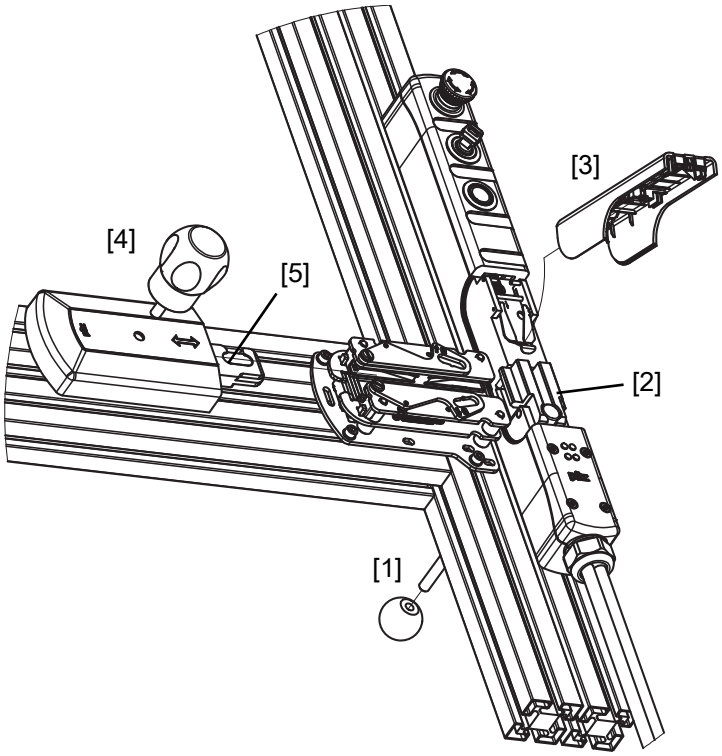
- Unscrew the pressure screw from the housing and remove the rubber seal.
- Thread the cable through the correctly oriented pressure screw and the rubber seal, remove the blind insert if necessary.
- Remove the countersunk screws at the housing cover for the connection terminals and slowly remove the housing cover. In doing so, the spring mechanism moves the cover of the escape release upwards.
- Unscrew the plate of the strain relief.
- Connect and insert connection terminals.
- Position cable and screw on the strain relief plate (torque setting 0.9 Nm (8 in-lbs)).
- Fix housing cover with screws (torque setting 1.7 +/- 0.1 Nm (15 in-lbs)).
- Move the rubber seal along the cables and position it in the housing.
- Screw pressure screw on the thread.



- Insert the escape or auxiliary release pin [1] into the safety switch and push it right to the back. The swivel piece [2] must be maintained in a vertical position, safe from the escape or auxiliary release pin. Screw the ball head on to the escape release pin. Check the escape release for ease of movement. Fold down the cover on the escape release and lock into position.
- Screw the ball handle [4] into the handle unit, lock the bolt tongue of the handle unit [5] into position in the actuator guide plate.

INFORMATION

If the escape or auxiliary release pin is not inserted into the swivel piece correctly, commissioning of the PSENsgate will be aborted and an error code will be issued.

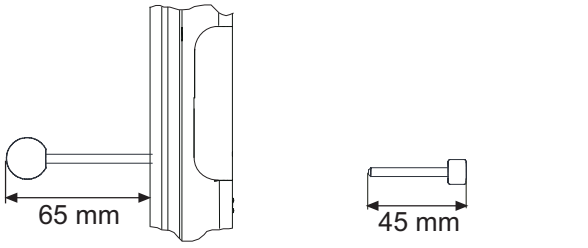


Shorten the escape release pin

The escape release pin can be shortened, if required, so that it does not extend too much into the danger zone.

NOTICE

Inside the danger zone, the escape release pin must protrude at least 65 mm from the profile. After installation, the escape release must be checked for proper operation. When shortening the escape release pin, the material of the escape release must not exceed a temperature of 100 °C



Pin for escape release with ball handle

Pin for auxiliary release

If the escape release is not to be used, the escape release pin can be shortened to a length of 45 mm and then be used for the auxiliary release. The auxiliary release pin is also available as an accessory (order no. 570 771).

NOTICE

Please note that the escape release pin must not be shorter than 45 mm, to guarantee the full holding force.

6.2 Initial installation safety switch and handle unit

- Check whether the present bolt tongue is correctly oriented at the handle unit. Standard is right-hand door hinge at delivery (leave of the door opens to the right).
- Coat the thread of the ball handle with screw adhesive (e.g. Loctite 2700) and screw firmly together with the handle unit by hand.
- Install bolt tongue with handle unit:
  - Position the screwdriver in the slots of the limit stop mechanism provided (see "Unlock bolt").
  - Press screwdriver towards the base plate to release the spring-loaded limit stop mechanism.
  - Engage bolt tongue with handle unit in the actuator guide.
  - Ensure by moving backwards and forwards towards the limit stop that the handle unit cannot be removed from the actuator guide.

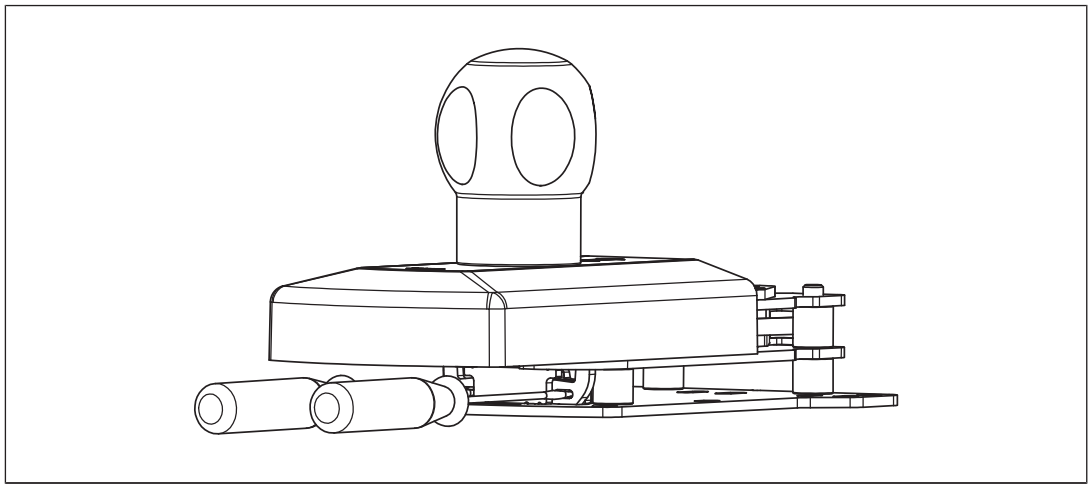


Fig.: Unlock bolt

6.3 Second installation of safety switch and handle unit / upgrade for left-hinged gates

- Uninstall safety switch from the installation site.
- Uninstall handle unit from the gate. To do this, position the screwdriver in the slots of the limit stop mechanism provided (see graphic " Unlock bolt".)
- Press screwdriver towards the base plate to release the spring-loaded limit stop mechanism.
- Disengage bolt tongue with handle unit in the actuator guide.
- Remove exposed fixing screws.
- Unscrew ball handle from the handle unit.
- Remove the cover of the handle unit from the bolt tongue (2 countersunk screws).
- Take limit stop from the bolt tongue and insert it from the other side into the location hole.
- Turn bolt tongue around its longitudinal axis and screw together with the cover of the handle unit.
- Perform work steps from chapter Initial installation safety switch and handle unit [33].

6.4 Inscription of buttons

Press the colour covers supplied with the device into the pushbuttons in accordance with the required function. The colour covers lock into position on the pushbuttons.

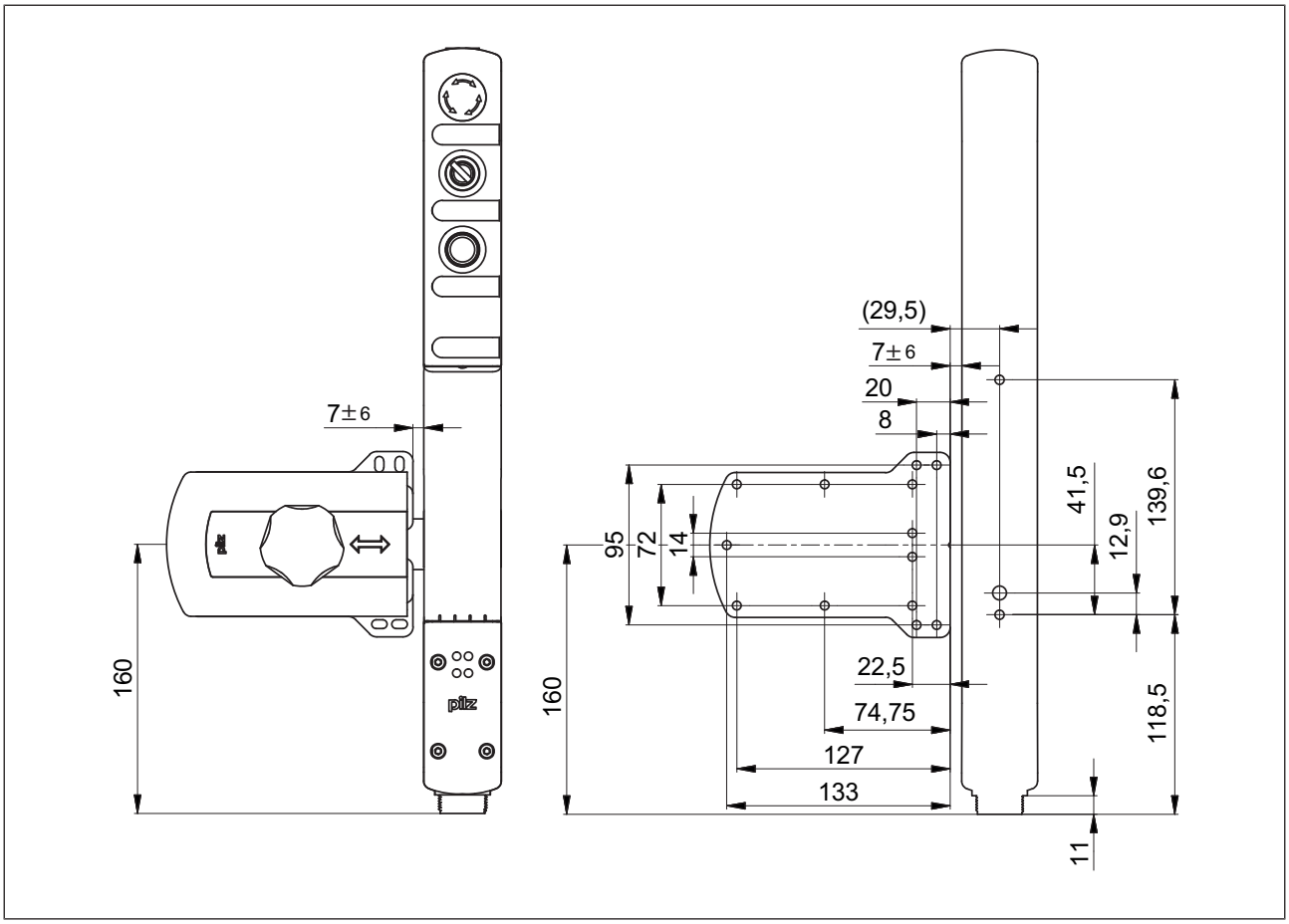
NOTICE

The safety switch may only be operated with colour covers correctly locked into position. Once the colour covers have locked into position, they can no longer be removed.

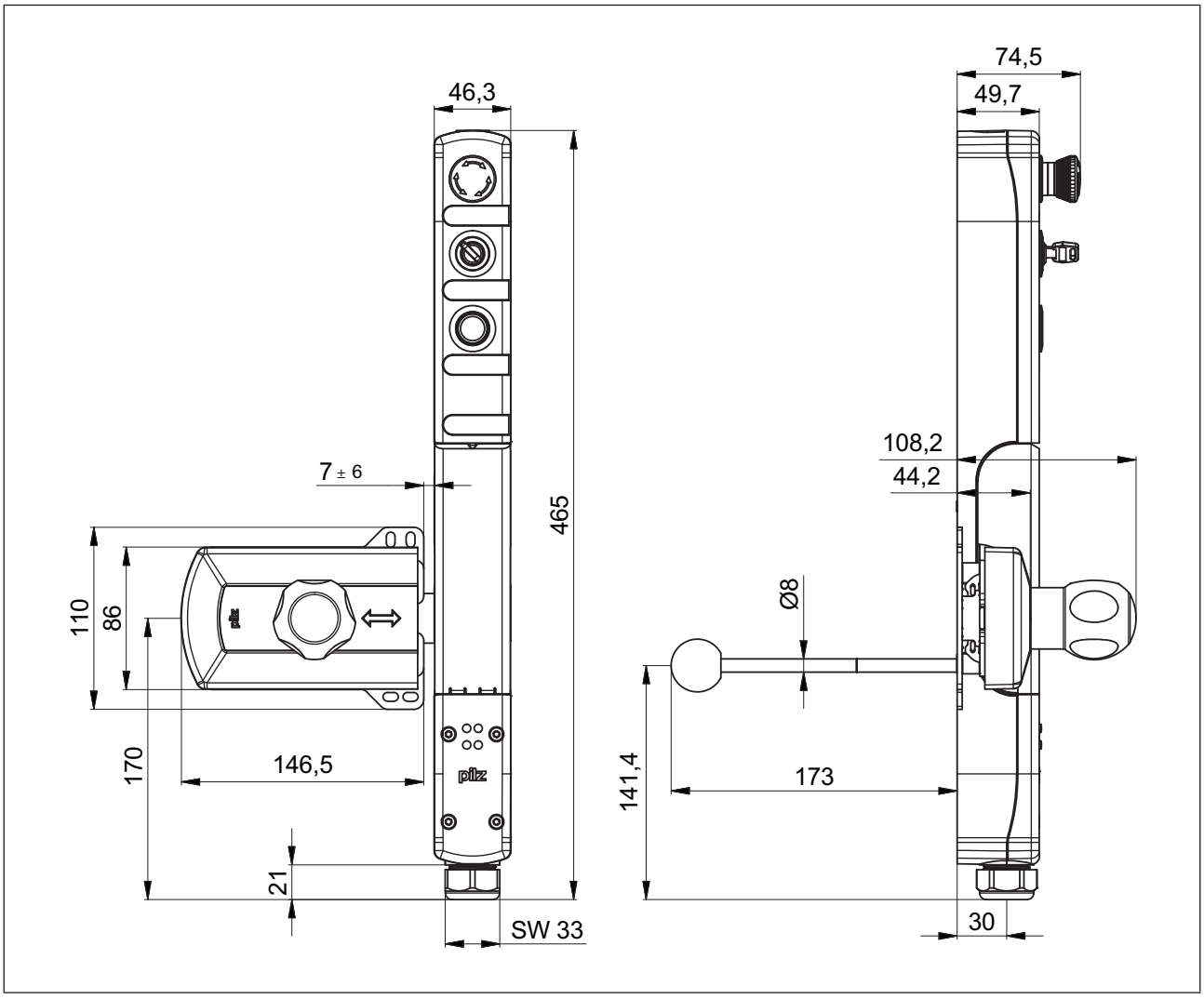
The fields below the pushbuttons can be used for inscribing the pushbuttons. The pushbuttons can be written with a lettering device for 12 mm lettering band or with 32 x 10 mm labels (e.g. AVERY(R) article number: 3320).

6.5 Dimensions in mm

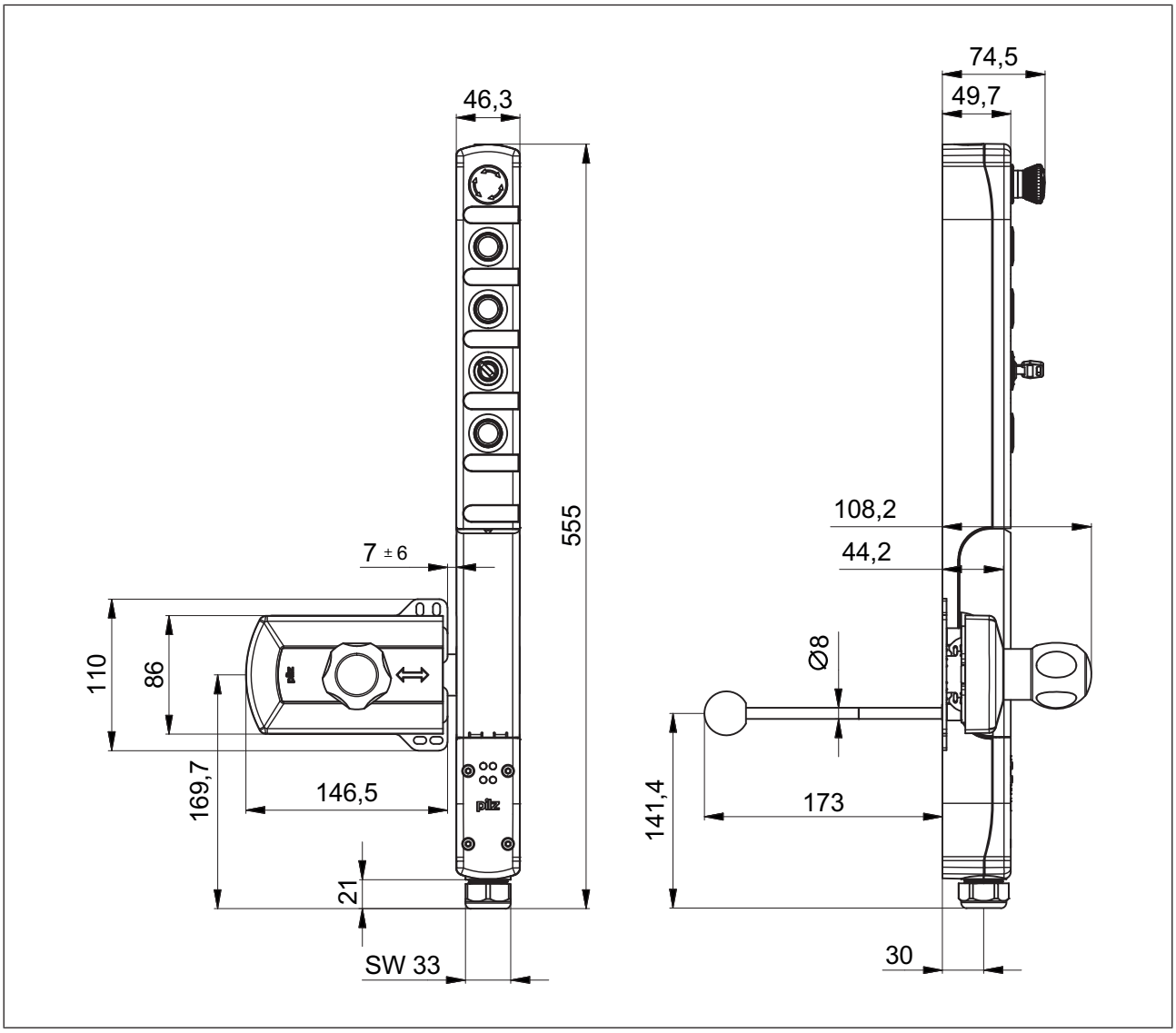
6.5.1 Drill holes



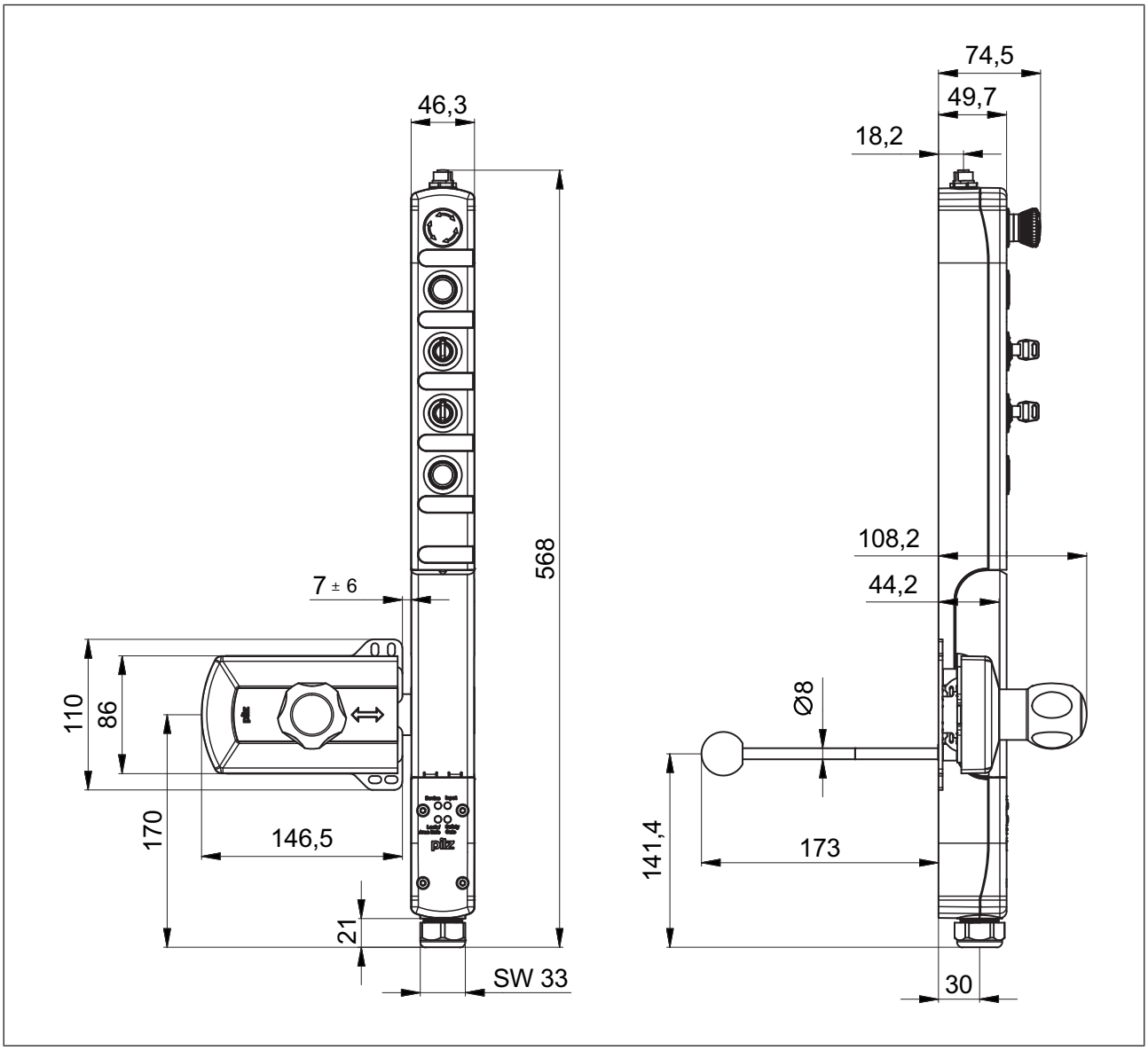
6.5.2 PSEN sg2c-3xxx



6.5.3 PSEN sg2c-5xxxxx



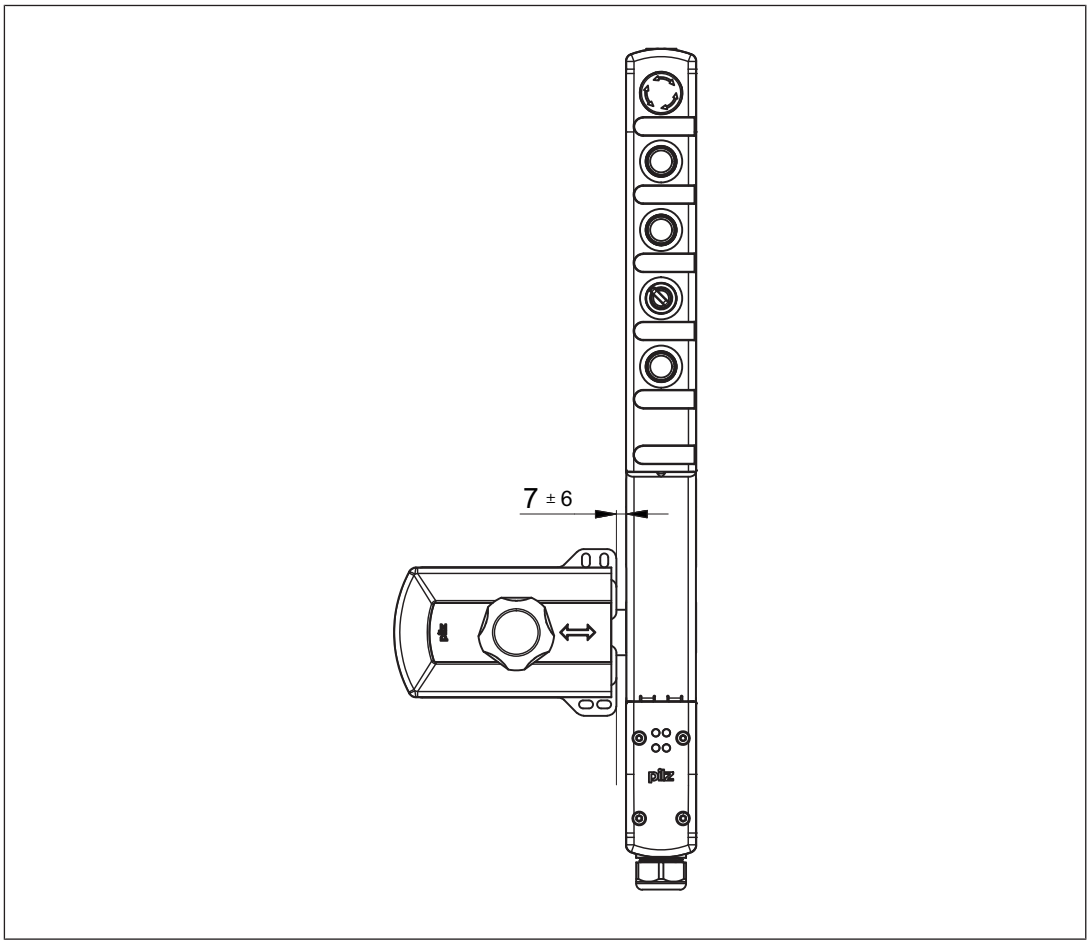
6.5.4 PSEN sg2c-5xxxxx-M12/5



7 Adjustment

- Always test the function with one of the approved evaluation devices.
- Check the distance between the actuator guide plate and the safety switch (see graphic).

Distance between actuator guide plate and safety switch in mm



8 Maintenance

Maintenance of the escape release:

- Check the correct functionality of the escape release at least every once per month. When dust, humidity and dirt exposure is high we recommend that you keep to shorter intervals.
  Please note that the cover of the escape release has to be checked for damage and then installed again.
- Clean the escape release and the bolt tongue and test their mobility.

Otherwise no maintenance work needs to be performed on the interlocking and guard locking system PSENsg2c. Please return any faulty devices to Pilz.

9 Operation

Check the function of the safety switch before commissioning.

Teaching in the actuator

- PSEN sg2c-xxx (versions with basic coding)

  Any corresponding Pilz actuator (see Technical details) is detected as soon as it is brought into the response range.

- PSEN sg2c-xxx 2.2 (versions with full coding)

  The first corresponding actuator to be detected by the safety switch (see Technical details) is taught in automatically as soon as it is brought into the response range.



NOTICE

Please note: No other actuator may be taught in once an actuator has been taught.

Status indicators

- "Device" LED illuminates green: The unit is ready for operation
- "Safety Gate" LED lights up yellow: Bolt tongue is engaged
- "Input" LED lights up yellow: Input circuits are closed or a HIGH signal is present
- "Lock" LED illuminates blue: The guard locking element is engaged in the bolt tongue, guard locking is active. Signals X1-6 and X1-7 (or X2-6 and X2-7) are present.
- "Lock" LED illuminates green: The guard locking element is engaged in the bolt tongue, guard locking is active. Signals X1-6 and X1-7 (or X2-6 and X2-7) are not present.
- LED "Lock" flashes green and blue: Pushbutton 2 for access requirement was confirmed and the machine stop was requested.

Pushbutton status displays (pushbutton see device versions):

- Pushbutton LED [1] lights up: The guard locking element is engaged in the bolt tongue, guard locking is active. Signals X1-6 and X1-7 (or X2-6 and X2-7) are not present.

The pushbuttons 3 and 4 can be used depending on the requirement and device version.

- Pushbutton LED [3] can be used depending on the application. It is operated via the input (see Terminal assignment).
- Pushbutton LED [4] can be used depending on the application. It is operated via the input (see Terminal assignment).

9.1 Status table

This table shows the change of states of the inputs and outputs and the LEDs when switching from the "Lock" operating mode to the "Interlock" operating mode.

Operating mode	Mode	Gate closed	Bolt tongue engaged	Guard locking element engaged	Inputs X2-3 and X2-4	Safety outputs X1-3 and X1-4	Pushbutton 1 operated	Pushbutton 2 operated	Output X1-5	Signal output X1-9	Solenoid operation X1-6	Solenoid operation X1-6	Input X1-8*	"Device" LED	LED Input	LED Lock	LED Safety Gate	LED button 1
Power on		---	---	---	0 V	0 V	---	---		0 V	0 V	0 V	---	☼	●	●	●	●
Lock		---	---	---	24 V	0 V	---	---		0 V	24 V	0 V	---	☼	☼	●	●	●
		✓	✓	---	24 V	0 V	---	---		24 V	24 V	0 V	---	☼	☼	●	☼	●
		✓	✓	✓	24 V	24 V	✓	---		24 V	24 V	24 V	24 V	☼	☼	☼	☼	●
		✓	✓	✓	24 V	24 V	✓	---		24 V	0 V	24 V	24 V	☼	☼	☼	☼	☼
Locking		✓	✓	✓	24 V	24 V	---	✓	24 V	24 V	0 V	0 V	---	☼	☼	◐	☼	☼
	Normal	✓	---	---	24 V	0 V	---	✓	24 V	0 V	24 V	24 V	---	☼	☼	●	●	●
	Unlock	✓	---	---	24 V	0 V	---	---		0 V	24 V	24 V	---	☼	☼	●	●	●
		---	---	---	24 V	0 V	---	---		0 V	24 V	24 V	---	☼	☼	●	●	●

* The guard locking element can be engaged either by pressing the pushbutton key for activating the guard locking of the safety gate or by operating the input X 1-8.

Legend:

	LED on
	LED flashes
	LED off

9.2 Normal mode and Unlock mode

The device is in Normal mode when delivered.

Normal mode

In this mode the guard locking element is only disengaged from the bolt tongue when the pushbutton 2 for access request is pressed.

Unlock mode

In this mode the guard locking element is disengaged from the bolt tongue as soon as there is a High signal at the terminals X1-6 or X2-6.

Switching between Normal mode and Unlock mode

- Switch off supply voltage
- Press and hold the pushbutton 2 for access request and the pushbutton 1 for activating the guard locking simultaneously
- Switch on the supply voltage and hold both pushbuttons until "Device" LED lights up blue. Then release the pushbuttons.
- The active mode is signalled by quick flashing of one of the LEDs:
  - Normal mode: LED of pushbutton 1 for activating the guard locking and LED "Safety Gate" are flashing
  - Unlock mode: "Input" LED flashes
- Press one of the pushbuttons to change to the new mode

Reset function

After an error that was signalled by the red LED "Device" the device can be restarted by a reset:

- Rectify the error.
- Press the pushbutton for access request [2] and hold the pushbutton for at least 5 seconds.

9.3 Remedy

Fault conditions are indicated by flashing the LEDs. Some errors are displayed through periodic flashing (see table); with other errors it is possible to establish an error code through the number of flashes.

Error	Cause	Remedy
Safety switch does not react, LED "Device" does not light	Supply voltage missing/too low	Check supply voltage and apply 24 V
"Safety Gate" LED flashes a code and "Device" LED flashes red	see section Error codes	see section Error codes
"Device" LED illuminates red	Internal error	Please contact Pilz
"Input" LED flashes yellow, only one safety output switches	Only one channel of the input circuit is open (partial operation)	Open both channels of the input circuit and close them again
Signal output does not switch when actuator is engaged, "SafetyGate" LED does not light up	Actuator not detected	Insert actuator as far as it will go
Solenoid does not switch	Supply voltage or voltage for solenoid operation is too low, error in the wiring	▸ Check voltages and apply 24 V, check wiring, ▸ Increase voltage for solenoid to increase tolerance, ▸ reduce cable run, ▸ Use cable with a greater conductor cross section
Solenoid does not switch, "SafetyGate" LED does not light up	Actuator not detected	Insert actuator as far as it will go
Safety outputs do not switch	Escape or auxiliary release pin is not correctly in position	▸ Check whether the LED "Lock / Area Safe" flashes red ▸ Position the escape or auxiliary release pin as far as it will go ▸ Perform reset
"Safety Gate" LED lights up and guard locking element is engaged, but the outputs are not switching.	Wrong actuator, e.g. 1.1-coded actuators with 2.2-coded safety switch	Insert correct actuator

Error codes

Error codes are issued after 9ß0 seconds at the latest at the LED "Safety Gate". The number of LED flashes corresponds to the error code. The error code consists of one digit. (4 x flashing: error code 4). The flashing sequence is constantly repeated and separated from each other by longer periods.

Error code	Description	Remedy
1	Short circuit on 0 V DC with at least one of the two safety outputs X1-3 and X1-4	Check the wiring of terminals X1-3 and X1-4, rectify the wiring error
2	During operation, short circuit between safety output X1-3 and 24 V DC	Rectify wiring error at terminal X1-3
3	During operation, short circuit between safety output X1-4 and 24 V DC	Rectify wiring error at terminal X1-4
4	At least one of the two safety outputs X1-3 and X1-4 have voltage applied during system run-up	Check the wiring of terminals X1-3 and X1-4, rectify the wiring error

10 Technical Details Order No. 570800-570804

General	570800	570802	570804
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570800**	**570802**	**570804**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570800**	**570802**	**570804**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
E-STOP	**570800**	**570802**	**570804**
Number of N/C contacts	2	2	–
Release type, E-STOP	Turn release	Turn release	–

E-STOP	570800	570802	570804
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	–
Contacts, AC15 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Contacts, DC13 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Mechanical life	**6050 cycles**	**6050 cycles**	–
Signal output			
Output voltage	**24 V**	**24 V**	–
Max. current	**100 mA**	**100 mA**	–
Section stop	**570800**	**570802**	**570804**
Number of N/C contacts	–	–	**2**
Release type	–	–	**Turn release**
Utilisation category			
In accordance with the standard	–	–	**EN 60947-5-1**
Contacts AC15 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Contacts DC13 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Mechanical life	–	–	**6050 cycles**
Signal output			
Output voltage	–	–	**24 V**
Max. current	–	–	**100 mA**
Semiconductor outputs	**570800**	**570802**	**570804**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570800**	**570802**	**570804**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**

Times	570800	570802	570804
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570800**	**570802**	**570804**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**

Environmental data	570800	570802	570804
Airgap creepage			
Overvoltage category	III	III	III
Pollution degree	3	3	3
Rated insulation voltage	30 V	30 V	30 V
Rated impulse withstand voltage	1,00 kV	1,00 kV	1,00 kV
Protection type			
Housing	IP54	IP54	IP54
Mechanical data	**570800**	**570802**	**570804**
Escape release available	Yes	Yes	Yes
Mechanical life	200,000 cycles	200,000 cycles	200,000 cycles
Minimum holding force	1.000 N	1.000 N	1.000 N
Max. vertical offset	5 mm	5 mm	5 mm
Max. lateral offset	3 mm	3 mm	3 mm
Max. angular offset	1,5 deg	1,5 deg	1,5 deg
Actuator 1	PSEN sg2 actuator	PSEN sg2 actuator	PSEN sg2 actuator
Operating distances			
Assured operating distance Sao	2,0 mm	2,0 mm	2,0 mm
Min. operating distance Somin	3,0 mm	3,0 mm	3,0 mm
Typical operating distance So	3,0 mm	3,0 mm	3,0 mm
Assured release distance Sar	4,0 mm	4,0 mm	4,0 mm
Change of operating distance with temperature changes	+-0,01mm/°C	+-0,01mm/°C	+-0,01mm/°C
Typ. hysteresis	0,1 mm	0,1 mm	0,1 mm
Connection type	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in
Cable	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2
Material			
Top	Valox 553	Valox 553	Valox 553
Actuator	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Dimensions			
Height	465,0 mm	465,0 mm	465,0 mm
Width	200,0 mm	200,0 mm	200,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Actuator dimensions			
Height	110,0 mm	110,0 mm	110,0 mm
Width	195,0 mm	195,0 mm	195,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Weight of actuator	1.390 g	1.390 g	1.390 g
Weight	2.570 g	2.570 g	2.570 g

The standards current on 2013 apply.

11 Technical Details Order No. 570806-570810

General	570806	570808	570810
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570806**	**570808**	**570810**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570806**	**570808**	**570810**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
Section stop	**570806**	**570808**	**570810**
Number of N/C contacts	2	–	–
Release type	Turn release	–	–

Section stop	570806	570808	570810
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	–	–
Contacts AC15 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Contacts DC13 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Mechanical life	**6050 cycles**	–	–
Signal output			
Output voltage	**24 V**	–	–
Max. current	**100 mA**	–	–
Semiconductor outputs	**570806**	**570808**	**570810**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570806**	**570808**	**570810**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**
Times	**570806**	**570808**	**570810**
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**

Times	570806	570808	570810
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570806**	**570808**	**570810**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**
Airgap creepage			
Overvoltage category	**III**	**III**	**III**
Pollution degree	**3**	**3**	**3**
Rated insulation voltage	**30 V**	**30 V**	**30 V**
Rated impulse withstand voltage	**1,00 kV**	**1,00 kV**	**1,00 kV**
Protection type			
Housing	**IP54**	**IP54**	**IP54**
Mechanical data	**570806**	**570808**	**570810**
Escape release available	**Yes**	**Yes**	**Yes**
Mechanical life	**200,000 cycles**	**200,000 cycles**	**200,000 cycles**
Minimum holding force	**1.000 N**	**1.000 N**	**1.000 N**
Max. vertical offset	**5 mm**	**5 mm**	**5 mm**
Max. lateral offset	**3 mm**	**3 mm**	**3 mm**

Mechanical data	570806	570808	570810
Max. angular offset	**1,5 deg**	**1,5 deg**	**1,5 deg**
Actuator 1	**PSEN sg2 actuator**	**PSEN sg2 actuator**	**PSEN sg2 actuator**
Operating distances			
Assured operating distance Sao	**2,0 mm**	**2,0 mm**	**2,0 mm**
Min. operating distance Somin	**3,0 mm**	**3,0 mm**	**3,0 mm**
Typical operating distance So	**3,0 mm**	**3,0 mm**	**3,0 mm**
Assured release distance Sar	**4,0 mm**	**4,0 mm**	**4,0 mm**
Change of operating distance with temperature changes	**+-0,01mm/°C**	**+-0,01mm/°C**	**+-0,01mm/°C**
Typ. hysteresis	**0,1 mm**	**0,1 mm**	**0,1 mm**
Connection type	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**
Cable	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**
Material			
Top	**Valox 553**	**Valox 553**	**Valox 553**
Actuator	**Stainless steel 1.4301**	**Stainless steel 1.4301**	**Stainless steel 1.4301**
Dimensions			
Height	**465,0 mm**	**465,0 mm**	**465,0 mm**
Width	**200,0 mm**	**200,0 mm**	**200,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Actuator dimensions			
Height	**110,0 mm**	**110,0 mm**	**110,0 mm**
Width	**195,0 mm**	**195,0 mm**	**195,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Weight of actuator	**1.390 g**	**1.390 g**	**1.390 g**
Weight	**2.570 g**	**2.570 g**	**2.570 g**

The standards current on 2013 apply.

12 Technical Details Order No. 570812-570816

General	570812	570814	570816
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570812**	**570814**	**570816**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570812**	**570814**	**570816**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
E-STOP	**570812**	**570814**	**570816**
Number of N/C contacts	2	2	–
Release type, E-STOP	Turn release	Turn release	–

E-STOP	570812	570814	570816
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	–
Contacts, AC15 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Contacts, DC13 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Mechanical life	**6050 cycles**	**6050 cycles**	–
Signal output			
Output voltage	**24 V**	**24 V**	–
Max. current	**100 mA**	**100 mA**	–
Section stop	**570812**	**570814**	**570816**
Number of N/C contacts	–	–	**2**
Release type	–	–	**Turn release**
Utilisation category			
In accordance with the standard	–	–	**EN 60947-5-1**
Contacts AC15 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Contacts DC13 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Mechanical life	–	–	**6050 cycles**
Signal output			
Output voltage	–	–	**24 V**
Max. current	–	–	**100 mA**
Semiconductor outputs	**570812**	**570814**	**570816**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570812**	**570814**	**570816**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**

Times	570812	570814	570816
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570812**	**570814**	**570816**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**

Environmental data	570812	570814	570816
Airgap creepage			
Overvoltage category	III	III	III
Pollution degree	3	3	3
Rated insulation voltage	30 V	30 V	30 V
Rated impulse withstand voltage	1,00 kV	1,00 kV	1,00 kV
Protection type			
Housing	IP54	IP54	IP54
Mechanical data	**570812**	**570814**	**570816**
Escape release available	Yes	Yes	Yes
Mechanical life	200,000 cycles	200,000 cycles	200,000 cycles
Minimum holding force	1.000 N	1.000 N	1.000 N
Max. vertical offset	5 mm	5 mm	5 mm
Max. lateral offset	3 mm	3 mm	3 mm
Max. angular offset	1,5 deg	1,5 deg	1,5 deg
Actuator 1	PSEN sg2 actuator	PSEN sg2 actuator	PSEN sg2 actuator
Operating distances			
Assured operating distance Sao	2,0 mm	2,0 mm	2,0 mm
Min. operating distance Somin	3,0 mm	3,0 mm	3,0 mm
Typical operating distance So	3,0 mm	3,0 mm	3,0 mm
Assured release distance Sar	4,0 mm	4,0 mm	4,0 mm
Change of operating distance with temperature changes	+-0,01mm/°C	+-0,01mm/°C	+-0,01mm/°C
Typ. hysteresis	0,1 mm	0,1 mm	0,1 mm
Connection type	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in
Cable	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2
Material			
Top	Valox 553	Valox 553	Valox 553
Actuator	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Dimensions			
Height	555,0 mm	555,0 mm	555,0 mm
Width	200,0 mm	200,0 mm	200,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Actuator dimensions			
Height	110,0 mm	110,0 mm	110,0 mm
Width	195,0 mm	195,0 mm	195,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Weight of actuator	1.390 g	1.390 g	1.390 g
Weight	2.670 g	2.670 g	2.670 g

The standards current on 2013 apply.

13 Technical Details Order No. 570818-570822

General	570818	570820	570822
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570818**	**570820**	**570822**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570818**	**570820**	**570822**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
E-STOP	**570818**	**570820**	**570822**
Number of N/C contacts	2	2	2
Release type, E-STOP	Turn release	Turn release	Turn release
Mechanical life	6050 cycles	6050 cycles	6050 cycles

E-STOP	570818	570820	570822
Signal output			
Output voltage	**24 V**	**24 V**	**24 V**
Max. current	**100 mA**	**100 mA**	**100 mA**
Section stop	**570818**	**570820**	**570822**
Number of N/C contacts	**2**	–	–
Release type	**Turn release**	–	–
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	–	–
Contacts AC15 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Contacts DC13 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Mechanical life	**6050 cycles**	–	–
Signal output			
Output voltage	**24 V**	–	–
Max. current	**100 mA**	–	–
Semiconductor outputs	**570818**	**570820**	**570822**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570818**	**570820**	**570822**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**
Times	**570818**	**570820**	**570822**
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**

Times	570818	570820	570822
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570818**	**570820**	**570822**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**
Airgap creepage			
Overvoltage category	**III**	**III**	**III**
Pollution degree	**3**	**3**	**3**

Environmental data	570818	570820	570822
Rated insulation voltage	30 V	30 V	30 V
Rated impulse withstand voltage	1,00 kV	1,00 kV	1,00 kV
Protection type			
Housing	IP54	IP54	IP54
Mechanical data	**570818**	**570820**	**570822**
Escape release available	Yes	Yes	Yes
Mechanical life	200,000 cycles	200,000 cycles	200,000 cycles
Minimum holding force	1.000 N	1.000 N	1.000 N
Max. vertical offset	5 mm	5 mm	5 mm
Max. lateral offset	3 mm	3 mm	3 mm
Max. angular offset	1,5 deg	1,5 deg	1,5 deg
Actuator 1	PSEN sg2 actuator	PSEN sg2 actuator	PSEN sg2 actuator
Operating distances			
Assured operating distance Sao	2,0 mm	2,0 mm	2,0 mm
Min. operating distance Somin	3,0 mm	3,0 mm	3,0 mm
Typical operating distance So	3,0 mm	3,0 mm	3,0 mm
Assured release distance Sar	4,0 mm	4,0 mm	4,0 mm
Change of operating distance with temperature changes	+-0,01mm/°C	+-0,01mm/°C	+-0,01mm/°C
Typ. hysteresis	0,1 mm	0,1 mm	0,1 mm
Connection type	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in
Cable	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2
Material			
Top	Valox 553	Valox 553	Valox 553
Actuator	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Dimensions			
Height	555,0 mm	555,0 mm	555,0 mm
Width	200,0 mm	200,0 mm	200,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Actuator dimensions			
Height	110,0 mm	110,0 mm	110,0 mm
Width	195,0 mm	195,0 mm	195,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Weight of actuator	1.390 g	1.390 g	1.390 g
Weight	2.670 g	2.670 g	2.670 g

The standards current on 2013 apply.

14 Technical Details Order No. 570824-570828

General	570824	570826	570828
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570824**	**570826**	**570828**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570824**	**570826**	**570828**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
E-STOP	**570824**	**570826**	**570828**
Number of N/C contacts	2	2	–
Release type, E-STOP	Turn release	Turn release	–

E-STOP	570824	570826	570828
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	–
Contacts, AC15 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Contacts, DC13 at	**48 V**	**48 V**	–
Current	**1,5 A**	**1,5 A**	–
Mechanical life	**6050 cycles**	**6050 cycles**	–
Signal output			
Output voltage	**24 V**	**24 V**	–
Max. current	**100 mA**	**100 mA**	–
Section stop	**570824**	**570826**	**570828**
Number of N/C contacts	–	–	**2**
Release type	–	–	**Turn release**
Utilisation category			
In accordance with the standard	–	–	**EN 60947-5-1**
Contacts AC15 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Contacts DC13 at	–	–	**48 V**
Max. current	–	–	**1,5 A**
Mechanical life	–	–	**6050 cycles**
Signal output			
Output voltage	–	–	**24 V**
Max. current	–	–	**100 mA**
Semiconductor outputs	**570824**	**570826**	**570828**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570824**	**570826**	**570828**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**

Times	570824	570826	570828
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570824**	**570826**	**570828**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**

Environmental data	570824	570826	570828
Airgap creepage			
Overvoltage category	III	III	III
Pollution degree	3	3	3
Rated insulation voltage	30 V	30 V	30 V
Rated impulse withstand voltage	1,00 kV	1,00 kV	1,00 kV
Protection type			
Housing	IP54	IP54	IP54
Mechanical data	**570824**	**570826**	**570828**
Escape release available	Yes	Yes	Yes
Mechanical life	200,000 cycles	200,000 cycles	200,000 cycles
Minimum holding force	1.000 N	1.000 N	1.000 N
Max. vertical offset	5 mm	5 mm	5 mm
Max. lateral offset	3 mm	3 mm	3 mm
Max. angular offset	1,5 deg	1,5 deg	1,5 deg
Actuator 1	PSEN sg2 actuator	PSEN sg2 actuator	PSEN sg2 actuator
Operating distances			
Assured operating distance Sao	2,0 mm	2,0 mm	2,0 mm
Min. operating distance Somin	3,0 mm	3,0 mm	3,0 mm
Typical operating distance So	3,0 mm	3,0 mm	3,0 mm
Assured release distance Sar	4,0 mm	4,0 mm	4,0 mm
Change of operating distance with temperature changes	+-0,01mm/°C	+-0,01mm/°C	+-0,01mm/°C
Typ. hysteresis	0,1 mm	0,1 mm	0,1 mm
Connection type	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in	Spring-loaded terminal, plug-in
Cable	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2	LiYY 24 x 0,5 mm2
Material			
Top	Valox 553	Valox 553	Valox 553
Actuator	Stainless steel 1.4301	Stainless steel 1.4301	Stainless steel 1.4301
Dimensions			
Height	568,0 mm	568,0 mm	568,0 mm
Width	200,0 mm	200,0 mm	200,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Actuator dimensions			
Height	110,0 mm	110,0 mm	110,0 mm
Width	195,0 mm	195,0 mm	195,0 mm
Depth	108,0 mm	108,0 mm	108,0 mm
Weight of actuator	1.390 g	1.390 g	1.390 g
Weight	2.690 g	2.690 g	2.690 g

The standards current on 2013 apply.

15 Technical Details Order No. 570830-570834

General	570830	570832	570834
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	Low	Low	Low
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570830**	**570832**	**570834**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570830**	**570832**	**570834**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
Section stop	**570830**	**570832**	**570834**
Number of N/C contacts	2	–	–
Release type	Turn release	–	–

Section stop	570830	570832	570834
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	–	–
Contacts AC15 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Contacts DC13 at	**48 V**	–	–
Max. current	**1,5 A**	–	–
Mechanical life	**6050 cycles**	–	–
Signal output			
Output voltage	**24 V**	–	–
Max. current	**100 mA**	–	–
Semiconductor outputs	**570830**	**570832**	**570834**
OSSD safety outputs	**2**	**2**	**2**
Signal outputs	**2**	**2**	**2**
Switching current per output	**500 mA**	**500 mA**	**500 mA**
Breaking capacity per output	**12,0 W**	**12,0 W**	**12,0 W**
Residual current at "0" signal	**0,20 mA**	**0,20 mA**	**0,20 mA**
Short circuit-proof	**Yes**	**Yes**	**Yes**
Pushbutton	**570830**	**570832**	**570834**
Utilisation category			
In accordance with the standard	**EN 60947-5-1**	**EN 60947-5-1**	**EN 60947-5-1**
Contacts AC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Contacts DC12 at	**48 V**	**48 V**	**48 V**
Max. current	**0,1 A**	**0,1 A**	**0,1 A**
Electrical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Mechanical life	**1,000,000 cycles**	**1,000,000 cycles**	**1,000,000 cycles**
Contact material	**AgNi**	**AgNi**	**AgNi**
Times	**570830**	**570832**	**570834**
Test pulse duration, safety outputs	**450 µs**	**450 µs**	**450 µs**
Switch-on delay			
after UB is applied	**1,1 s**	**1,1 s**	**1,1 s**
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**90 ms**	**90 ms**	**90 ms**
Actuator max.	**120 ms**	**120 ms**	**120 ms**
Delay-on de-energisation			
Inputs typ.	**15 ms**	**15 ms**	**15 ms**
Inputs max.	**20 ms**	**20 ms**	**20 ms**
Actuator typ.	**30 ms**	**30 ms**	**30 ms**
Actuator max.	**260 ms**	**260 ms**	**260 ms**

Times	570830	570832	570834
Supply interruption before de-energisation in the input circuit	20,0 ms	20,0 ms	20,0 ms
Simultaneity, channel 1 and 2	7 ms	7 ms	7 ms
Environmental data	**570830**	**570832**	**570834**
Metal surface temperature	40 °C	40 °C	40 °C
Ambient temperature			
In accordance with the standard	EN 60068-2-14	EN 60068-2-14	EN 60068-2-14
Temperature range	-20 - 55 °C	-20 - 55 °C	-20 - 55 °C
Storage temperature			
In accordance with the standard	EN 60068-2-1/-2	EN 60068-2-1/-2	EN 60068-2-1/-2
Temperature range	-25 - 70 °C	-25 - 70 °C	-25 - 70 °C
Climatic suitability			
In accordance with the standard	EN 60068-2-78	EN 60068-2-78	EN 60068-2-78
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C	93 % r. h. at 40 °C
EMC	EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8	EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8	EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
Vibration			
In accordance with the standard	EN 60068-2-6	EN 60068-2-6	EN 60068-2-6
Frequency	10,0 - 55,0 Hz	10,0 - 55,0 Hz	10,0 - 55,0 Hz
Amplitude	1,00 mm	1,00 mm	1,00 mm
Shock stress			
In accordance with the standard	EN 60068-2-27	EN 60068-2-27	EN 60068-2-27
Acceleration	30g	30g	30g
Duration	11 ms	11 ms	11 ms
Airgap creepage			
Overvoltage category	III	III	III
Pollution degree	3	3	3
Rated insulation voltage	30 V	30 V	30 V
Rated impulse withstand voltage	1,00 kV	1,00 kV	1,00 kV
Protection type			
Housing	IP54	IP54	IP54
Mechanical data	**570830**	**570832**	**570834**
Escape release available	Yes	Yes	Yes
Mechanical life	200,000 cycles	200,000 cycles	200,000 cycles
Minimum holding force	1.000 N	1.000 N	1.000 N
Max. vertical offset	5 mm	5 mm	5 mm
Max. lateral offset	3 mm	3 mm	3 mm

Mechanical data	570830	570832	570834
Max. angular offset	**1,5 deg**	**1,5 deg**	**1,5 deg**
Actuator 1	**PSEN sg2 actuator**	**PSEN sg2 actuator**	**PSEN sg2 actuator**
Operating distances			
Assured operating distance Sao	**2,0 mm**	**2,0 mm**	**2,0 mm**
Min. operating distance Somin	**3,0 mm**	**3,0 mm**	**3,0 mm**
Typical operating distance So	**3,0 mm**	**3,0 mm**	**3,0 mm**
Assured release distance Sar	**4,0 mm**	**4,0 mm**	**4,0 mm**
Change of operating distance with temperature changes	**+-0,01mm/°C**	**+-0,01mm/°C**	**+-0,01mm/°C**
Typ. hysteresis	**0,1 mm**	**0,1 mm**	**0,1 mm**
Connection type	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**
Cable	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**
Material			
Top	**Valox 553**	**Valox 553**	**Valox 553**
Actuator	**Stainless steel 1.4301**	**Stainless steel 1.4301**	**Stainless steel 1.4301**
Dimensions			
Height	**568,0 mm**	**568,0 mm**	**568,0 mm**
Width	**200,0 mm**	**200,0 mm**	**200,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Actuator dimensions			
Height	**110,0 mm**	**110,0 mm**	**110,0 mm**
Width	**195,0 mm**	**195,0 mm**	**195,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Weight of actuator	**1.390 g**	**1.390 g**	**1.390 g**
Weight	**2.690 g**	**2.690 g**	**2.690 g**

The standards current on 2013 apply.

16 Technical Details Order No. 570880-570884

General	570880	570882	570884
Approvals	CE, TÜV	CE, TÜV	CE, TÜV
Sensor's mode of operation	Transponder	Transponder	Transponder
Codification in accordance with ISO 14119	High	High	High
Building class in accordance with ISO 14119	4	4	4
Electrical data	**570880**	**570882**	**570884**
Supply voltage			
Voltage	24 V	24 V	24 V
Kind	DC	DC	DC
Voltage tolerance	-15 %/+10 %	-15 %/+10 %	-15 %/+10 %
Output of external power supply (DC)	2,0 W	2,0 W	2,0 W
Max. inrush current at UB	5,00 A	5,00 A	5,00 A
Max. switching frequency	1 Hz	1 Hz	1 Hz
Magnet. supply voltage	24 V	24 V	24 V
Max. solenoid current t <150 ms	1,5 A	1,5 A	1,5 A
Max. cable capacitance at the safety outputs			
No-load, PNOZ with relay contacts	40 nF	40 nF	40 nF
PNOZmulti, PNOZelog, PSS	70 nF	70 nF	70 nF
Max. inrush current impulse			
Current pulse, A1	5,00 A	5,00 A	5,00 A
Pulse duration, A1	0,0002 ms	0,0002 ms	0,0002 ms
Max. unit fuse protection in accordance with UL	3 A	3 A	3 A
Max. overall cable resistance RImax			
Single-channel at UB DC	1000 Ohm	1000 Ohm	1000 Ohm
Inputs	**570880**	**570882**	**570884**
Number	2	2	2
Voltage at inputs	24 V DC	24 V DC	24 V DC
Input current range	5,0 mA	5,0 mA	5,0 mA
E-STOP	**570880**	**570882**	**570884**
Number of N/C contacts	2	2	2
Release type, E-STOP	Turn release	Turn release	Turn release

E-STOP	570880	570882	570884
Utilisation category			
In accordance with the standard	EN 60947-5-1	EN 60947-5-1	EN 60947-5-1
Contacts, AC15 at	48 V	48 V	48 V
Current	1,5 A	1,5 A	1,5 A
Contacts, DC13 at	48 V	48 V	48 V
Current	1,5 A	1,5 A	1,5 A
Mechanical life	6050 cycles	6050 cycles	6050 cycles
Signal output			
Output voltage	24 V	24 V	24 V
Max. current	100 mA	100 mA	100 mA
Semiconductor outputs	**570880**	**570882**	**570884**
OSSD safety outputs	2	2	2
Signal outputs	2	2	2
Switching current per output	500 mA	500 mA	500 mA
Breaking capacity per output	12,0 W	12,0 W	12,0 W
Residual current at "0" signal	0,20 mA	0,20 mA	0,20 mA
Short circuit-proof	Yes	Yes	Yes
Pushbutton	**570880**	**570882**	**570884**
Utilisation category			
In accordance with the standard	EN 60947-5-1	EN 60947-5-1	EN 60947-5-1
Contacts AC12 at	48 V	48 V	48 V
Max. current	0,1 A	0,1 A	0,1 A
Contacts DC12 at	48 V	48 V	48 V
Max. current	0,1 A	0,1 A	0,1 A
Electrical life	1,000,000 cycles	1,000,000 cycles	1,000,000 cycles
Mechanical life	1,000,000 cycles	1,000,000 cycles	1,000,000 cycles
Contact material	AgNi	AgNi	AgNi
Times	**570880**	**570882**	**570884**
Test pulse duration, safety outputs	450 µs	450 µs	450 µs
Switch-on delay			
after UB is applied	1,1 s	1,1 s	1,1 s
Inputs typ.	15 ms	15 ms	15 ms
Inputs max.	20 ms	20 ms	20 ms
Actuator typ.	90 ms	90 ms	90 ms
Actuator max.	120 ms	120 ms	120 ms
Delay-on de-energisation			
Inputs typ.	15 ms	15 ms	15 ms
Inputs max.	20 ms	20 ms	20 ms
Actuator typ.	30 ms	30 ms	30 ms
Actuator max.	260 ms	260 ms	260 ms

Times	570880	570882	570884
Supply interruption before de-energisation in the input circuit	**20,0 ms**	**20,0 ms**	**20,0 ms**
Simultaneity, channel 1 and 2	**7 ms**	**7 ms**	**7 ms**
Environmental data	**570880**	**570882**	**570884**
Metal surface temperature	**40 °C**	**40 °C**	**40 °C**
Ambient temperature			
In accordance with the standard	**EN 60068-2-14**	**EN 60068-2-14**	**EN 60068-2-14**
Temperature range	**-20 - 55 °C**	**-20 - 55 °C**	**-20 - 55 °C**
Storage temperature			
In accordance with the standard	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**	**EN 60068-2-1/-2**
Temperature range	**-25 - 70 °C**	**-25 - 70 °C**	**-25 - 70 °C**
Climatic suitability			
In accordance with the standard	**EN 60068-2-78**	**EN 60068-2-78**	**EN 60068-2-78**
Humidity	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**	**93 % r. h. at 40 °C**
EMC	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**	**EN 55011: class A, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8**
Vibration			
In accordance with the standard	**EN 60068-2-6**	**EN 60068-2-6**	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**	**10,0 - 55,0 Hz**
Amplitude	**1,00 mm**	**1,00 mm**	**1,00 mm**
Shock stress			
In accordance with the standard	**EN 60068-2-27**	**EN 60068-2-27**	**EN 60068-2-27**
Acceleration	**30g**	**30g**	**30g**
Duration	**11 ms**	**11 ms**	**11 ms**
Airgap creepage			
Overvoltage category	**III**	**III**	**III**
Pollution degree	**3**	**3**	**3**
Rated insulation voltage	**30 V**	**30 V**	**30 V**
Rated impulse withstand voltage	**1,00 kV**	**1,00 kV**	**1,00 kV**
Protection type			
Housing	**IP54**	**IP54**	**IP54**
Mechanical data	**570880**	**570882**	**570884**
Escape release available	**Yes**	**Yes**	**Yes**
Mechanical life	**200,000 cycles**	**200,000 cycles**	**200,000 cycles**
Minimum holding force	**1.000 N**	**1.000 N**	**1.000 N**
Max. vertical offset	**5 mm**	**5 mm**	**5 mm**
Max. lateral offset	**3 mm**	**3 mm**	**3 mm**

Mechanical data	570880	570882	570884
Max. angular offset	**1,5 deg**	**1,5 deg**	**1,5 deg**
Actuator 1	**PSEN sg2 actuator 2.2**	**PSEN sg2 actuator 2.2**	**PSEN sg2 actuator 2.2**
Operating distances			
Assured operating distance Sao	**2,0 mm**	**2,0 mm**	**2,0 mm**
Min. operating distance Somin	**3,0 mm**	**3,0 mm**	**3,0 mm**
Typical operating distance So	**3,0 mm**	**3,0 mm**	**3,0 mm**
Assured release distance Sar	**4,0 mm**	**4,0 mm**	**4,0 mm**
Change of operating distance with temperature changes	**+-0,01mm/°C**	**+-0,01mm/°C**	**+-0,01mm/°C**
Typ. hysteresis	**0,1 mm**	**0,1 mm**	**0,1 mm**
Connection type	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**	**Spring-loaded terminal, plug-in**
Cable	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**	**LiYY 24 x 0,5 mm2**
Material			
Top	**Valox 553**	**Valox 553**	**Valox 553**
Actuator	**Stainless steel 1.4301**	**Stainless steel 1.4301**	**Stainless steel 1.4301**
Dimensions			
Height	**465,0 mm**	**555,0 mm**	**568,0 mm**
Width	**200,0 mm**	**200,0 mm**	**200,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Actuator dimensions			
Height	**110,0 mm**	**110,0 mm**	**110,0 mm**
Width	**195,0 mm**	**195,0 mm**	**195,0 mm**
Depth	**108,0 mm**	**108,0 mm**	**108,0 mm**
Weight of actuator	**1.390 g**	**1.390 g**	**1.390 g**
Weight	**2.570 g**	**2.670 g**	**2.690 g**

The standards current on 2013 apply.

17 Safety characteristic data

Operating mode	EN ISO 13849-1: 2008 PL	EN ISO 13849-1: 2008 Category	EN IEC 62061 SIL CL	EN IEC 62061 PFH_D [1/h]	Lambda d/ Lambda	EN ISO 13849-1 2006, EN IEC B10D	EN ISO 13849-1: 2008 T_M [year]	Mechan. service life [cycles]
1-ch. guard locking	**PL d**	**Cat. 2**	**SIL CL 2**	**1,83E-09**	–	–	**20**	**200,000 cycles**
2-ch. guard locking	**PL e**	**Cat. 4**	**SIL CL 3**	**3,80E-10**	–	–	**20**	**200,000 cycles**
2-ch. OSSD	**PL e**	**Cat. 4**	**SIL CL 3**	**2,08E-09**	–	–	**20**	**200,000 cycles**
Sensor with N/C contacts	**PL e**	**Cat. 4**	**SIL CL 3**	**2,08E-09**	**0,20**	**75.000**	**20**	**6050 cycles**



NOTICE

Be sure that you observe the mechanical life. The safety characteristic data are only valid as long as the values of mechanical life are met.

18 Order reference

18.1 System

Product type	Features	Order no.
PSEN sg2c-3LPE	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, 1 pushbutton unilluminated,1 E-STOP pushbutton	570 800
PSEN sg2c-3LBE	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, 1, key switch, 1 E-STOP pushbutton	570 802
PSEN sg2c-3LPS	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, 1 pushbutton unilluminated, 1 section stop pushbutton	570 804
PSEN sg2c-3LBS	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, 1, key switch, 1 E-STOP pushbutton	570 806
PSEN sg2c-3LPC	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, pushbutton unilluminated	570 808
PSEN sg2c-3LBC	Safety gate system (transponder technology) with safe interlock and safe guard locking device, 1 pushbutton illuminated, 1 key switch	570 810
PSEN sg2c-5LPLLE	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbuttons illuminated, 1 pushbutton unilluminated, 1 E-STOP pushbutton	570 812
PSEN sg2c-5LBLLE	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbuttons illuminated, 1, key switch, 1 E-STOP pushbutton	570 814
PSEN sg2c-5LPLLS	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbuttons illuminated, 1 pushbutton unilluminated, 1 section stop pushbutton	570 816
PSEN sg2c-5LBLLS	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbuttons illuminated, 1, key switch, 1 section stop pushbutton	570 818
PSEN sg2c-5LPLLC	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbutton illuminated, pushbutton unilluminated	570 820
PSEN sg2c-5LBLLC	Safety gate system (transponder technology) with safe interlock and safe guard locking device, 3 pushbuttons illuminated, 1 key switch	570 822
PSEN sg2c-5LPKLE-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons unilluminated, 1 key switch, 1 pushbutton unilluminated, 1 E-STOP pushbutton, 1 connection for enabling switch	570 824
PSEN sg2c-5LBKLE-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons illuminated, 2, key switches, 1 E-STOP pushbutton, 1 connection for enabling switch	570 826

Product type	Features	Order no.
PSEN sg2c-5LPKLS-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons unilluminated, 1 key switch, 1 pushbutton unilluminated, 1 section stop pushbutton, connection for enabling switch	570 828
PSEN sg2c-5LBKLS-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons illuminated, 2, key switches, 1 section stop pushbutton, connection for enabling switch	570 830
PSEN sg2c-5LPKLC-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons unilluminated, 1 key switch, 1 pushbutton unilluminated, connection for enabling switch	570 832
PSEN sg2c-5LBKLC-M12/5	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons unilluminated,2 key switches, connection for enabling switch	570 834
PSEN sg2c-3PLE 2.2	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 1 pushbutton illuminated, 1 pushbutton unilluminated 1 E-STOP pushbutton, fully coded	570 880
PSEN sg2c-5LPLLE 2.2	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 3 pushbuttons illuminated, 1 pushbutton unilluminated 1 E-STOP pushbutton, fully coded	570 882
PSEN sg2c-5LPKLE-M12/5 2.2	Safety gate system (transponder technology) with safe interlocking and safe guard locking, 2 pushbuttons unilluminated, 1 key switch, 1 pushbutton unilluminated, 1 E-STOP pushbutton, fully coded	570 884

18.2 Safety switch

Product type	Features	Order no.
PSEN sg2c-3LPE (switch)	Safety switch, 1 pushbutton illuminated, 1 pushbutton unilluminated, 1 E-STOP pushbutton	570 801
PSEN sg2c-3LBE (switch)	Safety switch, 1 pushbutton illuminated, 1 key switch, 1 E-STOP pushbutton	570 803
PSEN sg2c-3LPS (switch)	Safety switch, 1 pushbutton illuminated, 1 pushbutton unilluminated, 1 section stop pushbutton	570 805
PSEN sg2c-3LBS (switch)	Safety switch, 1 pushbutton illuminated, 1 key switch, 1 section stop pushbutton	570 807
PSEN sg2c-3LPC (switch)	Safety switch, 1 pushbutton illuminated, 1 pushbutton unilluminated	570 809
PSEN sg2c-3LBC (switch)	Safety switch, 1 pushbutton illuminated, 1 key switch	570 811
PSEN sg2c-5LPLLE (switch)	Safety switch, 3 pushbuttons illuminated, 1 pushbutton unilluminated, 1 E-STOP pushbutton	570 813
PSEN sg2c-5LBLLE (switch)	Safety switch, 3 pushbuttons illuminated, 1 key switch, 1 E-STOP pushbutton	570 815
PSEN sg2c-5LPLLS (switch)	Safety switch, 3 pushbuttons illuminated, 1 pushbutton unilluminated, 1 section stop pushbutton	570 817

Product type	Features	Order no.
PSEN sg2c-5LBLLS (switch)	Safety switch, 3 pushbuttons illuminated, 1 key switch, 1 section stop pushbutton	570 819
PSEN sg2c-5LPLLC (switch)	Safety switch, 3 pushbuttons illuminated, 1 pushbutton unilluminated	570 821
PSEN sg2c-5LBLLC (switch)	Safety switch, 3 pushbuttons illuminated, 1 key switch	570 823
PSEN sg2c-5LPKLE-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 1 key switch, 1 pushbutton unilluminated, 1 E-STOP pushbutton, connection for enabling switch	570 825
PSEN sg2c-5LBKLE-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 2 key switches, 1 E-STOP pushbutton, connection for enabling switch	570 827
PSEN sg2c-5LPKLS-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 1 key switch, 1 pushbutton unilluminated, 1 section stop pushbutton, connection for enabling switch	570 829
PSEN sg2c-5LBKLS-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 2 key switches, 1 section stop pushbutton, connection for enabling switch	570 831
PSEN sg2c-5LPKLC-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 1 key switch, 1 pushbutton unilluminated, connection for enabling switch	570 833
PSEN sg2c-5LBKLC-M12/5 (switch)	Safety switch, 2 pushbuttons illuminated, 2 key switch, connection for enabling switch	570 835
PSEN sg2c-3PLE 2.2 (switch)	Safety switch, 1 pushbuttons illuminated, 1 pushbutton unilluminated, 1 E-STOP pushbutton, fully coded	570 881
PSEN sg2c-5LPLLE 2.2 (switch)	Safety switch, 3 pushbuttons illuminated, 1 pushbutton unilluminated, 1 E-STOP pushbutton, fully coded	570 883
PSEN sg2c-5LPKLE-M12/5 2.2 (switch)	Safety switch, 2 pushbuttons illuminated, 1 key switch, 1 pushbutton unilluminated, 1 E-STOP pushbutton, fully coded	570 885

18.3 Handle unit with actuator

Product type	Features	Order no.
PSEN sg2c actuator	Handle unit with actuator	570 890
PSEN sg2c actuator 2.2	Handle unit with fully coded actuator	570 891

18.4 Accessories

Product type	Features	Order no.
PSEN sg2 cover	Housing cover of the safety switch	570 773
PSEN sg2c Set spring loaded terminals	Connection terminals, rubber seal, pressure screw	570 777
PSEN sg escape release pin	Pin for escape release	570 870
PSEN sg auxiliary release pin	Pin for auxiliary release	570 871
PSEN sg color covers (pushbutton)	Colour covers for illuminated buttons	570 875

19 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/downloads.
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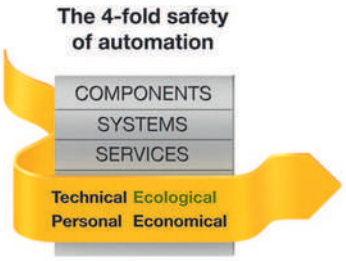
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