

Industrial Controls

SIRIUS

Commanding and signaling devices 3SB3/3SF5 – Attention: Phase-out products!

Configuration Manual

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

 WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

1.1 Note: Phase-out products

Phase-out products

The products described in this documentation are phased-out products that are no longer in production.

This manual may contain outdated information.

Successor products 3SU1

SIRIUS ACT 3SU1 products are available as successor products. You can find more information here:

System Manual – SIRIUS ACT 3SU1 pushbuttons and indicator lights (<https://support.industry.siemens.com/cs/ww/en/view/107542462>)

Catalog IC 10 (<https://support.industry.siemens.com/cs/ww/de/view/109747945/en>)

1.2 Siemens Industry Online Support app

Siemens Industry Online Support app

The Siemens Industry Online Support app provides you access to all the device-specific information available on the Siemens Industry Online Support portal for a particular article number, such as operating instructions, manuals, data sheets, FAQs etc.

The Siemens Industry Online Support app is available for Android and iOS:



Android



iOS

1.3 Support Request

After you have registered, you can use the Support Request form in the online support to send your question directly to Technical Support:

Support Request:	Internet (https://www.siemens.com/support-request)
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1.4 Purpose of this documentation

This manual describes the possible uses of the SIRIUS 3SB3/3SF5 commanding and signaling devices.

It is intended to provide general information on the operation, selection, and installation of pushbuttons, EMERGENCY STOP mushroom pushbuttons, indicator lights, and two-hand operation consoles so that users can operate the system safely.

1.5 Target group

This documentation contains information for the following target groups:

- Decision makers
- Technologists
- Project planning engineers
- Commissioning engineers

1.6 Required knowledge

A general knowledge of the following areas is needed in order to understand this documentation:

- Low-voltage controls
- Digital circuit logic
- Automation systems
- Safety and security systems

1.7 Online configurator

Various configurators are available online to assist you during the configuration process.

You can select the individual components and plan your system in accordance with your specific requirements.

The modular principle of the SIRIUS range of pushbuttons and indicator lights allows individual assembly of component configurations.

Using the SIRIUS 3SB3/3SF5 online configurator, you can select the component properties that suit your application. You can save your selection, export it as a text file or order it directly. The configurator automatically compiles a document list of the information available in Service&Support for every component. You can use it as the basis for putting together your system documentation.

The configurator (<http://www.siemens.com/sirius/configurators>) helps you to select the range of components and suitable accessories for your particular application.

1.8 Technical specifications in the Siemens SiePortal

Technical data sheet

You can find the technical specifications for the product in Siemens SiePortal (<https://sieportal.siemens.com/su/bldxc>).

1. Enter the article number of the desired device in the "Products" field.
2. Click the "Technical specifications" link in the result.

Safety notes

2.1 Important notes

The products described here have been developed to perform safety-related functions as part of an overall system or machine. A complete safety-oriented system generally features sensors, evaluation units, signaling units, and reliable shutdown concepts. It is the responsibility of the manufacturer to ensure that a system or machine is functioning properly as a whole. Siemens AG, its regional offices, and associated companies (hereinafter referred to as "Siemens") cannot guarantee all the properties of an overall installation or machine that has not been designed by Siemens. Nor can Siemens assume liability for recommendations that appear or are implied in the following description. No new guarantee, warranty, or liability claims beyond the scope of the Siemens general terms of supply are to be derived or inferred from the following description.

2.2 Before commencing work: Isolating the equipment from the supply system and ensuring that it cannot be reconnected.

DANGER

Hazardous voltage Will cause death or serious injury.

- Disconnect the system and all devices from the power supply before starting work.
- Secure against switching on again.
- Verify that the equipment is not live.
- Ground and short-circuit.
- Erect barriers around or cover adjacent live parts.

DANGER

Hazardous voltage Will cause death or serious injury.

Qualified Personnel.

The equipment / system may only be commissioned and operated by qualified personnel. For the purpose of the safety information in these operating instructions, a "qualified person" is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

Safety notes

2.2 Before commencing work: Isolating the equipment from the supply system and ensuring that it cannot be reconnected.

Overview

3.1 3SB3 command and signaling devices

	3SB command and signaling devices		
	3SB3 pushbuttons and indicator lights	3SB3 enclosures	3SB38 two-hand operation consoles
Description	Indicator lights, pushbuttons, key-operated switches, illuminated pushbuttons, EMERGENCY STOP mushroom pushbuttons, selector switches, contact blocks and lamp-holders	Pushbuttons, indicator lights in enclosure, EMERGENCY STOP enclosures, customer-specific enclosures also available on request	Two-hand operation consoles including EMERGENCY STOP and 2 mushroom pushbuttons, additional command devices can be installed
Design	Plastic or metal Round version 22 mm in diameter and square version 26 x 26 mm	Plastic or metal	Plastic or metal
Installation / Connection	One-man assembly without special tools, actuators equipped on a modular basis with contact blocks and lampholders. Screw terminal, spring-type terminal, solder pin connection	Base mounting or front plate mounting	Can be mounted on a wall, stand, or directly within the system. Screw terminals
Degree of protection	IP66/IP67 (plastic) and IP67 and NEMA4 (metal)	IP65 / IP67 (metal)	IP65
Approval	UL, CSA, CE, BG (3SB3 EMERGENCY STOP)	UL, CSA, CE, BG (3SB3 EMERGENCY STOP)	EN 574, DIN 24980
Relevant standards	IEC/EN 60947-1; IEC/EN 60947-5-1; IEC/EN 60947-5-5		
AS-Interface	Possibility of direct connection of EMERGENCY STOP devices via standard AS-Interface with safety-related communication	Enclosure with integrated AS-Interface Standard command devices and EMERGENCY STOP can be mounted inside an enclosure. Modular structure	Metal consoles can be retrofitted with safe AS-Interface.
Safety	EMERGENCY STOP mushroom pushbuttons for shutdown of systems in an emergency situation	EMERGENCY STOP function with latching according to ISO 13850	EMERGENCY STOP function with latching according to ISO 13850
Options	Online configurator for customer-specific enclosures: (http://www.siemens.com/sirius/configurators)		
	Do-it-yourself labeling using Label Designer: (http://www.siemens.com/sirius-label-designer)		
	Solvent-resistant metal series		

3.2 "Intrinsic safety" type of protection EEx i according to ATEX directive 94/9/EC

The pushbuttons and indicator lights in round design can also be used in hazardous areas. The 3SB34 ..-0. contact blocks and the 3SB34 ..-1A lampholders (with 3SB39 01-1.A LED lamp) with screw terminals or spring-type terminals can be used.

3.3 Failure rates

Using the B10 value, the failure rate of the command and signaling devices is calculated according to the following formula:

$$\lambda = [0.1 \times C / B10]$$

$$\lambda D = [0.1 \times C / B10d]$$

λ = Total failure rate of a command and signaling device

λD = Failure rate of dangerous failures

C = Operating cycle per hour

B10d = B10 / Proportion of dangerous failures

SN 31920 standard

The B10 value for devices subject to wear is expressed in the number of operating cycles. This is the number of operating cycles at which during a lifetime test, 10% of the test objects have failed (or: number of operating cycles after which 10% of the devices have failed).

Note

Refer to the respective data sheet for the B10 value and the proportion of dangerous failures.

3SB3 pushbuttons and indicator lights

The 3SB3 pushbuttons and indicator lights are a modular command and signaling device program for front plate mounting, base mounting and rear conductor connection. As an alternative, individual elements can also be supplied for use on printed circuit boards. Complete units are offered for the most commonly used applications.

The 3SB3 series is available in the following versions.

Material	Shape of actuator	Article number
Plastic	Round	3SB32 (with holder) 3SB30 (without holder)
	Square	3SB31 (with holder) 3SB33 (complete device)
Metal	Round	3SB35 (with holder) / 3SB36 (complete device)

The operating surfaces of the pushbuttons and illuminated pushbuttons are concave. The lenses of the indicator lights are convex.

The metal version is available with a high degree of protection according to IP67 and NEMA 4.

A command point has the following components:

- An actuator or lens assembly in front of the front plate,
- A holder for mounting behind the front plate,
- Up to 3 contact blocks and/or one lampholder behind the front plate, and
- A comprehensive range of accessories for inscription.

Two contact blocks can be snapped onto the actuator in the standard version.

When three contact blocks or illuminated actuators are required, an additional holder must be plugged onto the actuator from the rear.

- 3SB3901-0AB holder for 3 contact blocks or for 2 contact blocks and 1 lampholder,
- 3SB3901-0AC holder with pressure plates for actuating a middle contact block when using a selector switch, key-operated switch and twin pushbutton with 3 contact blocks.

For illuminated pushbuttons, illuminated switches and illuminated selector switches the holder is included in the scope of supply as standard.

The contact blocks are fitted with a slow-action contact (1 NO contact or 1 NC contact) with double operating contacts. These ensure a high contact stability even with small voltages and currents (e.g., 5 V/1 mA). They are suitable for use in electronic systems as well as conventional controls.

4.1 Application areas

Secure and sturdy mounting of the actuators, indicators, holders and switch and light elements requires only one person.

4.1 Application areas

They are integrated using conventional controls or via AS-Interface. For special ambient conditions, there are additional polyamide versions available for the metal series that are resistant to oils, for example.

Contact blocks have high contact stability and can be combined with actuators as required. The same also applies to lights and indicators.

Note

Lamps and LED modules are designed solely for use with SIRIUS command and signaling devices. They are not suitable for use in domestic lighting systems.

Pushbuttons and indicator lights

Pushbuttons and indicator lights are used for switching, controlling and signaling of electrical loads. Current operating states can be detected and switch positions can be indicated. Pushbuttons and indicator lights are available in round or square design.

Application areas for pushbuttons and indicator lights:

- Control of machines
- Elevators
- Industrial control panels
- Rail / marine applications
- Power plants
- Mills / presses

Key-operated switches

Key-operated switches are used for operations that deserve special protection, e.g., for prevention of improper operation.

Application areas for key-operated switches:

- Switching operations deserving special protection
- Reset of an EMERGENCY STOP
- Alarm systems
- Elevators
- Operation of dangerous machines (e.g., waste compactors)

Enclosures

When controllers are at a physically separate location, pushbuttons and indicator lights in enclosures serve as manual command devices. Their enclosures are equipped with the actuators and the lens assemblies with a nominal diameter of 22 mm.

The devices are suitable for use in any climate. Enclosures with handle are available for suspension (e.g. for crane control units).

The enclosed pushbuttons and indicator lights can be used with conventional controls or connected to the AS-Interface bus system.

EMERGENCY STOP mushroom pushbuttons

These are used for safe and fast stopping of systems and machines in dangerous situations.

EMERGENCY STOP mushroom pushbuttons are certified according to ISO 13850 / EN 418.

The metal version is suitable for use in harsh conditions. The illuminated backing plate improves the visibility of the command point and provides a variety of information.

EMERGENCY STOP devices can be connected directly via the standard AS-Interface with safety-related communication. This applies to EMERGENCY STOP devices of the SIRIUS 3SB3 command devices for front plate mounting and mounting in enclosures.

A front plate-mounted EMERGENCY STOP can be connected directly to AS-Interface via a fail-safe module (F adapter) (see Overview of AS-Interface F adapter (Page 93)). For control systems according to IEC 60204-1 or EN 60204-1 (VDE 0113 Part 1), the mushroom pushbuttons of the 3SB3 series can be used as safety EMERGENCY STOP devices.

Resistance to moisture

The devices are climate-proof (KTW 24) and suitable for standard industrial applications and operation in marine applications. For operation in oily atmospheres (organic oils/lubricants) we recommend actuators which are marked as "solvent-resistant".

4.2 Overview

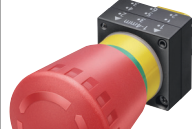
4.2.1 Overview of 3SB3 pushbuttons and indicator lights

					
	Pushbutton with holder	Illuminated pushbutton with holder	Indicator light with holder	Indicator light with holder	Mushroom pushbutton with holder
	With flat button	With flat button	With concentric rings	With smooth lens	Diameter 40 mm
	Article No.	Article No.	Article No.	Article No.	Article No.
Plastic	3SB3000-.....	3SB3001-.....	3SB3001-.....	3SB3001-.....	3SB3000-.....
Metal	3SB3500-.....	3SB3501-.....	3SB3501-.....	3SB3501-.....	3SB3500-.....
Black	3SB3□00-0AA11	—	—	—	3SB3□00-1GA11
Red	3SB3□00-0AA21	3SB3□01-0AA21	3SB3□01-6BA20	3SB3□01-6AA20	3SB3□00-1GA21
Yellow	3SB3□00-0AA31	3SB3□01-0AA31	3SB3□01-6BA30	3SB3□01-6AA30	3SB3□00-1GA31

4.2 Overview

Green	3SB3□00-0AA41	3SB3□01-0AA41	3SB3□01-6BA40	3SB3□01-6AA40	3SB3□00-1GA41
Blue	3SB3□00-0AA51	3SB3□01-0AA51	3SB3□01-6BA50	3SB3□01-6AA50	—
White	3SB3□00-0AA61	3SB3□01-0AA61	3SB3□01-6BA60	3SB3□01-6AA60	—
Clear	—	3SB3□01-0AA71	3SB3□01-6BA70	3SB3□01-6AA70	—

				
	Selector switches with holder			
	Black, not illuminated		Illuminated, 2 switch positions, latching ¹⁾	Illuminated, 3 switch positions, latching ³⁾
	Article No.		Article No.	Article No.
Plastic	3SB3000-.....		3SB3001-.....	3SB3001-.....
Metal	3SB3500-.....		3SB3501-.....	3SB3501-.....
Black	3SB3□00-2KA11 ¹⁾	Red	3SB3□01-2KA21	3SB3□01-2DA21
	3SB3□00-2LA11 ²⁾	Yellow	3SB3□01-2KA31	3SB3□01-2DA31
	3SB3□00-2DA11 ³⁾	Green	3SB3□01-2KA41	3SB3□01-2DA41
	3SB3□00-2EA11 ⁴⁾	Blue	3SB3□01-2KA51	3SB3□01-2DA51
	3SB3□00-2GA11 ⁵⁾	Clear	3SB3□01-2KA71	3SB3□01-2KA71
	3SB3□00-2FA11 ⁶⁾			

				
	Key-operated switches with holder		EMERGENCY STOP mushroom pushbuttons	
	RONIS lock, lock number SB30	CES lock, lock number SSG10	Red, diameter 40 mm, with positive latching function according to ISO 13850	With lock release key
	Article No.	Article No.	Article No.	Article No.
Plastic	3SB3000-.....	3SB3000-.....	3SB3000-.....	3SB3000-.....
Metal	3SB3500-.....	3SB3500-.....	3SB3500-.....	3SB3500-.....

	3SB3□00-4AD11 ⁷⁾	3SB3□00-4LD11 ⁷⁾	With rotate-to-unlatch mechanism	3SB3□00-1BA20 3SB3□00-1JA20
	3SB3□00-4AD01 ⁸⁾	3SB3□00-4LD01 ⁸⁾	3SB3□00-1HA20	3SB3□00-1YA20
	3SB3□00-4BD01 ⁹⁾	3SB3000-4LD05 (with key monitoring) ⁸⁾	With pull-to-unlatch mechanism	3SB3□00-1KA20
	3SB3□00-4DD11 ¹⁰⁾		3SB3□00-1TA20	3SB3□00-1LA20
	3SB3□00-4DD01 ¹¹⁾	3SB3□00-4PD11 ¹⁰⁾	3SB3□00-1TA20-ZB01	3SB3□00-1MA20

1)		2 switch positions, latching	7)		2 switch positions, latching, key removal in pos. O + I
2)		2 switch positions, momentary-contact	8)		2 switch positions, latching, key removal in pos. O
3)		3 switch positions, latching	9)		2 switch positions, momentary-contact, key removal in pos. O
4)		3 switch positions, momentary-contact	10)		3 switch positions, latching, key removal in pos. I + O + II
5)		3 switch positions, momentary-contact to left, latching to right	11)		3 switch positions, latching, key removal in pos. O
6)		3 switch positions, latching to left, momentary-contact to right			

4.2.2 Empty enclosure

Empty enclosure for contact blocks, lampholders and accessories with snap-on base mounting, also single-pole front plate blocks can be used (switching state is maintained upon opening)		No. of command points	Article No. Plastic	Article No. Metal
 3SB3802-0AA3	- With gray top part - Cable entry top and bottom, both 1 x M20	1	3SB3801-0AA3	3SB3801-2AA3
		2	3SB3802-0AA3	3SB3802-2AA3
 3SB3804-2AA3	Cable entry at top and bottom, each 1 x M25	3	3SB3803-0AA3	3SB3803-2AA3
		4	3SB3804-0AA3	3SB3804-2AA3
		6	3SB3806-0AA3	3SB3806-2AA3

4.2 Overview

Empty enclosure for EMERGENCY STOP, for contact blocks, lampholders and accessories with snap-on base mounting, also single-pole front plate blocks can be used (switching state is maintained upon opening)		No. of command points	Article No. Plastic	Article No. Metal
 3SB3801-0AB3	• With yellow top part, without protective collar	1	3SB3801-0AB3	3SB3801-2AB3
	• With yellow top part, with protective collar ¹⁾	1	3SB3801-0AD3	3SB3801-2AD3
 3SB3801-2AD3	• With gray top part, with protective collar	1	—	3SB3801-2AE3
 3SB3801-2EC3	• With yellow top part, with protective collar for 3 padlocks, for mushroom diameter 40 mm, can be locked (BKS, CES, O.M.R.)	1	—	3SB3801-2EC3

1) The protective collar must only be used to protect against inadvertent actuating and must be fitted to allow unimpeded access to the EMERGENCY STOP mushroom pushbutton.

4.2.3 Enclosures with standard equipment

The following enclosure versions are available:

- Enclosures with standard equipment with 1 to 3 command points
- Enclosures with customized equipment with 1, 2, 3, 4 or 6 command points

EMERGENCY STOP mushroom pushbutton with positive latching according to ISO 13850 and rotate-to-unlatch mechanism		Article No. Plastic		Article No. Metal
 Diameter 40 mm, with yellow top part, without protective collar Enclosure for command devices, 22 mm, round, yellow top part, with protective collar, 1 command point, EMERGENCY STOP mushroom pushbutton red, 40 mm, with rotate-to-unlatch mechanism				
	• Base mounting at top and bottom, both 1 x M20	➡ 1 NC	3SB3801-0DG3	3SB3801-2DG3
	• Screw terminals	➡ 2 NC	3SB3801-0EG3	3SB3801-2EG3
 Diameter 40 mm, with yellow top part, with protective collar Enclosure for command devices, 22 mm, round, yellow top part, with protective collar, 1 command point, EMERGENCY STOP mushroom pushbutton red, 40 mm, with rotate-to-unlatch mechanism				
	• Base mounting at top and bottom, both 1 x M20	➡ 1 NC	3SB3801-0DF3	3SB3801-2DF3
	• Screw terminals	➡ 2 NC	3SB3801-0EF3	3SB3801-2EF3

	Diameter 60 mm, with yellow top part, with protective collar for 5 padlocks Enclosure for command devices, 22 mm, round, yellow top part, with protective collar for 5 padlocks, 1 command point, EMERGENCY STOP mushroom pushbutton red, 60 mm, with rotate-to-unlatch mechanism				
	- Base mounting at top and bottom, both 1 x M20 - Screw terminals	⊕	2 NC	—	3SB3801-2EA30
	- Base mounting at top and bottom, both 1 x M20 - Spring-type terminal	⊕	2 NC	—	3SB3801-2EA30-0CC0

⊕ Positive opening according to IEC 60947-5-1, Appendix K

Enclosures, gray, for command devices, 22 mm round, with standard equipment		Article No. Plastic	Article No. Metal
	1 command point, equipment according to selection		
	Base mounting at top and bottom, both 1 x M20	3SB3801-0A.	3SB3801-2A.
	Front plate mounting at top and bottom, both 1 x M20	3SB3801-1A.	3SB3801-3A.
	Mushroom pushbutton diameter 60 mm, black, with positive latching function and rotate-to-unlatch mechanism, with protective collar for 5 padlocks		
	- Base mounting at top and bottom, both 1 x M20 - Spring-type terminal	—	3SB3801-2EB30-0CC0
	2 command points, equipment according to selection		
	Base mounting at top and bottom, both 1 x M20	3SB3802-0A.	3SB3802-2A.
	Front plate mounting at top and bottom, both 1 x M20	3SB3802-1A.	3SB3802-3A.
	3 command points, equipment according to selection		
	Base mounting at top and bottom, both 1 x M20	3SB3803-0A.	3SB3803-2A.
	Front plate mounting at top and bottom, both 1 x M20	3SB3803-1A.	3SB3803-3A.
	4 command points, equipment according to selection		
	Base mounting at top and bottom, both 1 x M25	3SB3804-0A.	3SB3804-2A.
	Front plate mounting at top and bottom, both 1 x M25	3SB3804-1A.	3SB3804-3A.
	6 command points, equipment according to selection		
	Base mounting at top and bottom, both 1 x M25	3SB3806-0A.	3SB3806-2A.
	Front plate mounting at top and bottom, both 1 x M25	3SB3806-1A.	3SB3806-3A.

Safety circuits

IEC 60947-5-1 and EN 60947-5-1 require positive opening. With regard to personal protection, the assured opening of normally closed contact elements in all safety circuits is expressly prescribed for the electrical equipment of machines and is designated according to IEC 60947-5-1 with the positive opening symbol ⊕.

4.2 Overview

With the EMERGENCY STOP mushroom pushbuttons, Category 4 according to EN 954-1 can be achieved if the corresponding fail-safe evaluation devices are selected and correctly connected. This applies, for example, to the 3TK28 safety relays and corresponding devices from the ASIsafe, SIMATIC and SINUMERIK programs.

4.2.4 Overview of contact blocks

4.2.4.1 3SB3400 contact blocks for front plate mounting

Note**Installation monitoring**

The monitored contact blocks of type 3SB3400-0M (screw terminal) and 3SB3403-0M (spring-type terminal) are NC contact blocks with positive opening operation. The NC contact opens automatically when the contact block drops out from the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated control device are closed) takes place upon first-time actuation after the contact block is snapped on.

Steps	Operating state of the contact block (monitored state)	System status
Delivery condition	Open	Mounting
Mounting	Open	
First actuation	Open	Commissioning
First unlatch (reset)	Closed	
Second actuation	Open	Normal operation
Second unlatch (reset)	Closed	
Contact block separated from actuator	Open	Fault (no reset)

Contact blocks for front plate mounting, with screw terminals		
Contact block with one contact	Mounting depth 50 mm	
 3SB3400-0B	1 NO	3SB3400-0B
	1 NO with gold-plated contacts	3SB3400-0BA
	1 NC	3SB3400-0C
	1 NC with gold-plated contacts	3SB3400-0CA

Contact blocks for front plate mounting, with screw terminals		
 3SB3400-0M	1 NC with installation monitoring contact ¹⁾	3SB3400-0M
Contact block with two contacts	Mounting depth 63 mm	
 3SB3400-0A	1 NO + 1 NC	3SB3400-0A
	1 NO + 1 NC with gold-plated contacts	3SB3400-0AA
	1 NO + 1 NC with dust protection ²⁾	3SB3400-0N
	1 NO leading + 1 NC lagging	3SB3400-0H
	1 NO leading + 1 NC lagging with gold-plated contacts	3SB3400-0HA
	2 NO	3SB3400-0D
	2 NO with gold-plated contacts	3SB3400-0DA
	2 NO with dust protection ²⁾	3SB3400-0P
	2 NC	3SB3400-0E
	2 NC with gold-plated contacts	3SB3400-0EA
	2 NC with dust protection ²⁾	3SB3400-0Q
Block with 2 diodes type 1N 4007	Mounting depth 63 mm	
 3SB3400-2A		3SB3400-2A

1) The NC contact opens automatically when the contact block drops out from the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated control device are closed) takes place upon first-time actuation after the contact block is snapped on the actuator. Not suitable for mounting in 3SB38 enclosure.

2) With dust protection guard 3SB3001-0CH.

Contact blocks with lampholders for front plate mounting		
Lampholder BA 9s	Mounting depth 50 mm	
 3SB3400-1A	• Without lamp	3SB3400-1A
	• With 24 V incandescent lamp	3SB3400-1D
	BA 9s lampholders, mounting depth 50 mm	
	• With integrated voltage reducer and with 130 V lamp (3SX1731)	3SB3400-1C
	• With built-in resistor for longer endurance and with 130 V lamp (3SX1731)	3SB3400-1B
Lampholder BA 9s		

Contact blocks with lampholders for front plate mounting		
 3SB3400-1F	With separate lamp test function with integrated voltage reducer and with 130 V lamp (3SX1731)	3SB3400-1F
	Without lamp, for incandescent lamp, max. 2.6 W; for LED lamp 24/48/230 V AC/DC	3SB3400-1G
	Without lamp, for incandescent lamp, max. 2.6 W; for LED lamp, AC or DC	3SB3400-1L
	Without lamp, for incandescent lamp, max. 2.6 W; for glow lamp, AC	3SB3400-1H
Lampholder with integrated LED		
 3SB3400-1PA	Mounting depth 50 mm	
	24 V AC/DC	3SB3400-1P.
	110 V AC	3SB3400-1Q.
	230 V AC	3SB3400-1R.

4.2.4.2 3SB3403 contact blocks for front plate mounting

Note

Installation monitoring

The monitored contact blocks of type 3SB3400-0M (screw terminal) and 3SB3403-0M (spring-type terminal) are NC contact blocks with positive opening operation. The NC contact opens automatically when the contact block drops out from the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated control device are closed) takes place upon first-time actuation after the contact block is snapped on.

Contact blocks for front plate mounting with spring-type terminals		
Contact block with one contact		Mounting depth 50 mm
 3SB3403-0B	1 NO	3SB3403-0B
	1 NO with gold-plated contacts	3SB3403-0BA
	1 NC	3SB3403-0C
	1 NC with gold-plated contacts	3SB3403-0CA
 3SB3403-0M	1 NC with installation monitoring contact ¹⁾	3SB3403-0M
Contact block with two contacts		Mounting depth 63 mm

Contact blocks for front plate mounting with spring-type terminals		
Contact block with one contact	Mounting depth 50 mm	
 3SB3403-0A	1 NO + 1 NC	3SB3403-0A
	1 NO + 1 NC with gold-plated contacts	3SB3403-0AA
	1 NO leading + 1 NC lagging	3SB3403-0H
	1 NO leading + 1 NC lagging with gold-plated contacts	3SB3403-0HA
	2 NO	3SB3403-0D
	2 NO with gold-plated contacts	3SB3403-0DA
	2 NC	3SB3403-0E
	2 NC with gold-plated contacts	3SB3403-0EA

1) The NC contact opens automatically when the contact block drops out from the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated control device are closed) takes place upon first-time actuation after the contact block is snapped on the actuator. Not suitable for mounting in 3SB38 enclosure.

Contact blocks with lampholders for front plate mounting		
Lampholder BA 9s	Mounting depth 50 mm	
 3SB3403-1C	Without lamp¹⁾	3SB3403-1A
	BA 9s lampholders, mounting depth 50 mm	
	With integrated voltage reducer and with 130 V lamp (3SX1731)^{1) 2)}	3SB3403-1C
Lampholder with integrated LED	Mounting depth 50 mm	
 3SB3403-1PA	24 V AC/DC	3SB3403-1P.
	110 V AC	3SB3403-1Q.
	230 V AC	3SB3403-1R.

1) Not suitable for square command devices

2) Can be used only for this lamp

4.2.4.3 3SB3420 / 3SB3423 contact blocks for base mounting

Contact blocks for base mounting		
	Screw terminals	
	Contact block with 1 contact, 1 NO	3SB3420-0B
	Contact block with 1 contact, 1 NO, gold-plated contacts	3SB3420-0BA
	Contact block with 1 contact, 1 NC	3SB3420-0C
	Contact block with 1 contact, 1 NC, gold-plated contacts	3SB3420-0CA

4.2 Overview

Contact blocks for base mounting		
	Spring-type terminal	
	Contact block with 1 contact, 1 NO	3SB3423-0B
	Contact block with 1 contact, 1 NO, gold-plated contacts	3SB3423-0BA
	Contact block with 1 contact, 1 NC	3SB3423-0C
	Contact block with 1 contact, 1 NC, gold-plated contacts	3SB3423-0CA

4.2.4.4 EMERGENCY STOP mushroom pushbuttons with installation monitoring

	EMERGENCY STOP mushroom pushbuttons with installation monitoring	Article No.
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, plastic, red, 40 mm, latching, rotate-to-unlatch mechanism with yellow backing plate, without inscription, 2 x 1 NC with installation monitoring, 1 NO, screw terminals, with holder for 3 contact blocks	3SB3265-1HA20
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, plastic, red, 40 mm, latching, rotate-to-unlatch mechanism with yellow backing plate, inscription: NOT-HALT, 1 NC with installation monitoring, screw terminals	3SB3266-1HA20
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, metal, red, 40 mm, latching, rotate-to-unlatch mechanism with yellow backing plate, inscription: NOT-HALT, 1 NC with installation monitoring, screw terminals	3SB3666-1HA20
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, plastic, red, 40 mm, latching, rotate-to-unlatch mechanism, mechanical switch position indication, with yellow backing plate, inscription: NOT-HALT, 1 NC with installation monitoring, screw terminals	3SB3266-1HA26
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, metal, red, 40 mm, latching, rotate-to-unlatch mechanism, mechanical switch position indication, with yellow backing plate, inscription: NOT-HALT, 1 NC with installation monitoring, screw terminals	3SB3666-1HA26
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, plastic, red, 40 mm, latching, rotate-to-unlatch mechanism, with yellow backing plate, inscription: EMERGENCY STOP, 1 NC with installation monitoring, screw terminals	3SB3266-1HR20
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, metal, red, 40 mm, latching, rotate-to-unlatch mechanism, with yellow backing plate, inscription: EMERGENCY STOP, 1 NC with installation monitoring, screw terminals	3SB3666-1HR20
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, plastic, red, 40 mm, latching, rotate-to-unlatch mechanism, mechanical switch position indication, with yellow backing plate, inscription: EMERGENCY STOP, 1 NC with installation monitoring, screw terminals	3SB3266-1HR26
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, metal, red, 40 mm, latching, rotate-to-unlatch mechanism, mechanical switch position indication, with yellow backing plate, inscription: EMERGENCY STOP, 1 NC with installation monitoring, screw terminals	3SB3666-1HR26
	EMERGENCY STOP mushroom pushbutton, 22 mm, round, metal, red, 40 mm, latching, rotate-to-unlatch mechanism, with yellow backing plate, inscription: EMERGENCY STOP, with holder, 1 NC with installation monitoring, spring-type terminals	3SB3667-1HA20-0CC0

Operating principle of the 3SB340.-0M contact block with installation monitoring

The SIRIUS 3SB340.-0M contact block monitors proper installation or correct connection to an EMERGENCY STOP actuator. If the contact module is incorrectly installed or is disconnected from the actuator, the contact block initiates an automatic shutdown of the machine or system. As long as operation continues, it is assured that all necessary contacts are functioning properly.

Machine directive

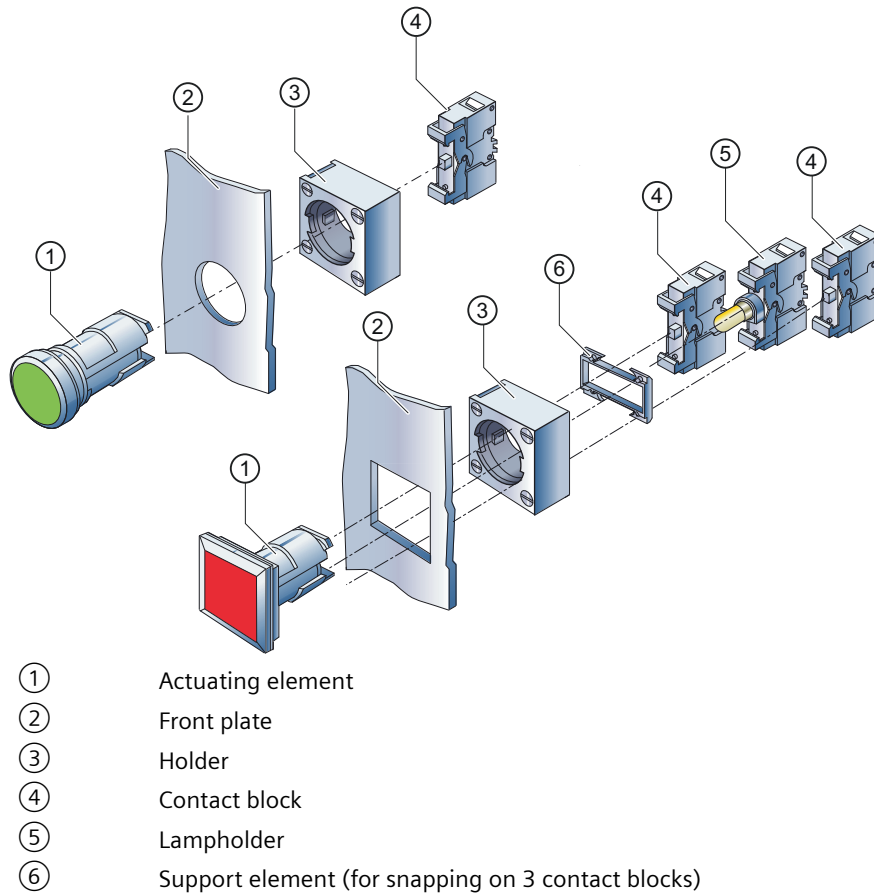
In addition to increased safety, the SIRIUS 3SB340.-0M contact block also supports compliance with the Machinery Directive.

During first commissioning: The circuits are closed and the contact block is ready for use only after completion of the function test prescribed by the directive, thus, through an activation for the first time.

During operation: The installation status of the contact block is continuously monitored. If an error occurs, the machine is shut down automatically.

4.3 Mounting

4.3.1 3SB3 front plate mounting

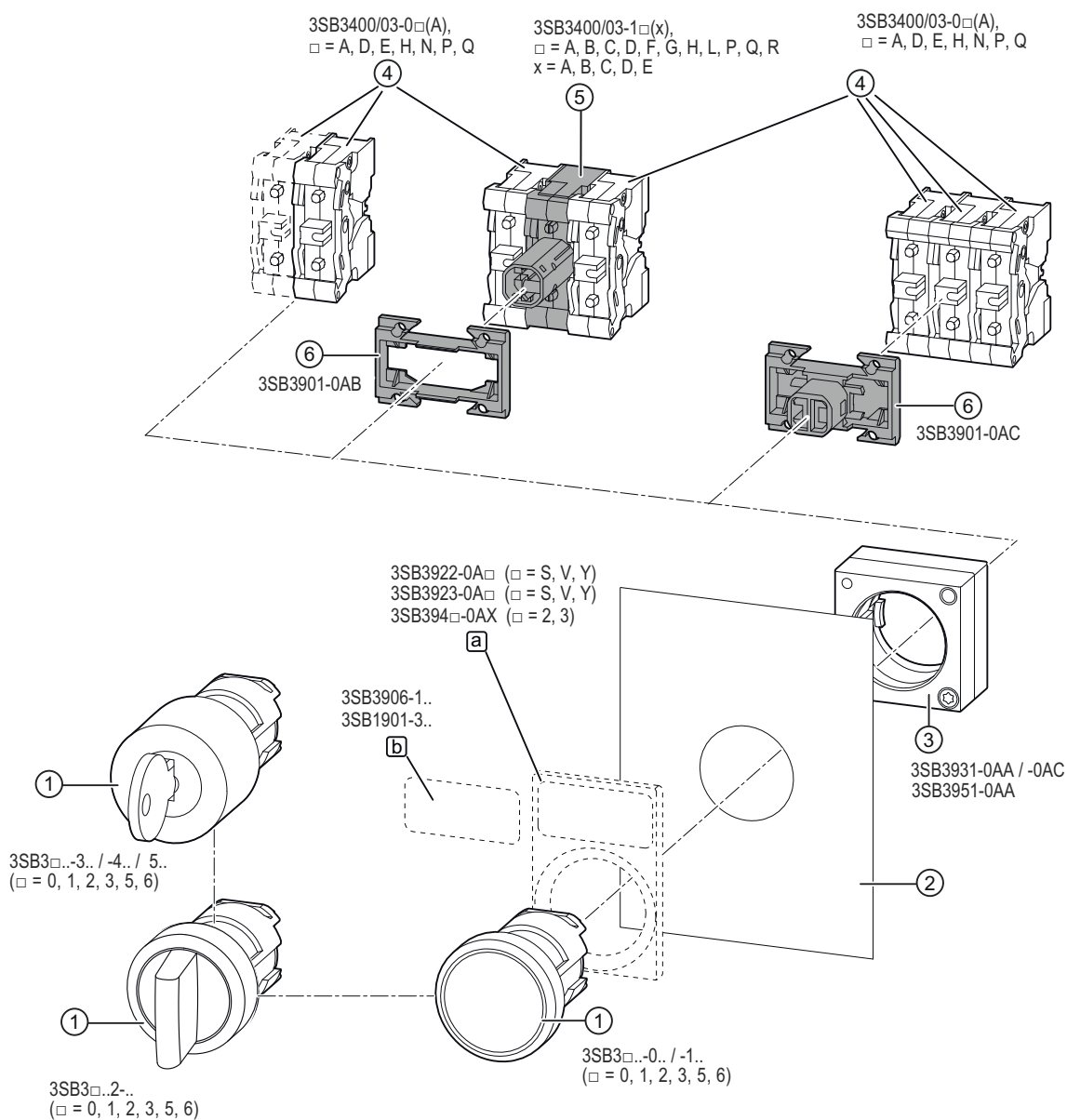


Note

Square cutout for front plate

The square cutout for the front plate can be punched with the 3SB3941-OAF blanking tool.

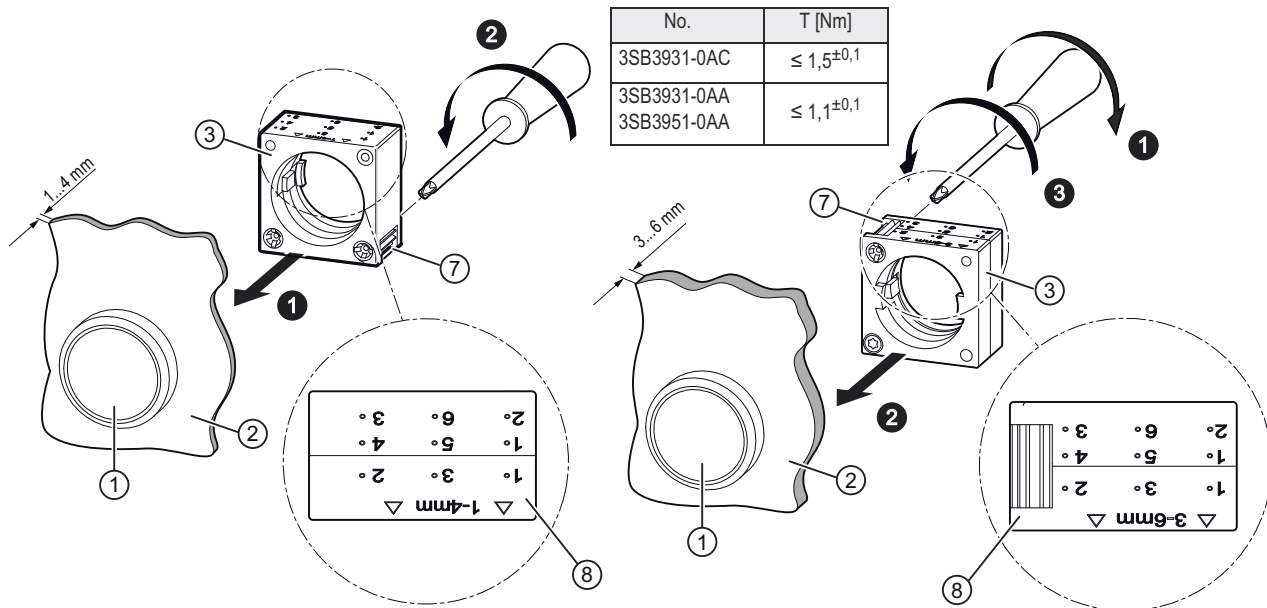
4.3.2 Mounting on front plate



1. Insert the actuating element / indicator light ① from the front into the opening in the front plate ②.
2. If you wish to, you can insert a label holder (a) between the front plate ② and the actuating element / indicator light ① and attach a labeling plate (b) to it.

4.3 Mounting

- Attach the holder (3) from behind to the actuating element (1). Note the inscription on the holder (3) regarding the front plate thickness used and loosen the locking wheel (7) if necessary (turn to the right for a front plate thickness of 1 - 4 mm or to the left for a front plate thickness of 3 - 6 mm) before you place the holder on the actuating element.

**NOTICE****Correct positioning of the holder depending on the front plate thickness**

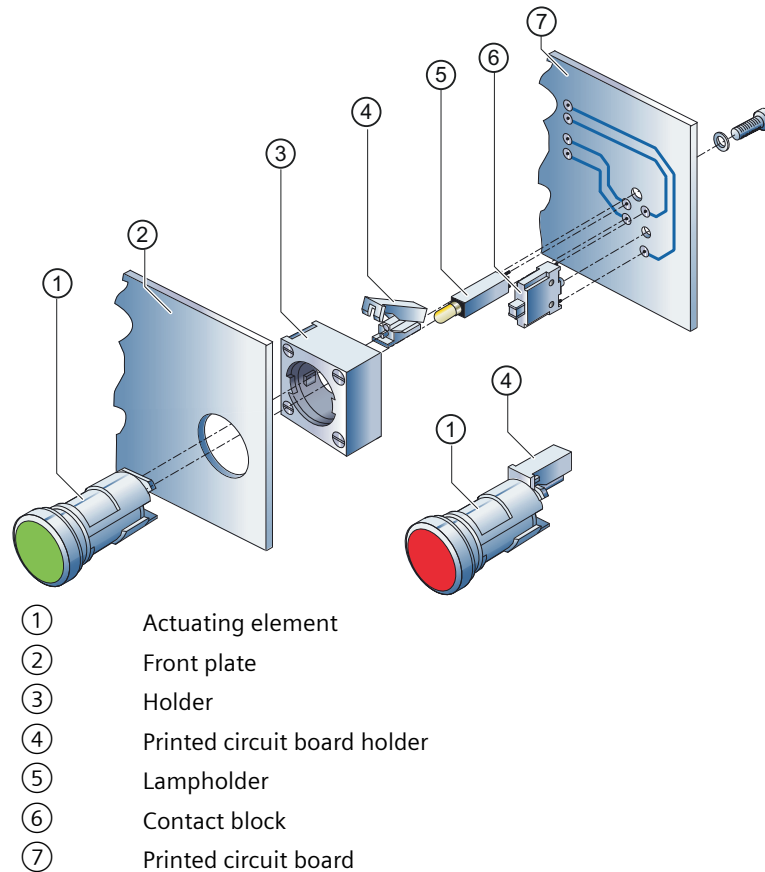
Read the information pertaining to front plate thickness (8) that is printed on the holder and place the holder (from behind) onto the actuating element in the arrow direction indicated.

- Tighten the locking wheel (7) on the holder (tighten to the right for a front plate thickness of 1 - 4 mm, and to the left for a front plate thickness of 3 - 6 mm).
- Mount the support (6) with pressure plate from behind onto the actuating element.
 - Support for actuation of the middle contact block (of 3 blocks) for front plate mounting (3SB3901-0AC).
 - Support for snap-mounting 3 contact blocks for pushbutton, mushroom pushbutton, push-pull button and pushbutton switch (3SB3901-0AB).
- Snap the contact block (4) or the lampholder (5) onto the actuating element from behind.

Note

Single-pole contact blocks and lampholders for front plate mounting can also be used. The enclosures can be optionally equipped with actuating elements and contact blocks and connected to AS-Interface.

4.3.3 Mounting on printed circuit boards - 3SB3



Note

Round and square actuating elements

The same method is used to attach round and square actuating elements.

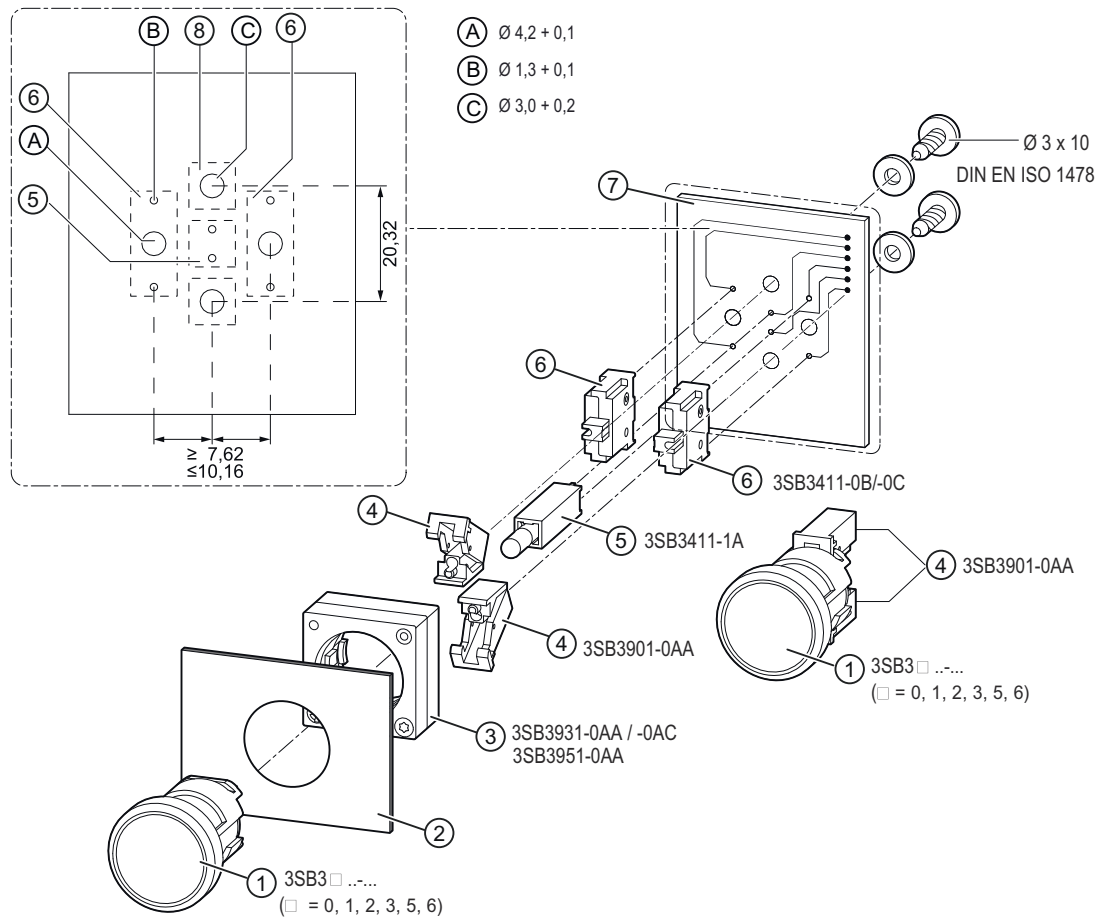
Note

Number of printed circuit board bases

One or more printed circuit board bases must be used, depending on the application.

If the printed circuit board is attached, one printed circuit board base is sufficient. For an unattached printed circuit board, at least two printed circuit board bases must be used.

4.3.4 Mounting on printed circuit board

**NOTICE****Correct positioning of the holder depending on the front plate thickness**

Read the information pertaining to front plate thickness that is printed on the holder and place the holder (from behind) onto the actuating element in the arrow direction indicated.

- Tighten the locking wheel on the holder (tighten to the right for a front plate thickness of 1 - 4 mm, and tighten first to the left and then to the right for a front plate thickness of 3 - 6 mm).
- Equip the printed circuit board (7) with the components.

5. Snap-mount the printed circuit board base ④ on the actuating element.
6. Attach the printed circuit board ⑦ by two 3x10 screws to the printed circuit board base ④.

4.3.5 Holder

The purpose of the holder is to securely hold the actuating or signaling element. It is mounted on the rear face of the front plate.

The holder for the round versions is set to a front plate thickness of 1 to 4 mm when delivered and is placed in the direction of the arrow ↑ 1–4 mm ↑ on the actuator/indicator from the back. The fixing screw is located underneath, on the right.

For a front panel thickness of 3 to 6 mm, the holder is reversed and mounted in the direction of the arrow at ↑ 3–6 mm ↑ and the fixing screw is located on the upper right. In this case, the fixing screw must be rotated counterclockwise to its limit before mounting the holder.

The front plate thickness of 1 to 4 mm can be compensated with the holder for the square version.

Note

Note the maximum permissible front plate thickness!

When label holders, protective caps or similar accessories are used, it is important to remember that the maximum permissible front plate thickness must be reduced by the wall thickness of the relevant accessory.

4.3.6 Contact blocks and lampholders

The contact blocks are fitted with a slow-action contact (1 NO contact or 1 NC contact) with double operating contacts. These ensure a high switching reliability even with small voltages and currents, such as 5 V/1 mA. They are suitable for use in electronic systems as well as conventional controls.

The switch contacts of the NC contact are positively driven.

For illuminated elements, lampholders with an integrated LED or with a base for replaceable bulbs can be supplied.

Contact blocks and lampholders feature terminal designations according to EN 50013.

4.3.7 Connection methods

Devices with the following connections are available:

- Screw (box) terminals with open terminal points, captive screws, funnel-shaped cable entries and screwdriver guides
- Spring-type terminals for vibration-resistant connection
- Solder pin connection (0.8 mm × 0.8 mm solder pins)

When single-pole blocks are used, command points can be mounted close together.

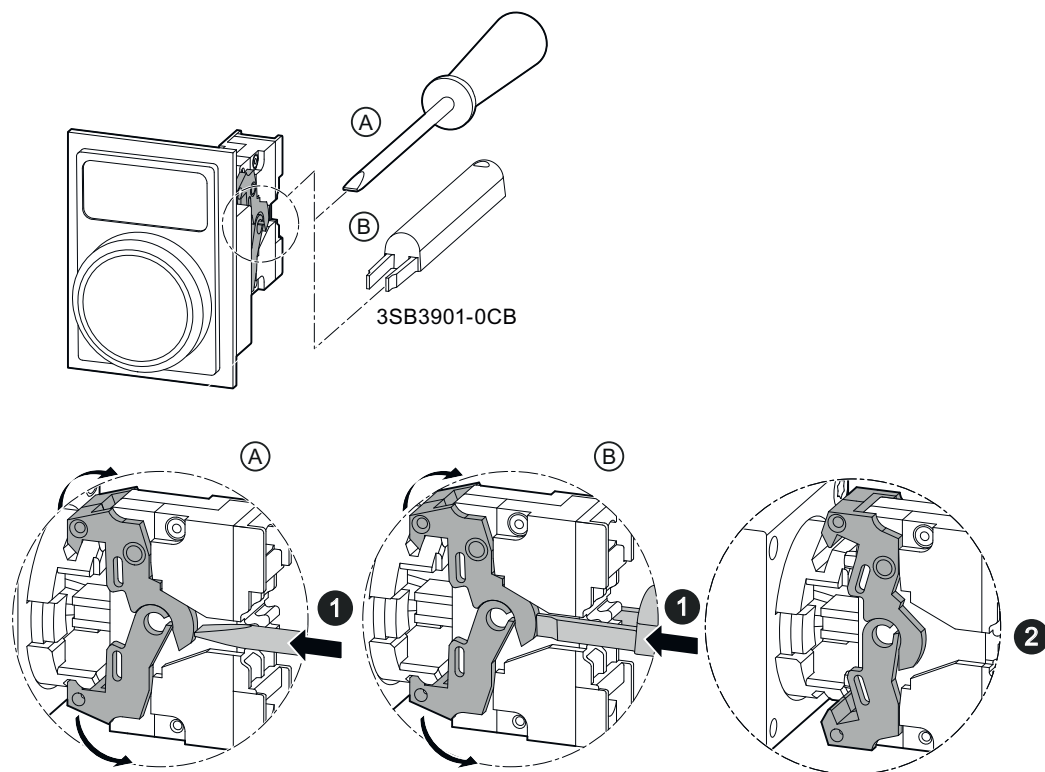
Marking

Devices can be labeled by direct laser marking of handles and by the use of insert labels or backing plates. The software "Label Designer" with appropriate labels can be supplied for applications with less demanding requirements of label wear resistance. Customers can use this software to create their own labels with texts or symbols.

Enclosures

Enclosures made of plastic or metal and with 1, 2, 3, 4 or 6 command points are available for round units. Enclosures with more than 6 command points can be supplied on request. These are suitable for both round and square units. See Chapter Enclosure mounting (Page 41).

4.3.8 Dismantling the contact block

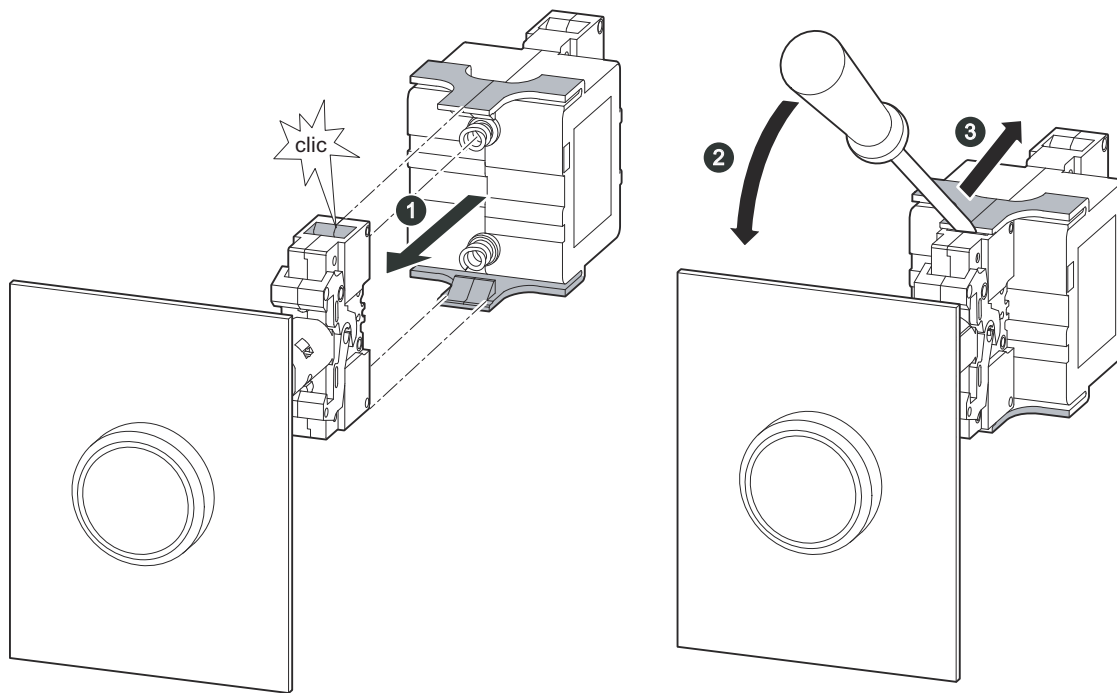


3SB3901-OCB Dismantling tool for contact blocks and lampholders with screw terminals

You can use either a screwdriver (A) or the dismantling tool 3SB3901-OCB (B) to detach the contact block from the holder.

1. Press the screwdriver or the dismantling tool into the small recesses in the contact block.
2. The snap-in hooks of the contact block are opened and the contact block can be removed.

4.3.9 Mounting and dismantling the transformer for a lamp element



Mounting

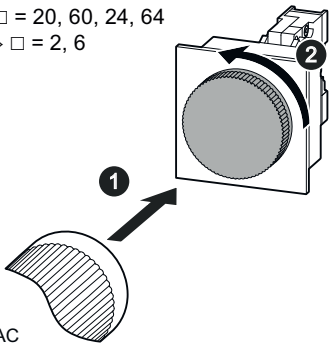
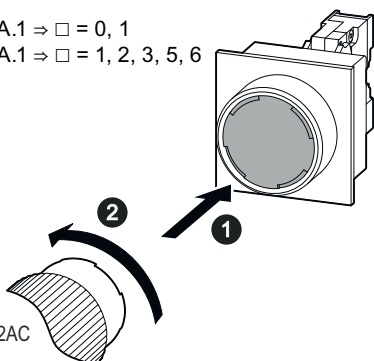
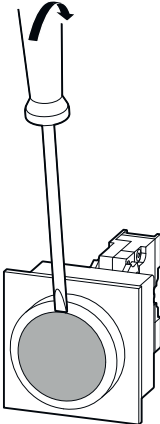
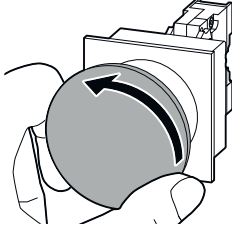
1. Mount the transformer in the specified direction on the lampholder.

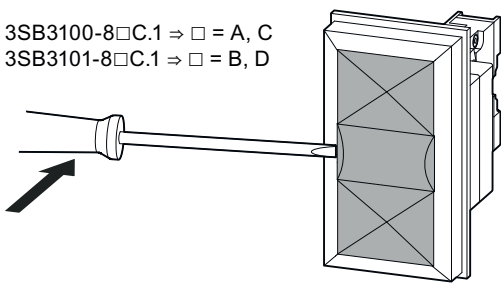
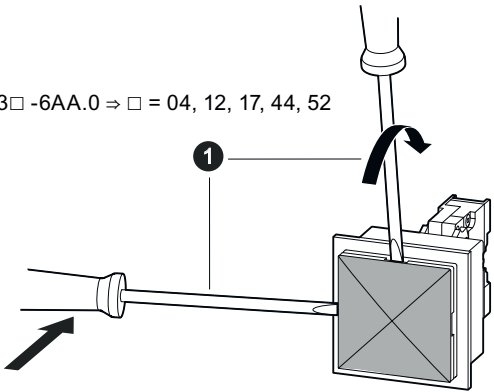
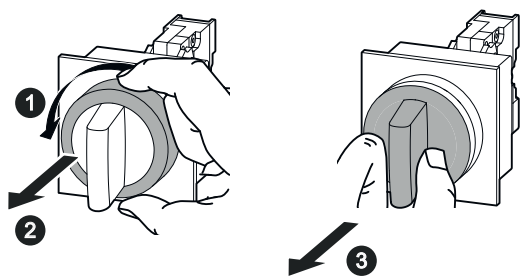
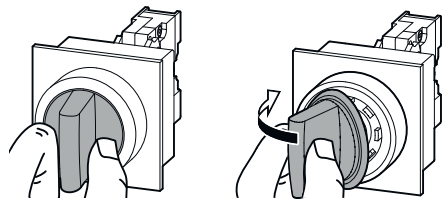
Dismantling

Use a screwdriver to detach the transformer from the lampholder.

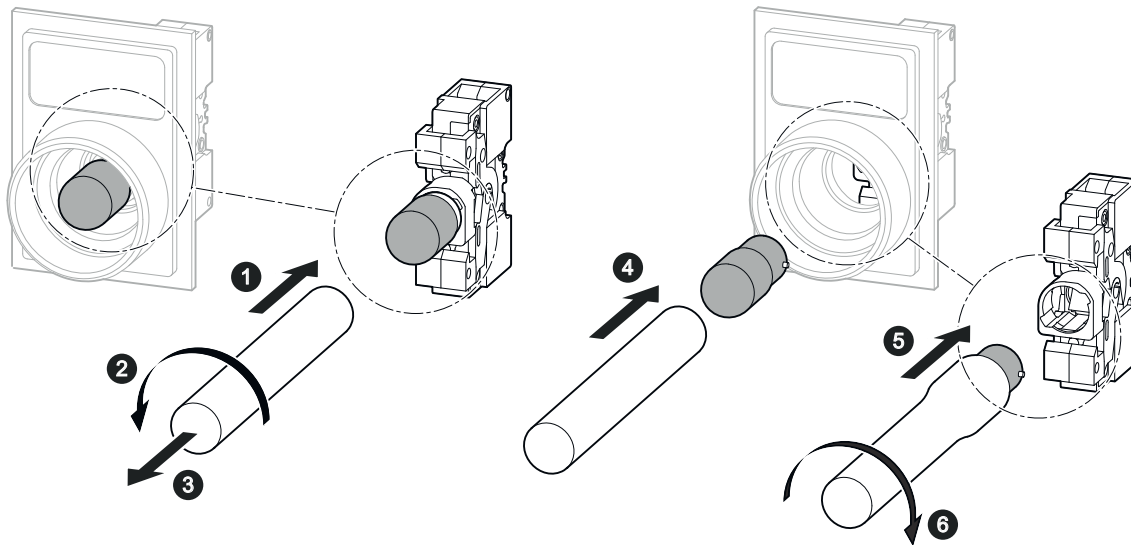
1. Push the screwdriver into the small recess in the lampholder and use it to release the snap-in hook.
2. Keep the snap-in hook for the transformer open and withdraw the transformer in the specified direction.

4.3.10 Dismantling lenses and buttons

Indicator light with concentric rings, plastic or metal	Pushbutton and illuminated pushbutton, flat, metal
3SB3□4-6BA.0 ⇒ □ = 20, 60, 24, 64 3SB3□52-6BA.0 ⇒ □ = 2, 6  3SB3908-2AC	3SB350□-0AA.1 ⇒ □ = 0, 1 3SB360□-0AA.1 ⇒ □ = 1, 2, 3, 5, 6  3SB39 08-2AC
Pushbutton and illuminated pushbutton, flat, plastic	Push-pull button or illuminated mushroom pushbutton, plastic or metal
3SB3001-0AA.1 3SB320□-0AA.1 ⇒ □ = 1, 2, 3, 5, 6, 7 3SB321□-0.AA.1 ⇒ □ = 3, 4, 6, 8 3SB32□.-0.AA.1 ⇒ □ = 2, 3, 4, 5 	 3SB3001-1□A.1 ⇒ = C, D, E, G, R 3SB3201-1□A.1 ⇒ = C, E,R 3SB3501-1□A.1 ⇒ = C, E,R 3SB3601-1□A.1 ⇒ = C, E,R

Twin pushbutton, flat or raised, plastic 3SB3100-8□C.1 ⇒ □ = A, C 3SB3101-8□C.1 ⇒ □ = B, D 	Indicator light, square with holder, plastic 3SB33□-6AA.0 ⇒ □ = 04, 12, 17, 44, 52 
Selector switch, metal 3SB350□-2.A.1 ⇒ □ = 0, 1 	Selector switch, plastic 3SB3□1-2.A.1 ⇒ □ = 00, 11, 50 3SB3□0-2.A.1 ⇒ □ = 00, 11 3SB32□-2.A.1 ⇒ □ = 01, 02, 08, 10, 25, 50, 36 

4.3.11 Lamp replacement



1. Place the 3SB2908-2AB assembly tool over the lamp.
2. Turn the tool in a counter-clockwise direction in order to release the bayonet lock of the lamp.
3. Use the tool to remove the lamp from its socket.
4. To insert a lamp, place the lamp in the assembly tool.
5. Push the assembly tool with attached lamp onto the contact block.
6. Turn the assembly tool clockwise in order to lock the bayonet lock of the lamp.

4.3.12 Grounding of the front plate

NOTICE

For installation in front plates / enclosures made of electrically non-conductive material

If you use an enclosure made of plastic, you must loop a grounding cable ① through any metal actuating elements and lens assemblies and connect it to ground by means of a grounding screw.

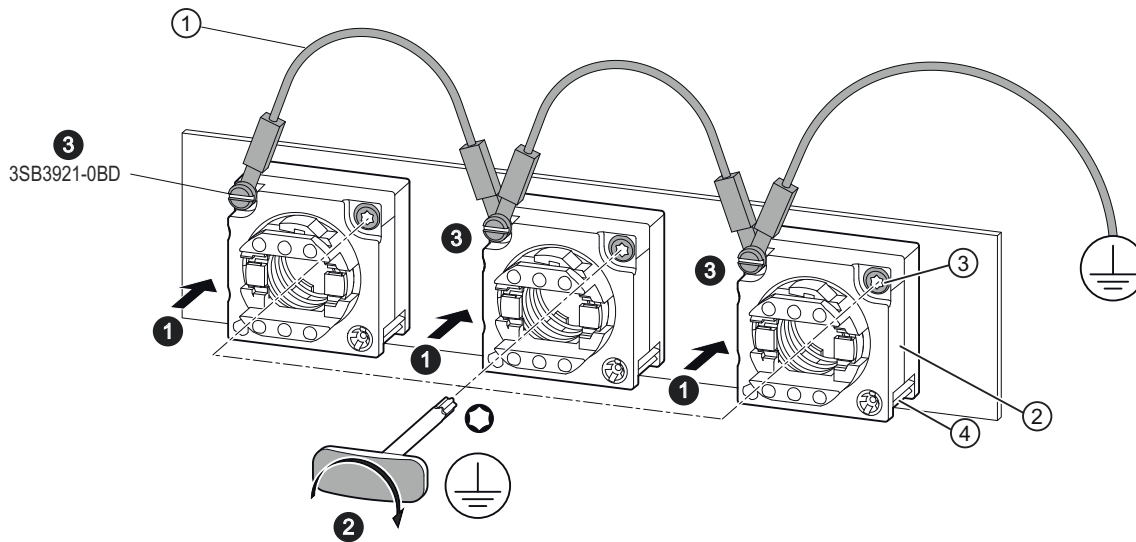


CAUTION

Risk of injury

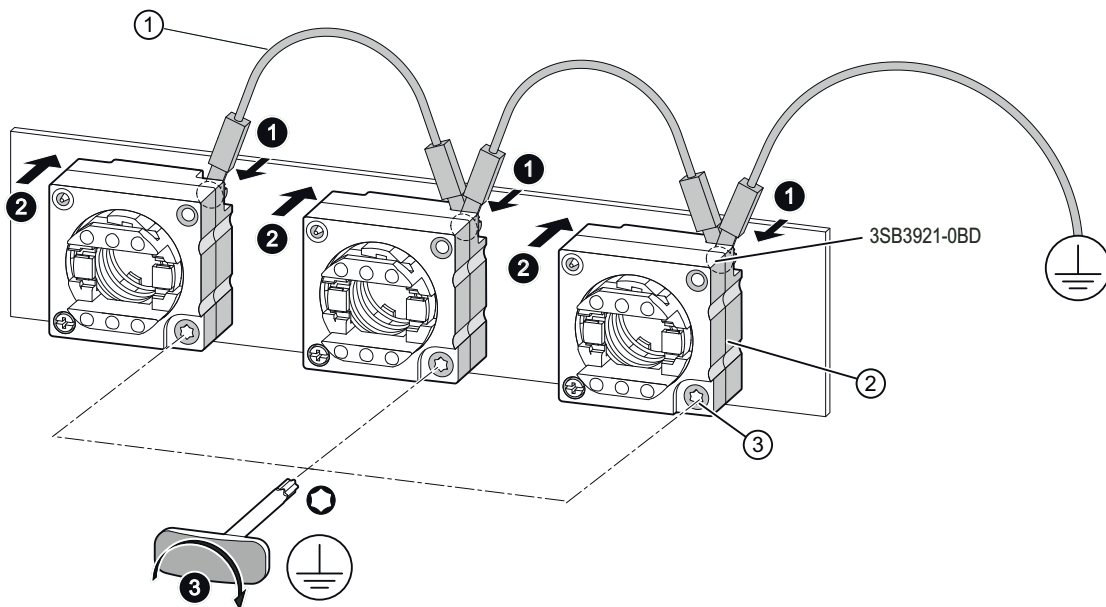
In order to ensure secure connection of the grounding cable, the 3SB3921-0BD grounding screws must be fastened with ring cable lugs.

Grounding with a front plate thickness of 1 - 4 mm



1. Place the holder (2) from behind onto the actuating element and tighten the locking wheel (4).
2. Tighten the countersunk retaining screw (3).
3. Attach the grounding cable (1) with ring cable lugs to the 3SB3921-0BD grounding screw.

Grounding with a front plate thickness of 3 - 6 mm



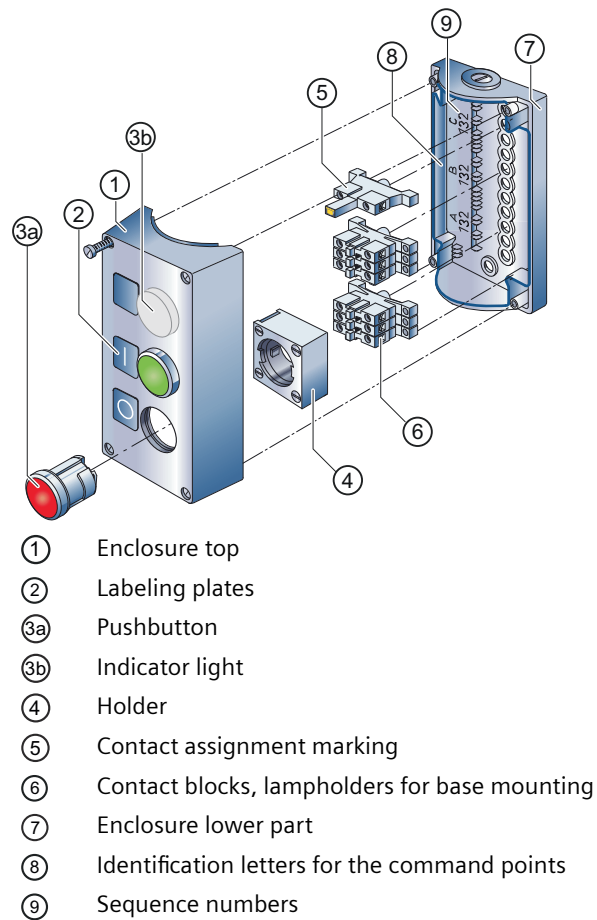
4.3 Mounting

With a front plate thickness of 3 - 6 mm, the holder must be rotated which means that the grounding screw is positioned between the holder and the front plate.

1. Provisionally attach the grounding cable ① with ring cable lugs and the 3SB3921-0BD grounding screw to the holder.
2. Place the holder ② from behind onto the actuating element and tighten the locking wheel.
3. Tighten the countersunk retaining screw ③.

NOTICE
Metal front plate For installation in front plates made of electrically conductive material With its projecting tip, the countersunk retaining screw ③ (Torx T10) provides both twist protection as well as secure contact with the front plate. With thickly painted surfaces, the screw can be screwed in further to enhance the twist protection. The operator is responsible for checking that the protective measure (grounding) is effective.

4.3.13 Enclosure mounting



4.3.13.1 Enclosures

Plastic enclosures and metal enclosures with 1, 2, 3, 4 or 6 command points are available. The mounting holes are located outside the wiring space.

The cable routing for a metric screw connection M20 or M25 is on the narrow edges at the top and bottom of the enclosure.

The plastic enclosures conform to the "Total insulation" protective measure.

4.3.13.2 Actuating elements

Round actuating elements and lens assemblies with nominal diameter 22 mm can be used.

Plastic enclosures are equipped as standard with actuators and indicators made of plastic. Metal enclosures are equipped with metal actuators and indicators.

4.3.13.3 Contact blocks and lampholders

Contact blocks and lampholders for base mounting are snap-mounted in the enclosure lower part. The following can be fitted per command point:

- 3 contact blocks or
- 2 contact blocks + 1 lampholder or lampholder with integrated voltage reducer.

The contact blocks have movable double-break contacts and thus offer high contact stability, i.e. they are also suitable for use in electronic controllers. Function numbers are printed on the contact blocks.

Single-pole contact blocks and lampholders can be used for front plate mounting.

4.3.13.4 Mounting the enclosure on a fixing plate

3SB380.-0... plastic enclosures

Fixing plates are pre-assembled in plastic enclosures. Contact blocks, lampholders or AS-i slaves can be snap-mounted directly on these plates.

If contact blocks are mounted from the front in the enclosure cover, the fixing plate must be removed first (for space reasons).

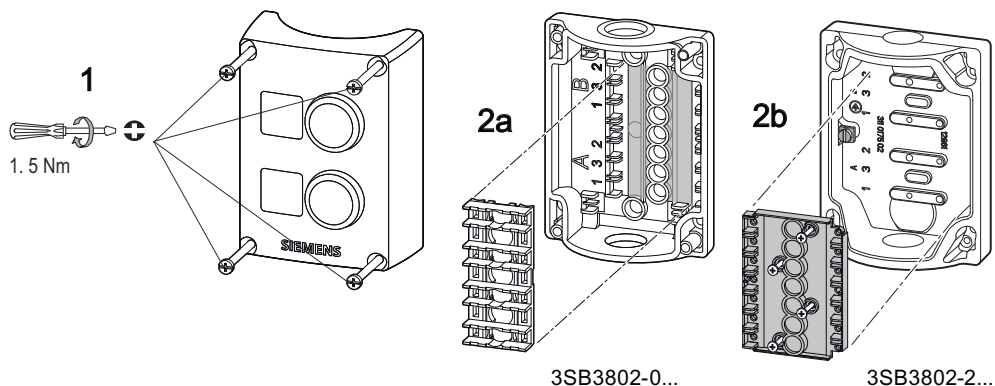
When the fixing plate has been removed from a plastic enclosure, contact blocks can be mounted from the front or in the enclosure base. When the fixing plate has been removed, contact blocks can be mounted directly on the enclosure base but are then held less securely in position.

3SB380.-2... metal enclosures

Fixing plates are pre-assembled in metal enclosures. Contact blocks, lampholders or AS-i slaves can be snap-mounted directly on these plates.

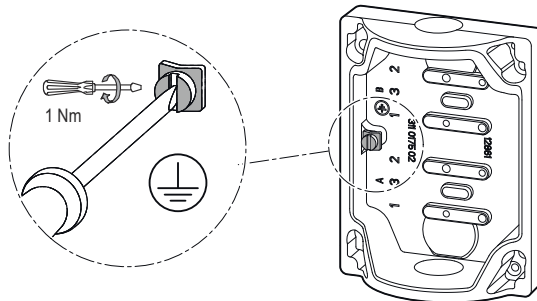
If contact blocks (e.g. pushbuttons or indicator lights) are mounted from the front in the enclosure cover, it will be necessary to unscrew and remove the fixing plate (for space reasons) and it will then be impossible to use contact blocks on the enclosure base.

The diagram below illustrates by way of an example the removal of pre-assembled fixing plates from the enclosure base on an enclosure with two command points.



1. Remove the screws from the enclosure top.
2. 3SB3802-0... (2a) plastic enclosure: Use a flathead screwdriver to lever out the fixing plate.
3SB3802-2... (2b) metal enclosures: Remove the screws from the fixing plate and remove it.

4.3.13.5 Grounding in metal enclosures



⚠ WARNING

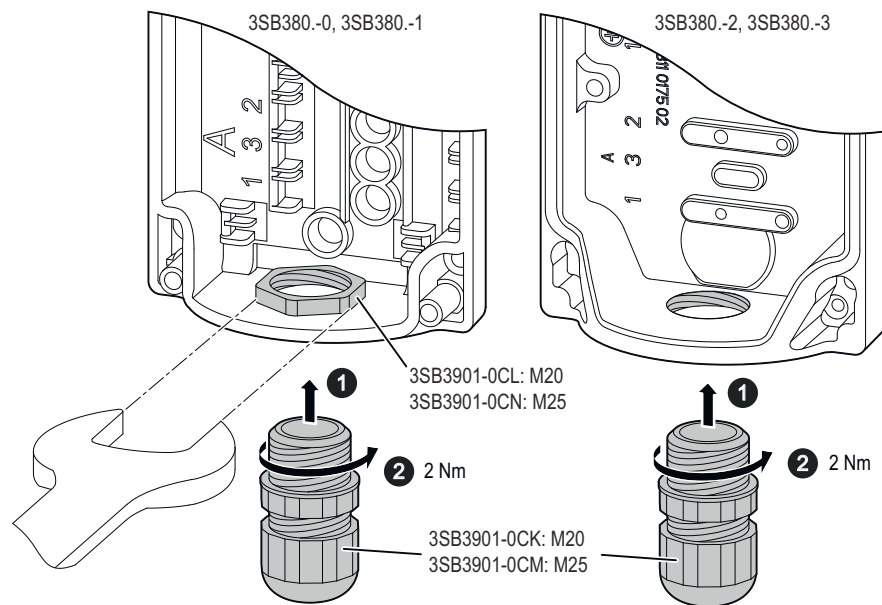
Danger of electric shock.

Metal enclosures must be grounded.

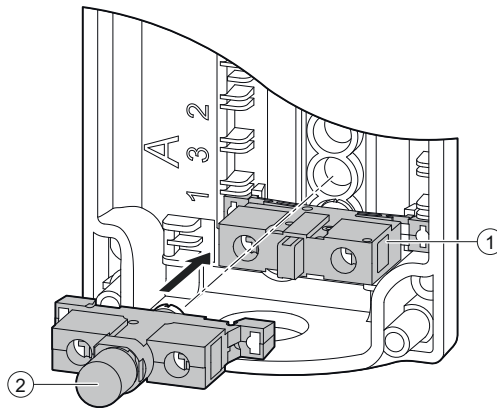
The grounding screw is located in the lower part of the enclosure.

4.3.13.6 Assembly of the cable gland

The diagram below illustrates the procedure for assembling the cable gland on plastic enclosures (3SB380.-0... / 3SB380.-1...) and on metal enclosures (3SB380.-2... / 3SB380.-3...)



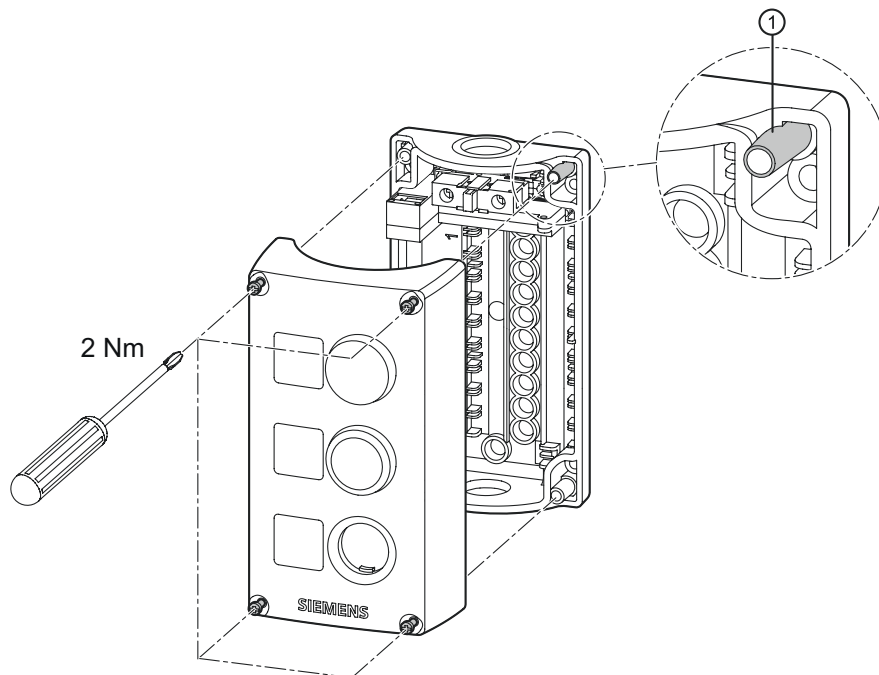
4.3.13.7 Equipping with contact block and light



The contact blocks and lampholders are mounted in the lower part of the enclosure. Follow the steps below to equip an enclosure with contact blocks and a lampholder:

1. Snap the contact block ① onto the slot in the enclosure marked with "1" or "2".
2. Place the lampholder ② on the slot marked with "3".

4.3.13.8 Mounting of the enclosure top

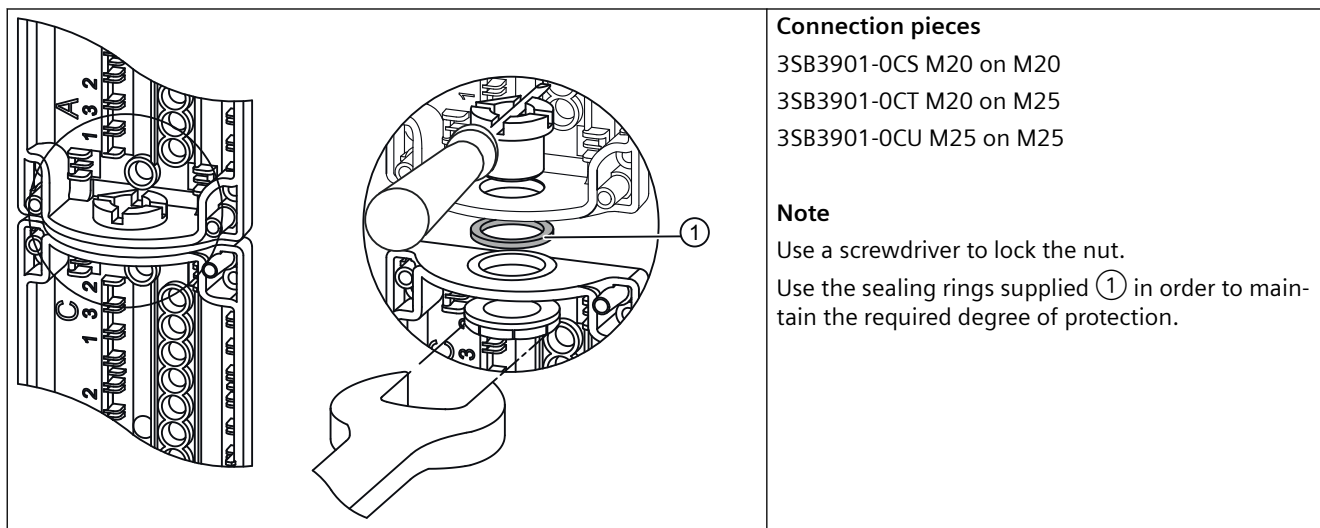


Note

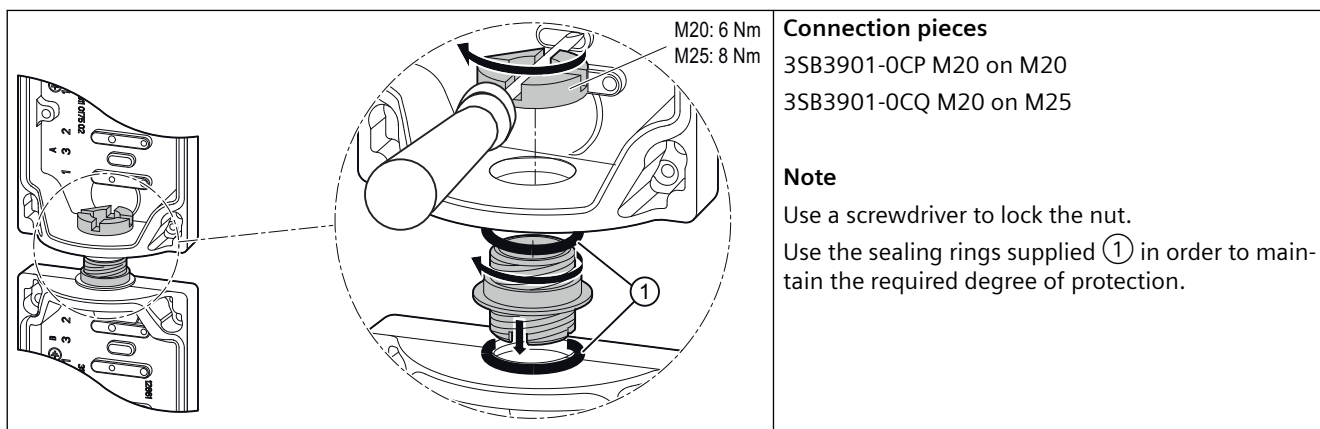
Pay attention to the proper position when mounting the enclosure top. Only one correct position is possible, recognizable by the slightly raised screw guide at the top right in the enclosure ①.

4.3.13.9 Connection pieces for connecting two enclosures

Connection between two enclosures without clearance



Connection between two enclosures with clearance



4.4 Technical specifications

4.4.1 Technical specifications in the Siemens SiePortal

Technical data sheet

You can find the technical specifications for the product in Siemens SiePortal (<https://sieportal.siemens.com/su/bldxc>).

1. Enter the article number of the desired device in the "Products" field.
2. Click the "Technical specifications" link in the result.

4.4.2 Contact blocks and lampholder - screw terminals

Type		3SB3400-0 3SB3420-0	3SB1400-0J	3SB3400-1 3SB3420-1
Contact blocks and lampholders				
Standards		IEC 60947-5-1, IEC 60947-5-5, EN 60947-5-1, EN 60947-5-5		
Type of connection		⊕ Screw terminals		
Rated insulation voltage U_i	V	400		250
For pollution degree according to IEC 60947-1		Category 3		Category 3
Rated impulse withstand voltage U_{imp}	kV	4		4
Conventional thermal current I_{th}	A	10		—
Rated operational currents I_e at rated operational voltage U_e				
Alternating current AC-12				
• At $U_e = 24\text{ V}$	A	10		—
• At $U_e = 48\text{ V}$	A	10		—
• At $U_e = 110\text{ V}$	A	10		—
• At $U_e = 230\text{ V}$	A	10		—
• At $U_e = 400\text{ V}$	A	10		—
Alternating current AC-15				
• At $U_e = 24\text{ V}$	A	6		—
• At $U_e = 48\text{ V}$	A	6		—
• At $U_e = 110\text{ V}$	A	6		—
• At $U_e = 230\text{ V}$	A	6		—
• At $U_e = 400\text{ V}$	A	3	4	—
Direct current DC-12				

Type		3SB3400-0 3SB3420-0	3SB1400-0J	3SB3400-1 3SB3420-1
• At U _e = 24 V	A	10	10	—
• At U _e = 48 V	A	5	—	—
• At U _e = 110 V	A	2,5	2	—
• At U _e = 230 V	A	1	0,5	—
Direct current DC-13				
• At U _e = 24 V	A	3	5	—
• At U _e = 48 V	A	1,5	—	—
• At U _e = 110 V	A	0,7	0,5	—
• At U _e = 230 V	A	0,3	0,2	—
Contact stability				
• Test voltage	V	5		—
• Test current	mA	1		—
Lamps		—		Incandescent lamps, glow lamps and LED lamps
• Lampholder		—		BA9s
Short-circuit protection, weld-free, acc. to IEC 60947-5-1				
• DIAZED fuse links, utilization category gG according to IEC 60269-3-1 (DIN VDE 0636-301)		Dz 10 A		
• DIAZED fuse links, quick according to DIN VDE 0635		Dz 16 A		
• Miniature circuit breaker with C charac- teristic in accordance with IEC 60898 (VDE 0641)	A	10		
Mechanical endurance		10 × 10 ⁶ operating cycles		
Electrical endurance				
• With utilization categories AC-15 with contactors 3RT1015 to 3RT1026		10 × 10 ⁶ operating cycles		
• With utilization category DC-12, DC-13		With direct current, the service life of the contact pieces depends not only on the breaking current but also on the operational voltage, the inductance of the circuit and the operating speed.		
Switching frequency	1/h	1000 operating cycles		
Degree of protection acc. to IEC 60529				
• Connections		IP20		
• Contact chambers		IP40 —		
Touch protection according to EN 50274 and BGV A2 (VBG 4)		Finger-safe		
Conductor cross-sections ¹⁾				
• Finely stranded, without end sleeves	mm ²	—		

4.4 Technical specifications

Type		3SB3400-0 3SB3420-0	3SB1400-0J	3SB3400-1 3SB3420-1
• Finely stranded, with end sleeves according to DIN 46228	mm ²	2 × (0,5 ... 1,5)		
• Solid	mm ²	2 × (1 ... 1,5)		
• Solid, with end sleeves according to DIN 46228	mm ²	2 × (0,5 ... 0,75)		
• AWG cables, solid or stranded		2 × AWG 18 ... 14		
Tightening torque, connection screw	Nm	0,8		

1) For standard screwdriver size 2 or Pozidriv 2

4.4.3 Contact blocks and lampholder - spring-type terminals/solder pins

Type		3SB3403-0 3SB3423-0	3SB3403-1 3SB3423-1	3SB3411-0	3SB3411-1
Contact blocks and lampholders					
Standards		IEC 60947-5-1, IEC 60947-5-5, EN 60947-5-1, EN 60947-5-5			
Type of connection		 Spring-type terminals		 Solder pins	
Rated insulation voltage U _i	V	400		250	60
For pollution degree according to IEC 60947-1		Category 3		Category 3	Category 3
Rated impulse withstand voltage U _{imp}	kV	4	4	4	1,5
Conventional thermal current I _{th}	A	10	—	10	—
Rated operational currents I_e at rated operational voltage U_e					
Alternating current AC-12					
• At U _e = 24 V	A	10	—	10	—
• At U _e = 48 V	A	10	—	10	—
• At U _e = 110 V	A	10	—	10	—
• At U _e = 230 V	A	10	—	10	—
• At U _e = 400 V	A	10	—	—	—
Alternating current AC-15					
• At U _e = 24 V	A	6	—	4	—
• At U _e = 48 V	A	6	—	4	—
• At U _e = 110 V	A	6	—	4	—
• At U _e = 230 V	A	6	—	4	—
• At U _e = 400 V	A	3	—	—	—
Direct current DC-12					
• Direct current DC-12					

Type		3SB3403-0 3SB3423-0	3SB3403-1 3SB3423-1	3SB3411-0	3SB3411-1
• At $U_e = 24\text{ V}$	A	10	—	10	—
• At $U_e = 48\text{ V}$	A	5	—	5	—
• At $U_e = 110\text{ V}$	A	2,5	—	2,5	—
• At $U_e = 230\text{ V}$	A	1	—	1	—
• Direct current DC-13					
• At $U_e = 24\text{ V}$	A	3	—	3	—
• At $U_e = 48\text{ V}$	A	1,5	—	1,5	—
• At $U_e = 110\text{ V}$	A	0,7	—	0,7	—
• At $U_e = 230\text{ V}$	A	0,3	—	0,3	—
Contact stability					
• Test voltage	V	5	—	5	—
• Test current	mA	1	—	1	—
Lamps		—	Incandescent lamps, glow lamps and LED lamps	—	Incandescent lamps and LED lamps
• Lampholder		—	BA9s	—	Wedge bases
Short-circuit protection, weld-free, acc. to IEC 60947-5-1					
• DIAZED fuse links, utilization category gG according to IEC 60269-3-1 (DIN VDE 0636-301)		Dz 10 A			
• DIAZED fuse links, quick according to DIN VDE 0635		Dz 16 A			
• Miniature circuit breaker with C characteristic in accordance with IEC 60898 (VDE 0641)	A	10			
Mechanical endurance		10×10^6 operating cycles			
Electrical endurance					
• With utilization categories AC-15 with contactors 3RT1015 to 3RT1026		10×10^6 operating cycles			
• With utilization category DC-12, DC-13		With direct current, the service life of the contact pieces depends not only on the breaking current but also on the operational voltage, the inductance of the circuit and the operating speed.			
Switching frequency	1/h	1000 operating cycles			
Degree of protection acc. to IEC 60529					
• Connections		IP20			
• Contact chambers		IP40	—	IP40	—
Touch protection according to EN 50274 and BGV A2 (VBG 4)		Finger-safe			
Conductor cross-sections¹⁾					

4.4 Technical specifications

Type		3SB3403-0 3SB3423-0	3SB3403-1 3SB3423-1	3SB3411-0	3SB3411-1
• Finely stranded, without end sleeves	mm ₂	2 × (0,25 ... 1,5)		—	
• Finely stranded, with end sleeves according to DIN 46228	mm ₂	2 × (0,25 ... 0,75)		—	
• Solid	mm ₂	2 × (0,25 ... 1,5)		—	
• Solid, with end sleeves according to DIN 46228	mm ₂	—		—	
• AWG cables, solid or stranded		2 × AWG 24 ... 16		—	
Tightening torque, connection screw	Nm	—		—	
Solder pins	mm ₂	—		0,8 × 0,8	

1) For standard screwdriver size 2 or Pozidriv 2

4.4.4 Data according to UL and CSA

Type		3SB3400-0 3SB3420-0	3SB3400-1 3SB3420-1	3SB3403-0 3SB3423-0	3SB3403-1 3SB3423-1	3SB3411-0	3SB3411-1
Data according to UL and CSA							
Rated operational voltage	V	AC300	—	AC300	—	AC300	—
Conventional thermal current (uninterrupted current)	A	10	—	10	—	10	—
Switching capacity	A 300, R 300, A 600 same polarity						
Rated voltage (lamps)							
• Lamp with BA 9s base	V	—	AC 125	—	AC 125	—	—
• Lamp with wedge base	V	—	AC 60	—	AC 60	—	AC 60
• Lampholder with integrated LED	V	—	24 AC/DC, 110 AC, 230 AC	—	24 AC/DC, 110 AC, 230 AC	—	—
Rated power (lamps)	W	—	2,5	—	2,5	—	1

4.4.5 Actuators and indicators

Type	3SB30 3SB32	3SB31 3SB33	3SB35 3SB36
Actuators and indicators			
Enclosure material	Plastic		Metal
Design	Round	Square	Round

Type	3SB30	3SB31	3SB35
	3SB32	3SB33	3SB36
Tightening torques			
• Screw on holder	Nm	max. 1	
Mechanical endurance			
• Pushbuttons	10 ×10 ⁶ operating cycles		
• Illuminated pushbuttons	3 × 10 ⁶ operating cycles		
• Actuators, rotary or latching	3 × 10 ⁵ operating cycles		
• Key-operated switches with key monitoring	1 × 10 ⁵ operating cycles		
Switching frequency	1/h	1000 operating cycles	
Climatic withstand capability according to EN ISO 6270-2		Climate-proof KTW24; suitable for marine applications	
Ambient temperature			
• During operation, non-illuminated devices and with LED	°C	-25 ... +70	
• During operation, devices with incandescent lamp	°C	-25 ... +60	
• During storage, transport	°C	-40 ... +80	
Degree of protection acc. to IEC 60529			
• Actuators and indicators, standard	IP66	IP65	IP67 and NEMA Type 4
- With protective caps	IP67	IP67	—
• Key-operated switch with key monitoring	IP54	—	—
• Twin pushbuttons (3SB31)	IP65	—	—
Shock resistance acc. to IEC 60068-2-27 for half-sine shock type, 11 ms shock duration			
• Devices without incandescent lamp	≤ 50 g		
• Devices with incandescent lamp	≤ 30 g		
Vibration resistance acc. to IEC 60068-2-6			
• Acceleration at frequency 20 ... 200 Hz	5 g		

4.4.6 Enclosures for command elements

	3SB380.-0, 3SB380.-1	3SB380.-2, 3SB380.-3
Enclosure material	Plastic	Metal
Actuators and indicators	Plastic, round	Metal, round
Standards	IEC 60947-5-1 (VDE 0660 Part 200)	
Degree of protection according to IEC 60529 (VDE 0470-1)	IP65	IP67 + Nema Type 4
Resistance to extreme climates in acc. with DIN 50017	KTW24	
Rated insulation voltage U _i	V	400
Rated impulse withstand voltage U _{imp}	kV	6

4.4 Technical specifications

	3SB380.-0, 3SB380.-1	3SB380.-2, 3SB380.-3
Rated operational current I_e @	A ≤ 10	
Rated operational current I_e @ 1 ... 3 x	A ≤ 8	
P_{vmax} per command point	W 2,5	

4.4.7 Accessories

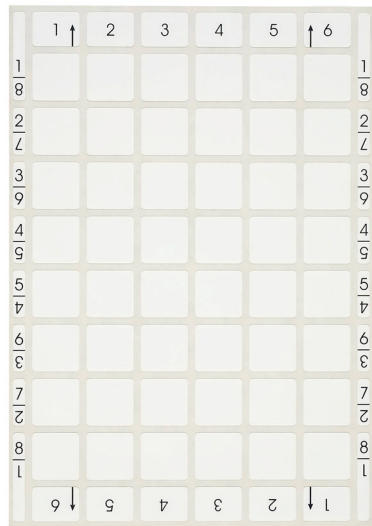
	Article No.
Holder	
• Plastic round	3SB3931-0AA
• Plastic square	3SB3951-0AA
• Metal round	3SB3931-0AC
Contact block for front plate mounting, spring-type terminals	3SB3403-0..
Lampholder	3SB3403-1..
Support element (for snapping on 3 contact blocks)	3SB3901-0AB
Blanking tool (26 mm × 26 mm, for square version)	3SB3941-0AF
Printed circuit board holder	3SB3901-0AA
Lampholder	3SB3411-1A
Contact block for use on printed circuit boards, solder connection	
• With one contact, 1 NO, mounting depth 44 mm	3SB3411-0B
• With one contact, 1 NC, mounting depth 44 mm	3SB3411-0C
Connection pieces	
For connecting two enclosures without clearance	
• M20 on M20	3SB3901-0CS
• M20 on M25	3SB3901-0CT
• M25 on M25	3SB3901-0CU
For connecting two enclosures with clearance	
• M20 on M20	3SB3901-0CP
• M20 on M25	3SB3901-0CQ

4.4.8 SIRIUS Label Designer

Software/Tool SIRIUS Label Designer

With this software and the self-inscription labels supplied with it, it is possible to customers to create their own labeling plate using a standard laser printer. The adhesive labels can be stuck to our label holders. The latching labels can be snapped onto the label holders. The round labels are inserted in the caps of the illuminated pushbuttons and switches. Three-line texts or symbols can be printed. We recommend our plastic plates for laser inscription for more exacting requirements.

More information is available at: (<http://www.siemens.com/sirius-label-designer>)



3SB390.-2A. Labels for printing

4.5 Dimensional drawings

4.5.1 CAx data in the Siemens SiePortal

You can find CAx data for the product in the SiePortal (<https://sieportal.siemens.com/su/bldxc>).

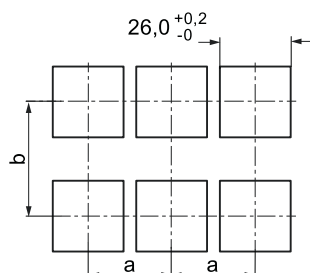
1. Enter the article number of the desired device in the "Products" field.
2. Click the "CAx data" link in the result.

4.5.2 Mounting dimensions

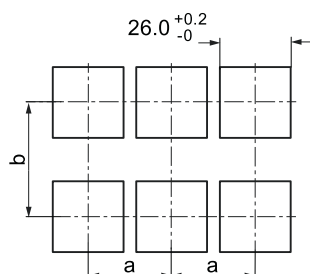
Note

All dimensions specified in mm.

Round version



Square version



Minimum spacing	a	b
For contact blocks (1 contact) and lampholder		
• For front plate mounting, with screw terminals	30 ¹⁾	45
• For front plate mounting, with spring-type terminals	30 ¹⁾	30 ¹⁾
• For use on PCB, with solder pin connections	30 ¹⁾	30 ¹⁾
Contact blocks with 2 contacts		
• For front plate mounting	30 ¹⁾	50
When using label holders for labeling plates		
• 12.5 mm x 27 mm	30 ¹⁾	45 ²⁾
• 27.0 mm x 27 mm	30 ¹⁾	60

¹⁾ For mushroom pushbutton, EMERGENCY STOP and push-pull button:

Note mushroom diameter d = 40 mm or 60 mm.

²⁾ 60 mm with contact blocks having two contacts.

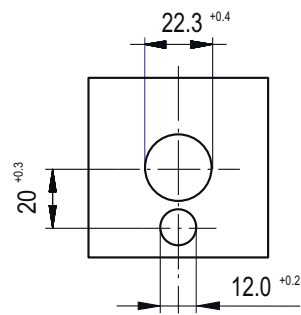
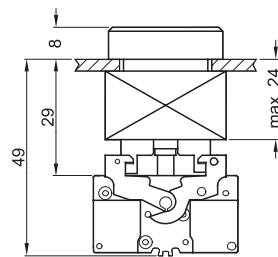


Figure 4-1 Drilling pattern

4.5.3 Plastic version, round

Pushbutton, pushbutton switch, illuminated pushbutton or illuminated pushbutton switch with single-pole contact block (and lampholder)

With flat button



Pushbutton or illuminated pushbutton

With raised button

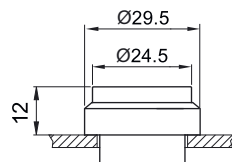


Figure 4-2 3SB3000-0BA.1

Pushbutton

With raised front ring

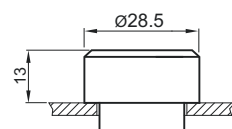


Figure 4-3 3SB3000-0AA.2

Pushbutton

With raised front ring castellated

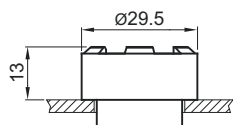


Figure 4-4 3SB3001-0BA.1

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable, diameter 30 mm

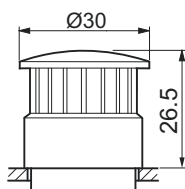


Figure 4-5 3SB3000-1DA.1

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable, diameter 40 mm

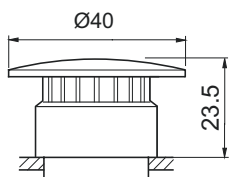


Figure 4-6 3SB3000-1GA.1

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable, diameter 60 mm

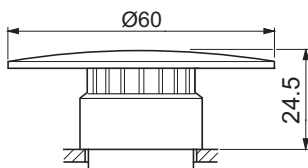


Figure 4-7 3SB3000-1QA.1

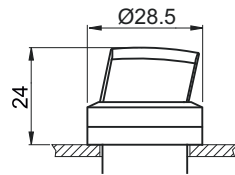
Selector switch or illuminated selector switch

Figure 4-8 3SB300.-2.A.1

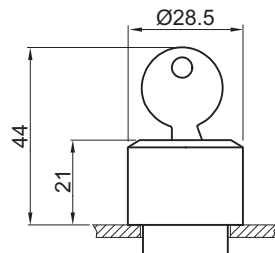
RONIS key-operated switch

Figure 4-9 3SB3000-4HD.1

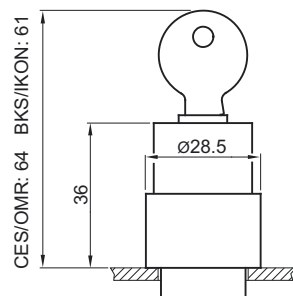
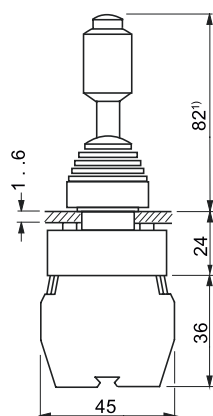
BKS, CES, O.M.R. key-operated switch

Figure 4-10 3SB3000-4LD.1 (CES), 3SB3000-4LD05 (CES with key monitoring), 3SB3000-5AD.1 (BKS), 3SB3000-3AG.1 (O.M.R.)

Coordinate switch



1) 82 mm with mechanical lock, 77 mm without mechanical lock

Figure 4-11 3SB120.-7.V01, 3SB1201-7.W20

Pushbutton

With raised button, latching

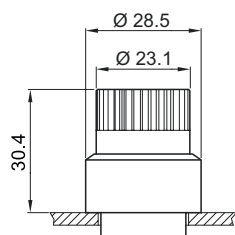


Figure 4-12 3SB3000-0CA.1

Actuator for potentiometers

With shaft diameter 6 mm, 30 ... 32 mm long

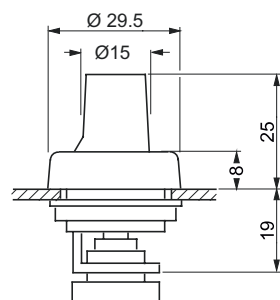


Figure 4-13 3SB1000-7CH07

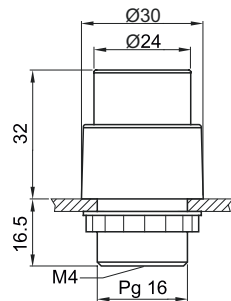
Pushbutton with extended stroke

Figure 4-14 3SB3000-0EA11

EMERGENCY STOP mushroom pushbutton

Diameter 32 mm, with rotate-to-unlatch mechanism

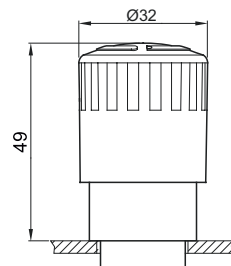


Figure 4-15 3SB3000-1FA20

EMERGENCY STOP mushroom pushbutton

Diameter 40 mm, with pull-to-unlatch mechanism

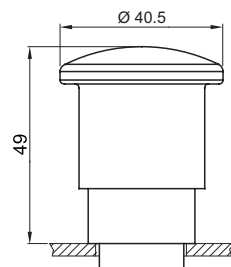


Figure 4-16 3SB3000-1TA20

EMERGENCY STOP mushroom pushbutton

Diameter 40 mm, with rotate-to-unlatch mechanism

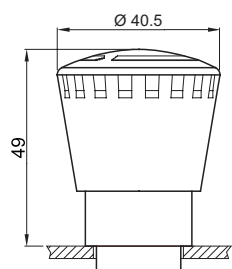


Figure 4-17 3SB3000-1HA2.

EMERGENCY STOP mushroom pushbutton

Diameter 60 mm, with rotate-to-unlatch mechanism

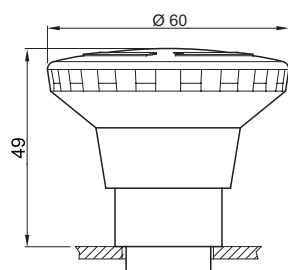


Figure 4-18 3SB3000-1AA20

EMERGENCY STOP mushroom pushbutton

With RONIS key-operated switch

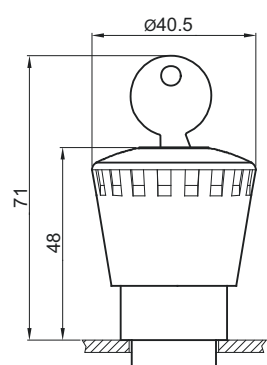


Figure 4-19 3SB3000-1BA20

EMERGENCY STOP mushroom pushbutton

With CES, BKS, O.M.R. key-operated switch

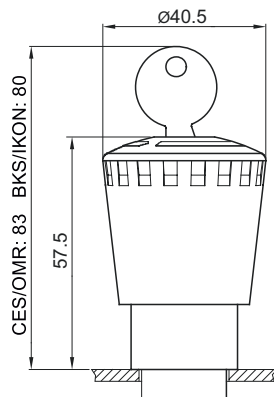


Figure 4-20 3SB3000-1KA20 (CES), 3SB3000-1LA20 (BKS), 3SB3000-1MA20 (O.M.R.)

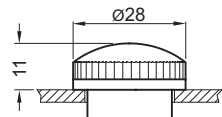
Indicator light

Figure 4-21 3SB3001-6AA.0

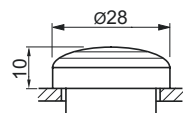
Acoustic signaling device

Figure 4-22 3SB3000-7AA10

4.5.4 Twin pushbutton (round feed-through opening)**Twin pushbutton**

With flat buttons

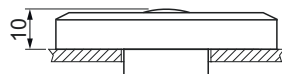


Figure 4-23 3SB3100-8AC.1, 3SB3101-8BC.1

Twin pushbutton

With raised buttons

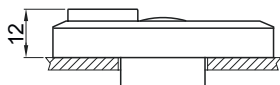
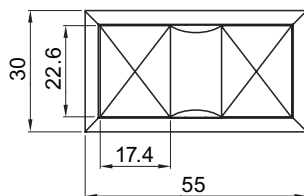
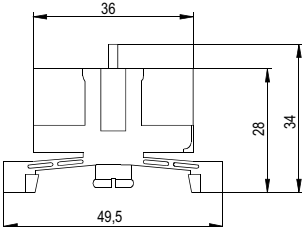
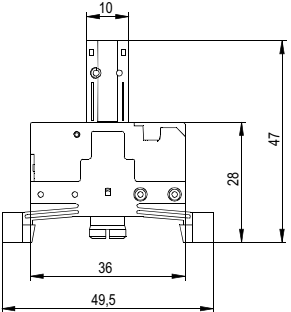
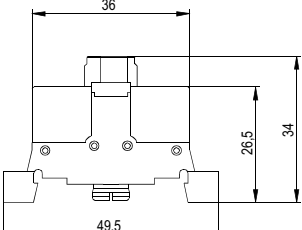
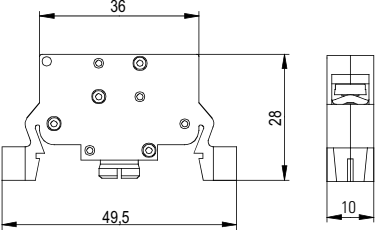
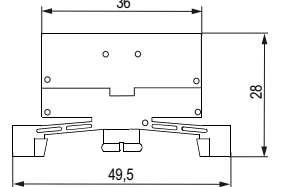


Figure 4-24 Twin pushbutton with indicator light, with flat and raised square button, incl. holder for 3 elements 3SB3101-8DC31

With or without indicator light, top view



4.5.5 Contact blocks for base mounting

 Contact block with 1 contact, screw terminals 3SB3420-0B(A) Contact block with 1 contact, spring-type terminals 3SB3423-0B(A)	 Lampholder with integrated LED, screw terminals 3SB342.-1xy (x = P, Q, R) (y = A, B, C, D, E)
 Lampholder BA 9S, screw terminals, 3SB3420-1A, 3SB3420-1C	 Support terminal, screw terminals, 3SB3901-0AG, 3SB3901-0AH, 3SB3901-0AJ
 Support terminal, spring-type terminals 3SB3423-2F, 3SB3423-2G, 3SB3423-2H	

4.5.6 Accessories for plastic version, round

Holder

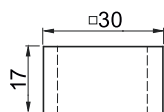


Figure 4-25 3SB3931-0AA

Blanking plug

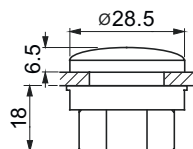


Figure 4-26 3SB3921-0AA

4.5.7 Plastic version, square 26 mm x 26 mm

Pushbutton, pushbutton switch, illuminated pushbutton or illuminated pushbutton switch

With flat button

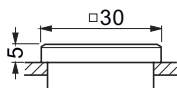


Figure 4-27 3SB3110-0AA.1

Pushbutton

With raised front ring

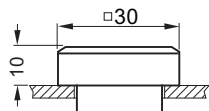


Figure 4-28 3SB3110-0AA.2

Pushbutton

With raised front ring castellated

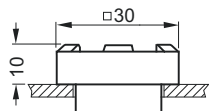
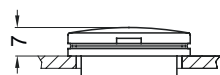


Figure 4-29 3SB3110-0AA.3

Indicator light



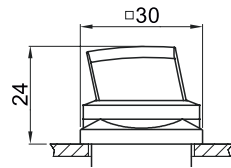
Selector switch or illuminated selector switch

Figure 4-30 3SB3110-2.A.1

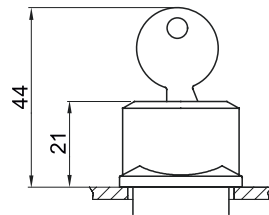
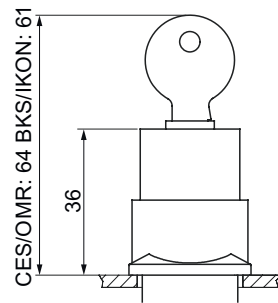
RONIS key-operated switch

Figure 4-31 3SB3110-4AD.1

CES, BKS, O.M.R key-operated switch**EMERGENCY STOP mushroom pushbutton**

With rotate-to-unlatch mechanism

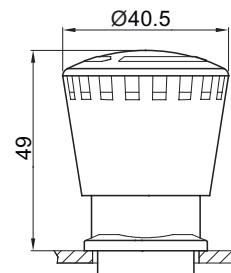


Figure 4-32 3SB3110-1HA20

EMERGENCY STOP mushroom pushbutton

With RONIS key-operated switch

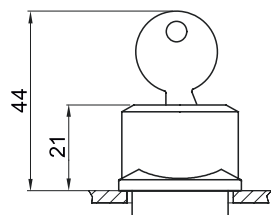


Figure 4-33 3SB3110-1BA20

EMERGENCY STOP mushroom pushbutton

With CES, BKS, O.M.R. key-operated switch

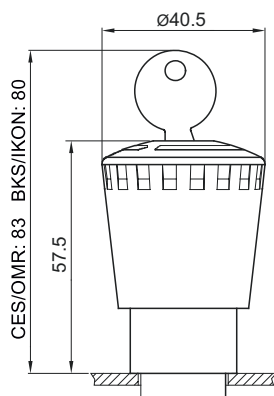


Figure 4-34 3SB3110-1KA20 (CES), 3SB3110-1LA20 (BKS), 3SB3110-1MA20 (OMR)

4.5.8 Accessories for plastic version, square

Holder

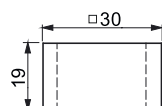


Figure 4-35 3SB3951-0AA

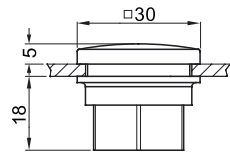
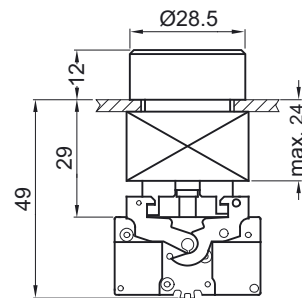
Blanking plug

Figure 4-36 3SB3941-0AA

4.5.9 Metal version, round**Pushbutton or illuminated pushbutton**

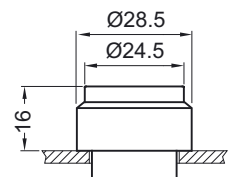
With flat button



With single-pole contact block (and lampholder)

Pushbutton or illuminated pushbutton

With raised button

**Pushbutton or illuminated pushbutton switch, latching**

With flat button

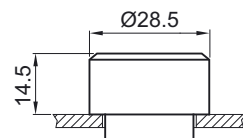


Figure 4-37 3SB3500-0DA.1, 3SB3501-0DA.1

Pushbutton

With raised front ring

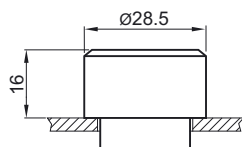


Figure 4-38 3SB3500-0AA.2

Selector switch or illuminated selector switch

Default

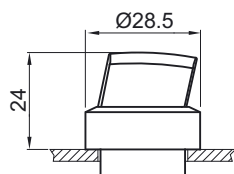


Figure 4-39 3SB350.-2.A.1

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable

Diameter 30 mm

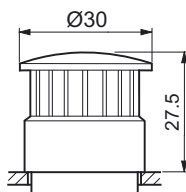


Figure 4-40 3SB3500-1DA.1 mushroom pushbutton, 3SB3501-1DA.1 illuminated mushroom pushbutton, 3SB3500-1EA.1 push-pull button

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable

Diameter 40 mm

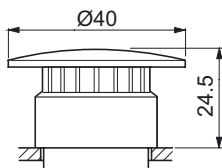


Figure 4-41 3SB3500-1GA.1 mushroom pushbutton, 3SB3501-1GA.1 illuminated mushroom pushbutton, 3SB3501-1CA.1 push-pull button

Mushroom pushbutton, illuminated mushroom pushbutton, push-pull button or push-pull button illuminable

Diameter 60 mm

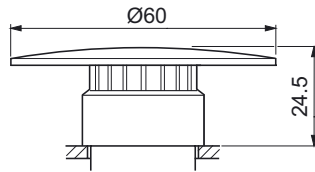


Figure 4-42 3SB3500-1QA.1 mushroom pushbutton, 3SB3501-1QA.1 illuminated mushroom pushbutton, 3SB3500-1RA.1 push-pull button

Selector switch or illuminated selector switch

Heavy Duty

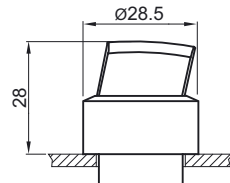


Figure 4-43 3SB350.-2PA.1

Selector switch or illuminated selector switch

With long handle

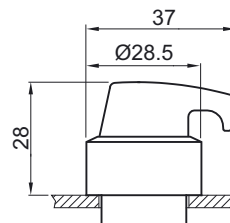


Figure 4-44 3SB3500-3PA.1

RONIS key-operated switch

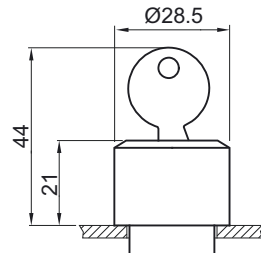


Figure 4-45 3SB3500-4AD.1

CES, BKS, O.M.R. key-operated switch

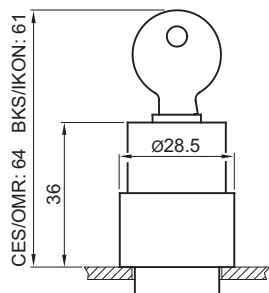


Figure 4-46 3SB3500-4LD.1 (CES), 3SB3500-5AD.1 (BKS), 3SB3500-3AG.1 (O.M.R)

EMERGENCY STOP mushroom pushbutton

Diameter 32 mm, with rotate-to-unlatch mechanism

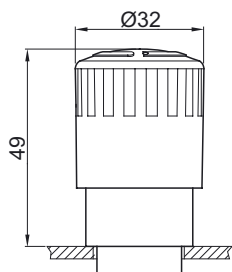


Figure 4-47 3SB3500-1FA20

EMERGENCY STOP mushroom pushbutton

Diameter 40 mm, with pull-to-unlatch mechanism

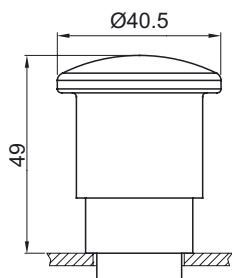


Figure 4-48 3SB3500-1TA20

EMERGENCY STOP mushroom pushbutton

Diameter 40 mm, with rotate-to-unlatch mechanism

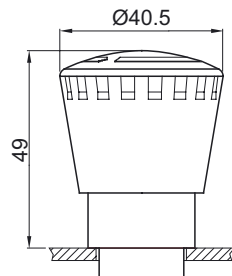


Figure 4-49 3SB3500-1HA2.

EMERGENCY STOP mushroom pushbutton

Diameter 60 mm, with rotate-to-unlatch mechanism

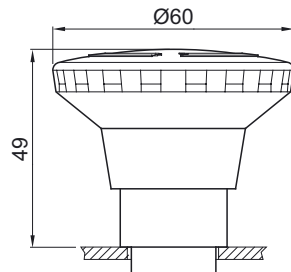


Figure 4-50 3SB3500-1AA20

EMERGENCY STOP mushroom pushbutton

With RONIS key-operated switch

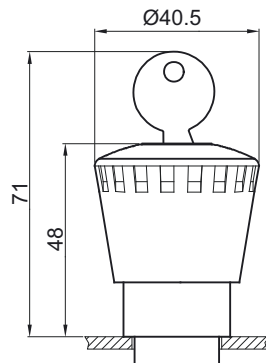


Figure 4-51 3SB3500-1BA20

EMERGENCY STOP mushroom pushbutton

With CES, BKS, O.M.R. key-operated switch

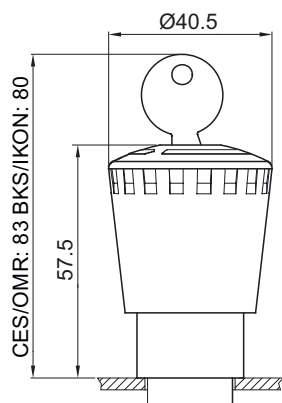


Figure 4-52 3SB3500-1KA20 (CES), 3SB3500-1LA20 (BKS), 3SB3500-1MA20 (O.M.R.)

Indicator light

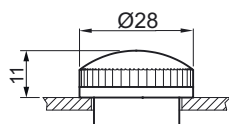


Figure 4-53 3SB3501-6.A.0

4.5.10 Accessories for metal version, round

Holder

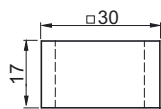


Figure 4-54 3SB3931-0AC

Blanking plug

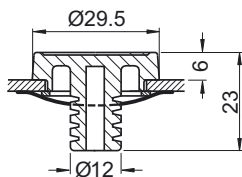
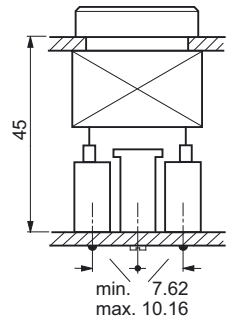


Figure 4-55 3SB1902-0AQ

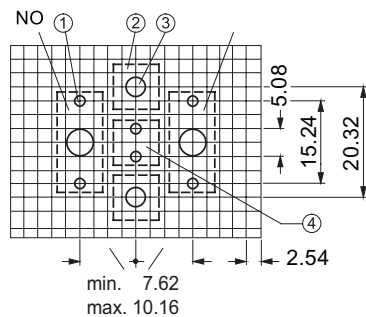
4.5.11 Contact blocks and lampholders

4.5.11.1 Contact blocks/lampholders with solder pins, for mounting on printed circuit boards

Pushbutton with contact blocks with 1 contact and printed circuit board holder

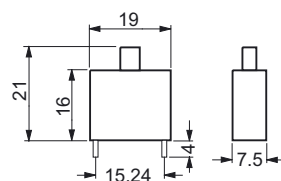


Solder pin spacing

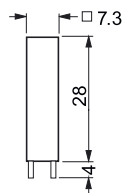


- ① Solder connection diameter $1.3^{+0.1}$
- ② Printed circuit board holder
- ③ Centering hole diameter $4.2^{+0.1}$
- ④ Lampholder

Contact block with 1 contact for solder connection

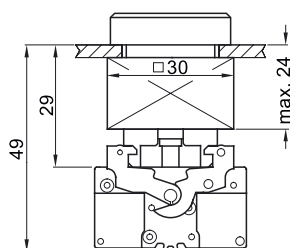


Wedge base lampholder W2 x 4.6 d

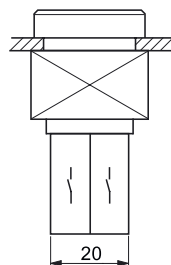


4.5.11.2 Contact blocks with screw terminals, for front plate mounting

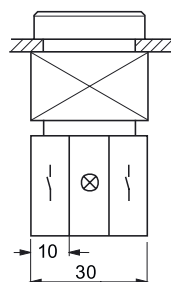
Pushbutton or illuminated pushbutton with contact blocks with one contact



Pushbutton with contact blocks with one contact



Illuminated pushbutton with contact blocks with one contact and lampholder



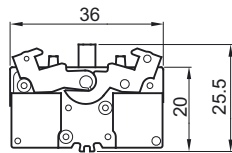
Contact block with one contact

Figure 4-56 3SB3400-0B, 3SB3400-0C

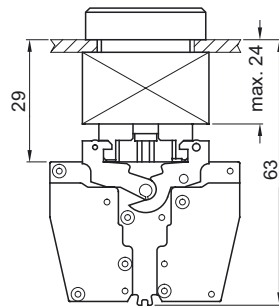
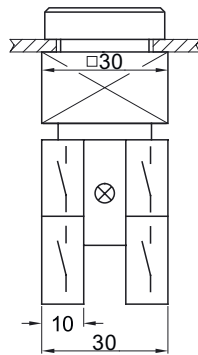
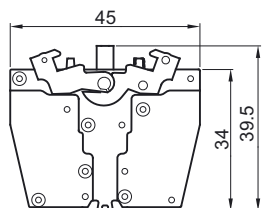
Pushbutton or illuminated pushbutton with contact blocks with two contacts**Illuminated pushbutton with contact blocks with two contacts and lampholder****Contact block with two contacts, diode element**

Figure 4-57 3SB3400-0A

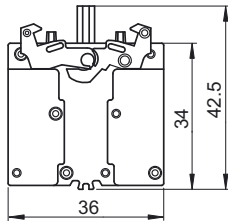
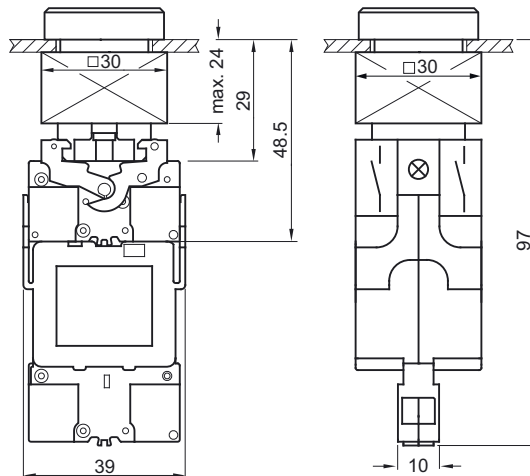
Contact block with one contact and installation monitoring contact

Figure 4-58 3SB3400-0M

NOTICE**Monitored contact block**

The monitored contact blocks of type 3SB3400-0M (screw terminal) and 3SB3403-0M (spring-type terminal) are NC contact blocks with positive opening operation. The NC contact opens automatically when the contact block drops out from the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated control device are closed) takes place upon first-time actuation after the contact block is snapped on.

Illuminated pushbutton with contact blocks with one contact and lampholder with snap-mounted transformer

Lampholder with integrated LED

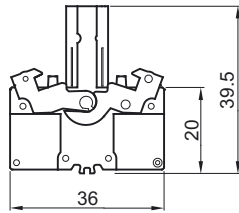


Figure 4-59 3SB3400-1P., 3SB3400-1Q, 3SB3400-1R

Lampholder BA 9s with or without integrated voltage reducer

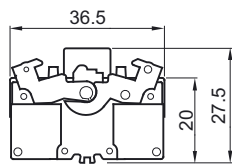


Figure 4-60 3SB3400-1A, 3SB3400-1D, 3SB3400-1C, 3SB3400-1B

Lampholder BA 9s with separate lamp test function

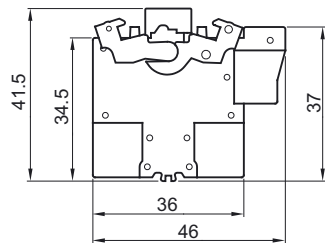


Figure 4-61 3SB3400-1F, 3SB3400-1G, 3SB3400-1L, 3SB3400-1H

4.5.11.3 Contact blocks with spring-type terminals, for front plate mounting

Contact block with one contact

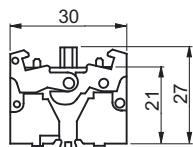


Figure 4-62 3SB3403-0B, 3SB3403-0C

Contact block with two contacts

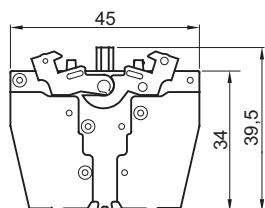


Figure 4-63 3SB3403-0A, 3SB3403-0H, 3SB3403-0D, 3SB3403-0E

Contact block with one contact and installation monitoring contact

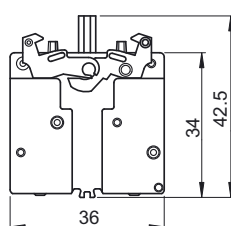


Figure 4-64 3SB3403-0M

Lampholder BA 9s

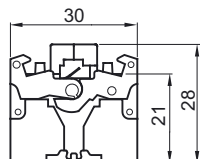


Figure 4-65 3SB3403-1A, 3SB3403--1C

Lampholder with integrated LED

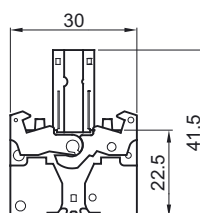
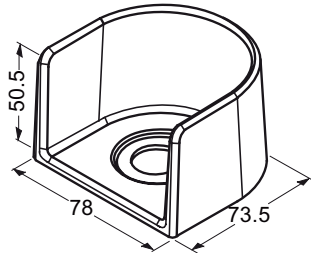


Figure 4-66 3SB3403-1P, 3SB3403-1Q., 3SB3403-1R.

4.5.12 Accessories for front plates

Protective collar 3SB3921-0AK, -0AP

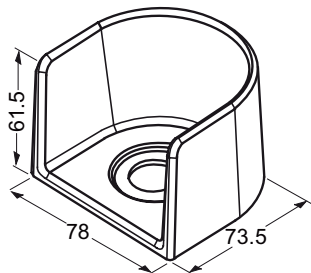
- For EMERGENCY STOP mushroom pushbutton
- Without lock
- For front plate mounting ¹⁾



- 1) Can be used for a maximum front plate thickness of 4 mm

Protective collar 3SB3921-0AX

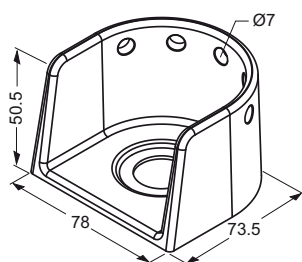
- For EMERGENCY STOP mushroom pushbutton
- With lock
- For front plate mounting ¹⁾



- 1) Can be used for a maximum front plate thickness of 4 mm

Protective collar 3SB3921-0CG

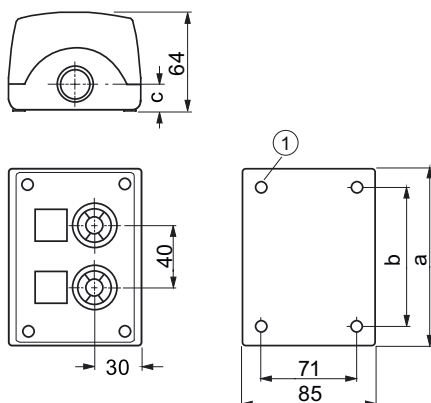
- For mushroom pushbutton
- For 5 padlocks
- For front plate mounting ¹⁾



- 1) Can be used for a maximum front plate thickness of 4 mm

4.5.13 Enclosures

Enclosure without protective collar (plastic)

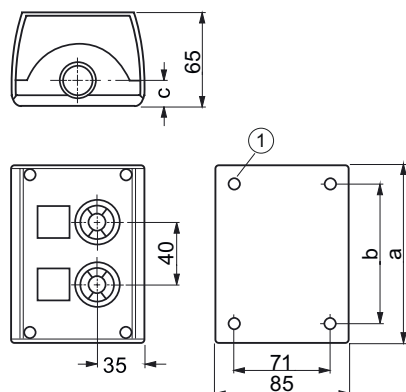


- ① Rear view for screw M4

With cutouts at top and bottom for one screw connection in each case

No. of command points	Length a	Clearance b	Clearance c
1	85	54	17,5
2	114	83	17,5
3	154	123	17,5
4	194	163	17,5
6	280	249	20,5

Enclosure without protective collar (metal)

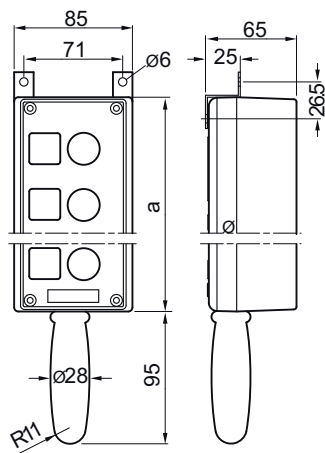


① Rear view for screw M4

With opening at top and bottom for one screw connection in each case

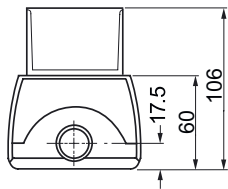
No. of command points	Length a	Clearance b	Clearance c
1	85	54	21
2	114	83	21
3	154	123	21
4	194	163	21
6	280	249	21

Enclosure with handle, metal



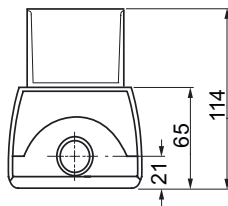
No. of command points	Length a
1	84
2	113
3	154
4	193
6	280

Enclosure with protective collar (plastic)



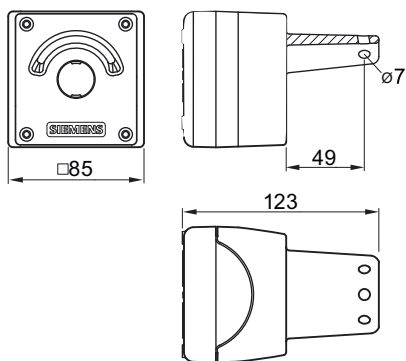
With cutouts at top and bottom for one screw connection in each case

Enclosure with protective collar (metal)



With cutouts at top and bottom for one screw connection in each case

Enclosure with protective collar for three padlocks, metal



4.5.13.1 Contact blocks with screw terminals, for base mounting

Contact block with one contact

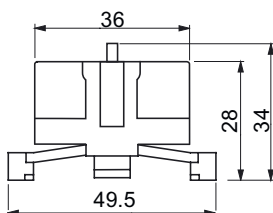


Figure 4-67 3SB3420-0B, 3SB3420-0C

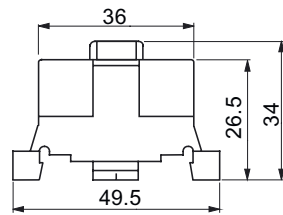
Lampholder BA 9s with or without integrated voltage reducer

Figure 4-68 3SB3420-1A, 3SB3420-1C

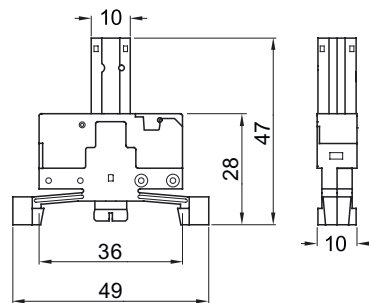
Lampholder with integrated LED

Figure 4-69 3SB3420-1P., 3SB3420-1Q., 3SB3420-1R.

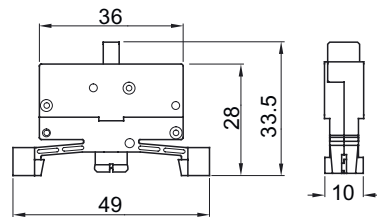
4.5.13.2 Contact blocks with spring-type terminals, for base mounting**Contact block with one contact**

Figure 4-70 3SB3423-0B, 3SB3423-0C

Lampholder with integrated LED

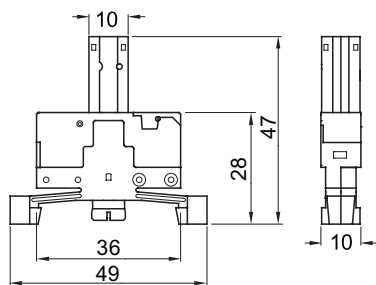


Figure 4-71 3SB3423-1P, 3SB3423-1Q, 3SB3423-1R

Support terminal

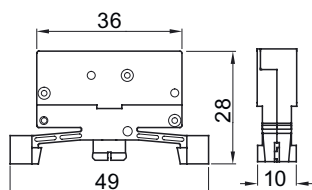


Figure 4-72 3SB3423-2F, 3SB3423-2G, 3SB3423-2H

4.6 Application examples

4.6.1 Application examples of test circuits

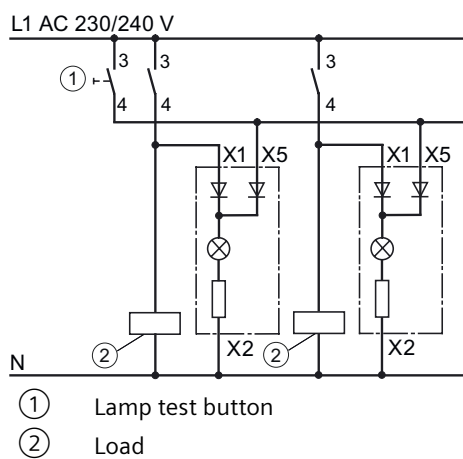


Figure 4-73 Lampholder 3SB3400-1F incl. incandescent lamp 130 V

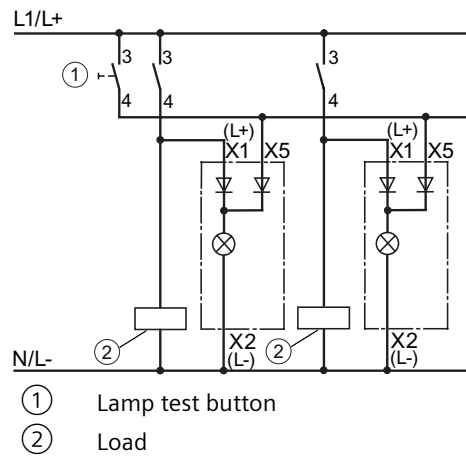


Figure 4-74 Lampholder 3SB3400-1G for incandescent lamps, maximum 2.6 W or LED lamps, AC/DC

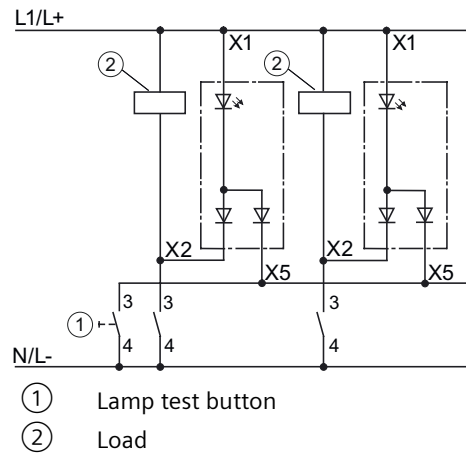


Figure 4-75 Lampholder 3SB3400-1L for incandescent lamps, maximum 2.6 W or LED lamps, AC or DC

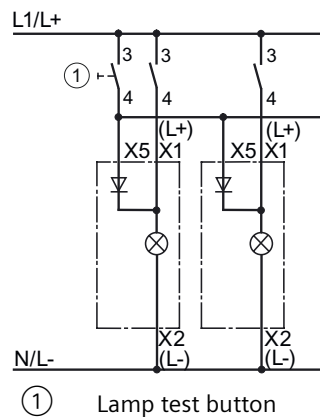


Figure 4-76 Lampholder 3SB3400-1H for incandescent lamps, maximum 2.6 W or glow lamps, AC

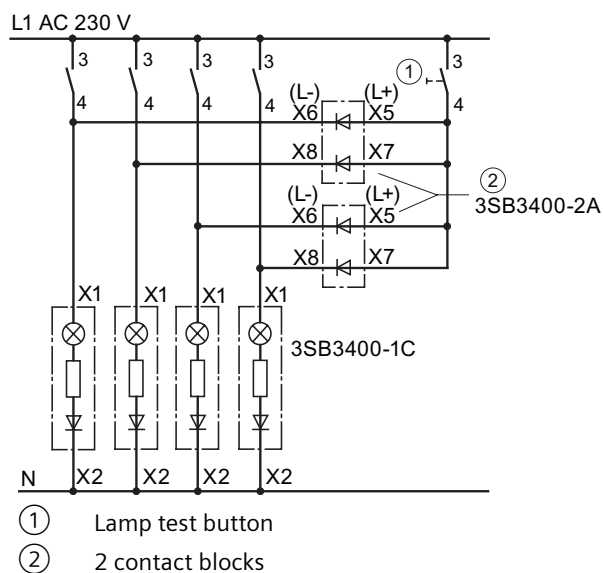


Figure 4-77 Example of a lamp test circuit with contact block 3SB3400-2A

4.6.2 Application examples of 3SB3400-2A diode elements

- Lamp test circuit
- Interference suppression
- Limitation of voltage peaks
- Limitation of DC coils
- Diode gates
- Rectifier circuits

The diode element contains 2 1N 4007 diodes. The element can be snap-mounted on the holder as required.

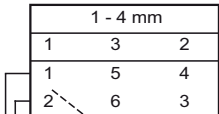
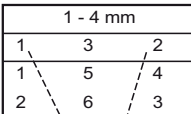
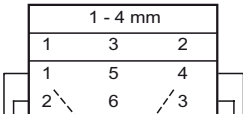
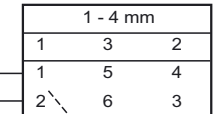
4.6.3 Information about use of lampholders with a separate lamp test function

Note

Overvoltage damping equipment must be provided for parallel connections of inductive loads (e.g. contactors).

The element 3SB3400-1H is not suitable for operation with a parallel load.

4.6.4 Contact assignment

	For a contact block with 2 contacts, e.g. 1 NO + 1 NC	For 2 contact blocks, each with 1 contact, e.g. 1 NO, 1 NC	For 2 contact blocks, each with 2 contacts, e.g. 1 NO + 1 NC, 1 NO + 1 NC	For a contact block with 2 contacts, e.g. 1 NO + 1 NC and a lampholder
Holder				
Mounting depth				
Level for contact blocks with 1 contact				
Level for contact blocks with 2 contacts				
Holder for 3 elements				
Contact blocks, lampholders				

AS-Interface for 3SF5 pushbuttons and indicator lights

5

5.1 Application areas

With AS-Interface enclosures, distributed command devices of the 3SB3 series can be connected to the AS-Interface communication system. Using suitable components you can assemble your own enclosures with integrated AS-Interface or flexibly modify existing enclosures.

Pushbuttons and indicator lights with AS-Interface connections are used as the basis for networked systems within a plant. The individual AS-Interface components are fully compatible with one another and can be operated jointly on the yellow AS-Interface cable.

The following solutions are available:

- EMERGENCY STOP mushroom pushbuttons ASIsafe
- AS-Interface enclosures with 1 to 6 command points
- AS-Interface front plate module for 4 command points

5.1.1 Application area of the AS-Interface modules

AS-Interface safety module (F slave)

Installed in a 3SB3 enclosure, the AS-Interface safety module is used for detecting safety-related switching states of single-channel or two-channel EMERGENCY STOP actuators with isolated contacts. For this purpose, a code table with 8x4 bits is transferred via the AS-Interface bus and evaluated by the safety monitor. When operated properly, the system fulfills safety category 4 according to EN 13849-1. If an EMERGENCY STOP actuator is queried on just one channel (terminals for F-IN2 jumpered by means of wire), the system fulfills a maximum of safety category 2.

In accordance with IEC 61508, the module can be used in loops up to SIL 3. The PFD value of the entire loop must be calculated by the user.

AS-Interface standard modules (slave 4I/4O and A/B slave 4I/3O)

Mounted in a 3SB3 enclosure, the AS-Interface modules 4I/4O and 4I/3O can query 4 mechanical contacts. The AS-Interface module 4I/4O also enables control of 4 indicator lights, while the module 4I/3O enables control of 3 indicator lights. The power required is supplied by the AS-Interface system. In conjunction with an A/B-compatible AS-Interface master, up to 62 x 4I/3O modules can be operated in one AS-Interface network.

5.1.2 Application areas of AS-Interface F adapter

The AS-Interface F adapter is used to connect an EMERGENCY STOP command device according to ISO 13850 from the 3SB3 series to the AS-Interface bus system. The F adapter is suitable for control devices with mounting on front plates.

The F adapter has a safe AS-Interface 2I slave and is snapped from behind onto the EMERGENCY-STOP mushroom pushbutton.

The expanded version 2I/1O includes an output for controlling an indicator light with LED.

Depending on the version, the connection to the AS-Interface bus cable is by means of screw terminals, spring-type terminals or insulation piercing method. Addressing is performed using the AS-Interface connection or the integrated addressing socket.

With the F adapter, the device fulfills safety category 4 (SIL 3).

5.2 Overview

5.2.1 Equipment

The enclosures with integrated AS-Interface are equipped with contact blocks and LED lampholders with spring-type terminals from the 3SB3 series as well as the slaves required for connecting the contact blocks and lampholders to AS-Interface.

In addition, AS-Interface modules, cable sets and a connection element are needed to connect the contact blocks and LED lampholders.

5.2.2 Overview of standard enclosures

Enclosures with standard equipment are available in the following versions:

- 1 to 3 command points
- Operational voltage through AS-Interface (approx. 30 V)
- Vertical mounting type
- Plastic enclosure with plastic actuators and indicators
- Metal enclosure with metal actuators and indicators

The enclosures without EMERGENCY STOP each have one A/B slave 4I/3O; the enclosures with EMERGENCY STOP mushroom pushbuttons have a safe AS-Interface F slave integrated in the enclosure.

On enclosures with EMERGENCY STOP mushroom pushbuttons, two NC contact blocks are mounted inside the enclosure and wired to the safe F slave. The contact blocks and lampholders (with spring-type terminals) of the command devices and the AS-Interface slaves are mounted in the base of the enclosure and connected using cables.

The plastic enclosures are designed with a connection for the AS-Interface flat cable (the cable is routed along the outside of the enclosure). For metal enclosures, the AS-Interface cable is run inside the enclosure.

The enclosures with EMERGENCY STOP mushroom pushbuttons are also available with an M12 connector.

		
EMERGENCY STOP mushroom pushbutton with rotate-to-unlatch mechanism, yellow enclosure top	Enclosures with 2 command points	Enclosures with 3 command points
With M12 top connector, 1 NC, 1 NC - Without protective collar, plastic (3SF5811-0AA10) - Without protective collar, metal (3SF5811-2AA10) - With protective collar, metal (3SF5811-2AB10)	B = Pushbutton green, label "I" A = Pushbutton red, label "O" - Plastic (3SF5812-0DA00) - Metal (3SF5812-2DA00)	C = Indicator light, clear, label without inscription: B = Pushbutton green, label "I"; A = Pushbutton red, label "O" - Plastic (3SF5813-0DA00) - Metal (3SF5813-2DA00)
With terminal for insulation piercing method at top, 1 NC, 1 NC - Without protective collar, plastic (3SF5811-0AA08) - With protective collar, plastic (3SF5811-0AB08)	B = Pushbutton white, label "I" A = Pushbutton black, label "O" - Plastic (3SF5812-0DB00) - Metal (3SF5812-2DB00)	C = Pushbutton black, label "II" B = Pushbutton black, label "I"; A = Pushbutton red, label "O" - Plastic (3SF5813-0DB00) - Metal (3SF5813-2DB00)
With cable gland at top, 1 NC, 1 NC - Without protective collar, metal (3SF5811-2AA08) - With protective collar, metal (3SF5811-2AB08)		C = Indicator light, clear, label without inscription: B = Pushbutton white, label "I"; A = Pushbutton black, label "O" - Plastic (3SF5813-0DC00) - Metal (3SF5813-2DC00)

Note

Mounting positions

The mounting positions (A, B, C) are marked by labels in the lower part of the enclosure (see Chapter Application examples (Page 113)).

5.2.3 Customized enclosures with ASi F slave

The ASi F slave must always be fitted in mounting position A3. At the customer's request, the ASi F slave can also be mounted at the highest mounting position of the actuator. The following mounting positions are possible:

- Enclosure with 3 command points ⇒ C3
- Enclosure with 4 command points ⇒ D3
- Enclosure with 6 command points ⇒ F3

Note

Enclosures with 2 command points

Enclosures with 2 command points cannot be equipped with an ASi F slave.

On request enclosures with more than 6 command points can also be supplied with AS-Interface connection.

Customized enclosures (selection by configurator)

To order customized 3SF58 AS-Interface enclosures with 3SB3 control devices, use the 3SB3/3SF5 configurator to select the blocks for equipping (see Online configurator (<http://www.siemens.com/sirius/configurators>)).

An electronic order form will be generated for the additional options.

5.2.4 Equipping with AS-Interface slaves

Self-equipping of enclosures

The following slave types are available for connecting the command points:

- AS-Interface A/B slave with 4 inputs and 3 outputs
- AS-Interface slave with 4 inputs and 4 outputs (4I/4O)
- AS-Interface F slave with 2 safe inputs for EMERGENCY STOP

The following table shows the maximum number of slaves possible:

Enclosure for	Number of AS-i slaves for enclosures without EMERGENCY STOP	Number of AS-i slaves for enclosures with EMERGENCY STOP
1 command point	Not available	1 x F slave
2 command points	1 x slave 4I/4O or 4I/3O	Not available
3 command points	1 x slave 4I/4O or 4I/3O	1 x slave 4I/4O or A/B slave 4I/3O + 1 x F slave

Enclosure for	Number of AS-i slaves for enclosures without EMERGENCY STOP	Number of AS-i slaves for enclosures with EMERGENCY STOP
4 command points	2 x slave 4I/4O or 4I/3O ¹⁾	2 x slave 4I/4O or A/B slave 4I/3O + 1 x F slave ¹⁾
6 command points	2 x slave 4I/4O or 4I/3O	2 x slave 4I/4O or A/B slave 4I/3O + 1 x F slave

¹⁾ For metal enclosures with 4 command points, only 1 x slave 4I/4O or A/B 4I/3O is possible.

5.2.5 Overview of AS-Interface F adapter

AS-Interface F adapter for EMERGENCY STOP mushroom pushbuttons, front plate mounting, 2 inputs

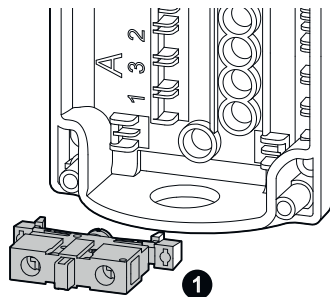
		
3SF5402-1AA05	3SF5402-1AA04	3SF5402-1AB03
Insulation piercing method	Spring-type terminals	Screw terminals

5.3 Mounting

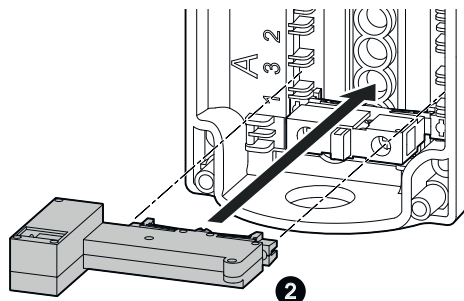
5.3.1 Mounting of contact blocks and AS-Interface slaves

Like contact blocks and lampholders, the AS-Interface slaves are mounted in the enclosure lower part. To equip an enclosure with contact blocks and an AS-i F slave, follow these steps:

1. Snap the contact block onto the slot in the enclosure marked with "1" or "2".



2. Insert the AS-i F slave onto the slot marked with "A3".

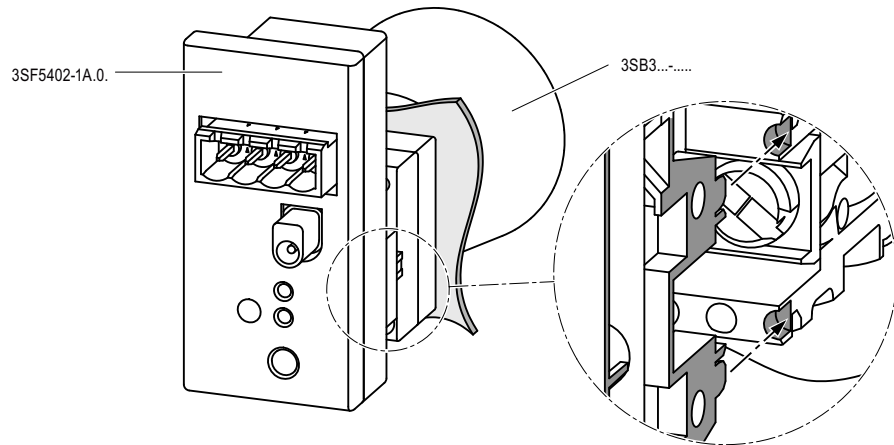


Note

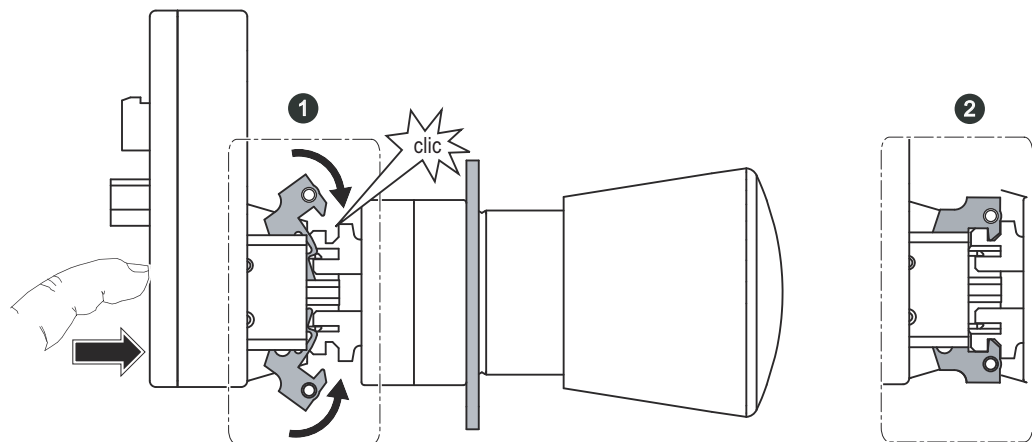
Mounting position of the AS-Interface F slave

The AS-i F slave may only be mounted in the enclosure at the outer slots marked with "3".

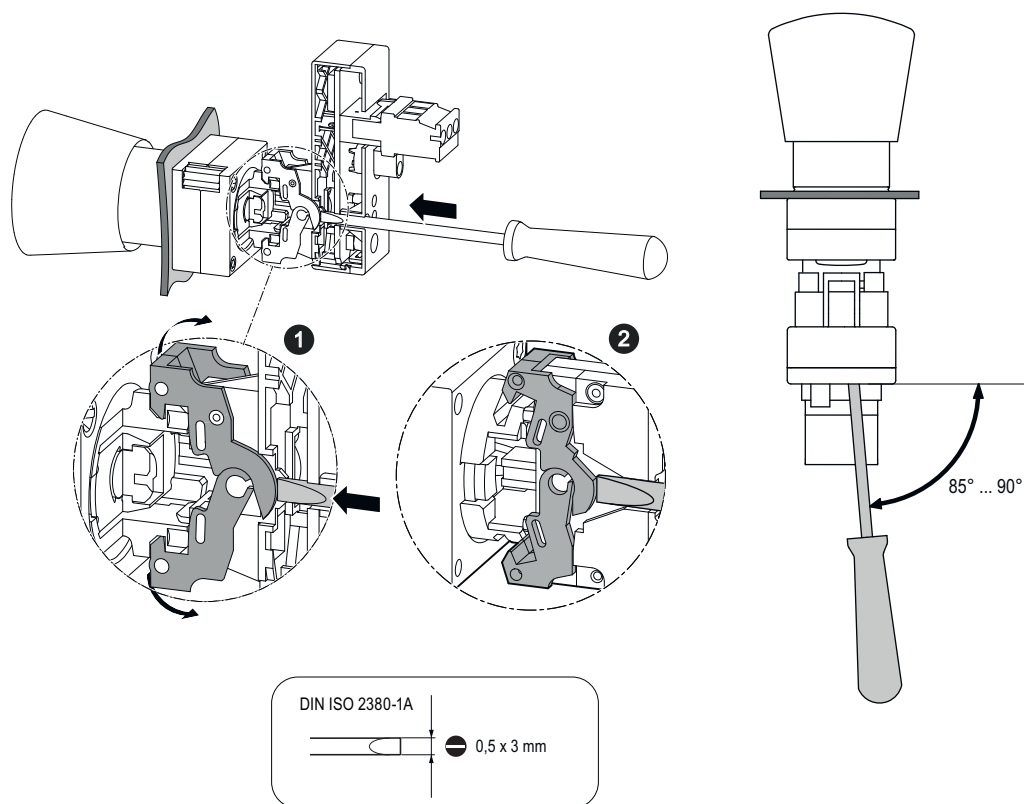
5.3.2 Mounting and removing the F adapter



1. Insert the EMERGENCY STOP mushroom pushbutton from the front through the opening in the front plate.
2. Place the holder from behind on the EMERGENCY STOP mushroom pushbutton. Refer also to the installation instructions in Chapter Mounting on front plate (Page 29).
3. Push the F adapter from behind onto the EMERGENCY STOP mushroom pushbutton until it latches in position.



5.3.2.1 Dismantling



Follow the steps below to dismantle the AS-Interface F adapter:

1. Press a suitable flathead screwdriver at an inclined angle into the opening marked "REMOVE" on the F adapter.
2. The snap-in hooks will then be released so that you can remove the F adapter.

5.4 Connection

One set of links is required in each case to connect a slave to contact blocks, to lampholders and to the connection element.

The connection elements are mounted in the front-end cable glands and are used for connection of the AS-Interface or for bringing unused inputs or outputs out of the enclosure.

The following methods can be selected to make the connection to the AS-Interface bus:

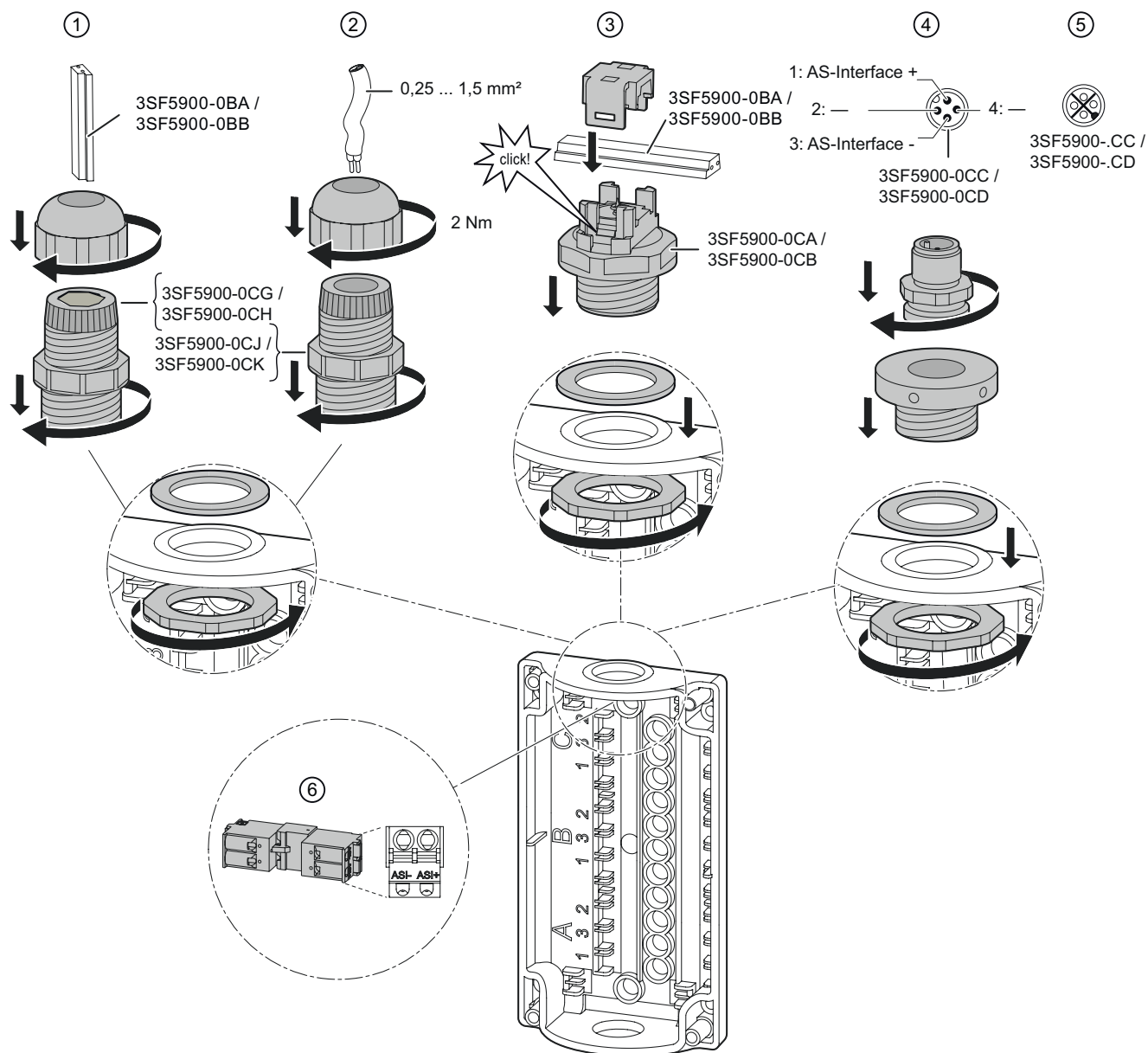
- Terminal for shaped AS-Interface cable. The cable is contacted by the insulation piercing method and routed past the enclosure on the outside (possible only with plastic enclosure).
- Cable gland for the shaped AS-Interface cable or round cable. The cable is routed into the enclosure (preferable for metal enclosure).
- Connection using M12 plug.

If less than all inputs/outputs of the installed slave in an enclosure are used for connecting the command devices, free inputs and outputs can be routed on request to the outside through an M12 socket at the top or bottom of the enclosure.

To supply inputs with power, the S+ connection of the slave (and the connection OUT- for outputs) must always be assigned to the socket.

Addressing is performed using the AS-Interface connections or the integrated addressing socket. An external power supply is not required.

5.4.1 Connection options AS-Interface bus



- ① Connection element for the AS-i shaped cable, for ribbon cable
- ② Connection element for round cable, for round cable
- ③ Connection element for the AS-i shaped cable, with insulation piercing method
- ④ Connection element for the AS-i M12 connector
- ⑤ M12 socket for bringing out unused inputs/outputs
- ⑥ Connector, 2-pin for ribbon and round cables

Connection elements	Material of the enclosure	Number of command points	Metric ISO thread	Article number
Connection element for the AS-i shaped cable, for bringing the ribbon cable into the enclosure	Plastic and metal	1 to 3	M20	3SF5900-OCG
		4 to 6	M25	3SF5900-0CH
Connection element for round cable, for bringing the round cable into the enclosure	Plastic and metal	1 to 3	M20	3SF5900-0CJ
		4 to 6	M25	3SF5900-0CK
Connection element for the AS-i shaped cable, with insulation piercing method	Plastic	1 to 3	M20	3SF5900-0CA
		4 to 6	M25	3SF5900-0CB
Connection element for the AS-i M12 connector	Plastic	1 to 3	M20	3SF5900-0CC
		4 to 6	M25	3SF5900-0CD
Connection element for the AS-i M12 connector, for bringing out the unused inputs and outputs, via M12 socket	Plastic	1 to 3	M20	3SF5900-0CE
		4 to 6	M25	3SF5900-0CF

5.4.2 Connection with AS-Interface F adapter

Connection options

- Conventional connection with AS-Interface
- Safe connection using ASIsafe
- With 3TK28 safety relay
- To ET200S distributed I/Os

Safe communication via ASIsafe

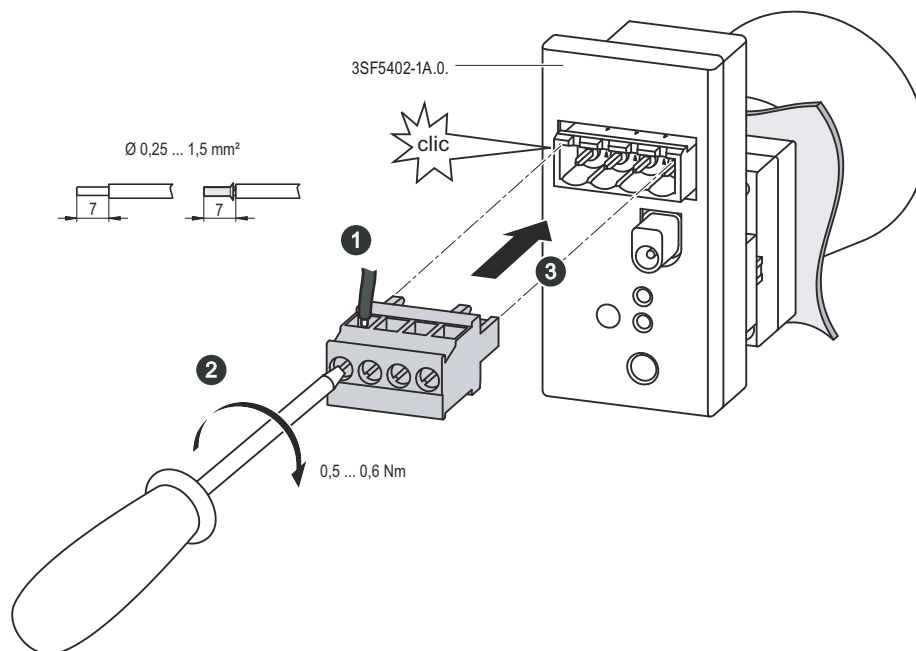
With ASIsafe, safety-related components can be integrated in AS-Interface – up to Cat. 4 according to (EN 954-1) EN ISO 13849-1 or SIL3 according to IEC 61508. Use the yellow AS-Interface cable for this.

Safe and standard I/O modules are installed and operated together in a single network. Safety-related data is transferred over the existing standard bus.

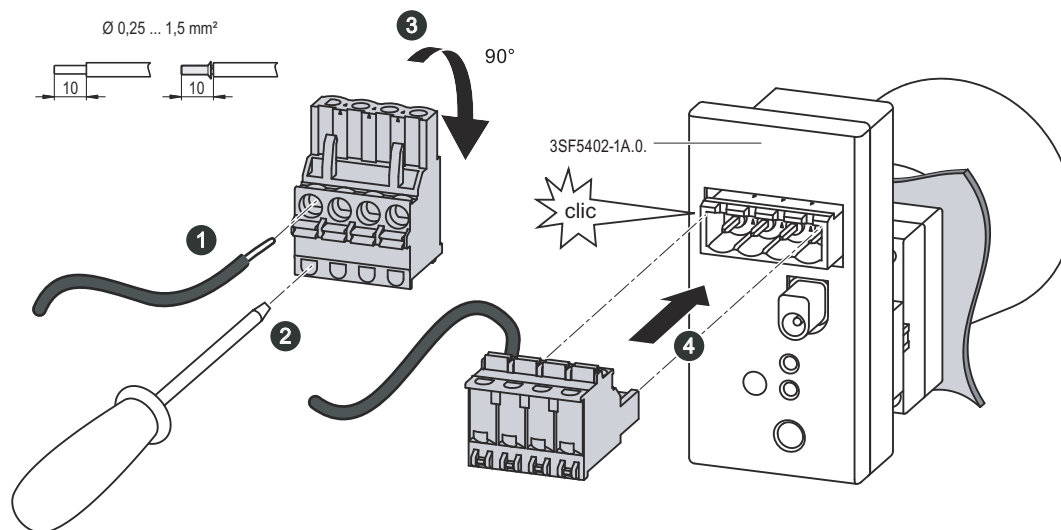
5.4.2.1 F adapter for EMERGENCY STOP devices

EMERGENCY STOP devices can be connected directly via the standard AS-Interface with safety-related communication. This applies to EMERGENCY STOP devices of the SIRIUS 3SB3 command devices for front plate mounting and mounting in enclosures. A front plate-mounted EMERGENCY STOP can be connected directly to AS-Interface via a fail-safe module (F adapter).

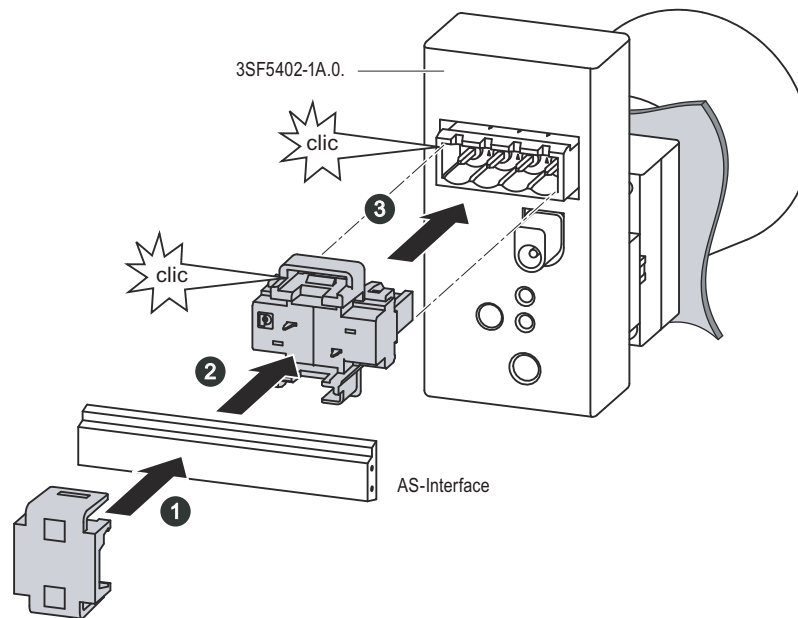
5.4.2.2 Connection to AS-i bus with screw terminal



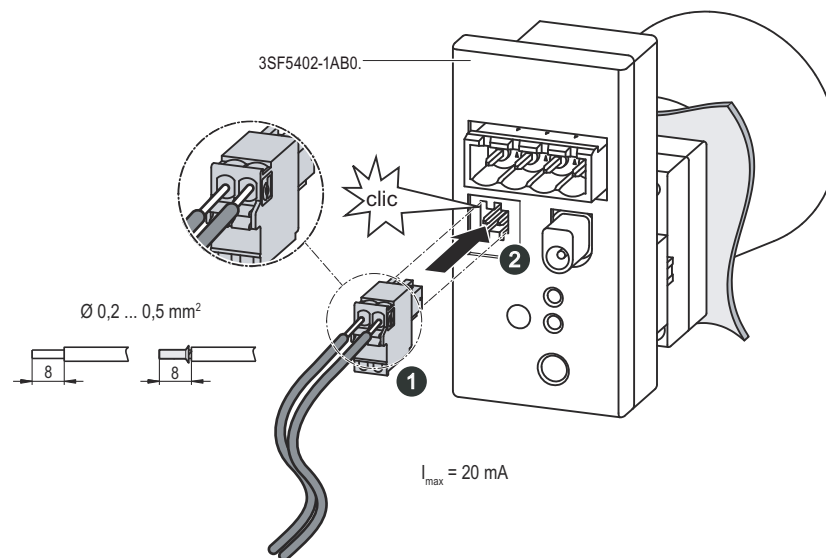
5.4.2.3 Connection to AS-i bus with spring-type terminal



5.4.2.4 Connection to AS-i bus using insulation piercing method

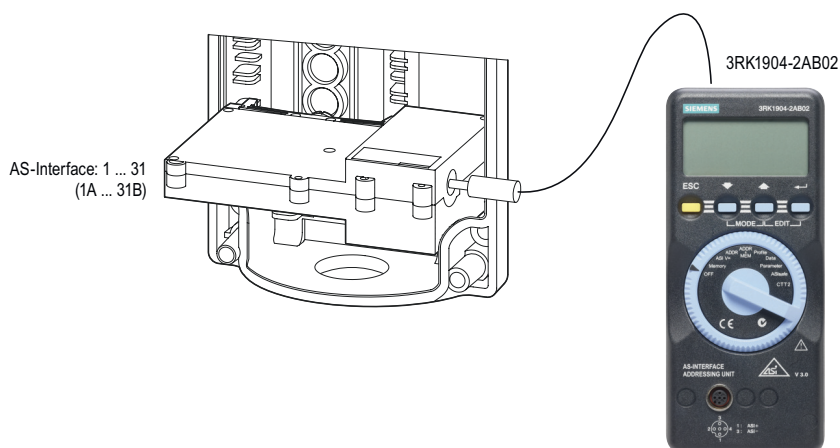


5.4.2.5 LED control with 3SF5402-1AB0 only

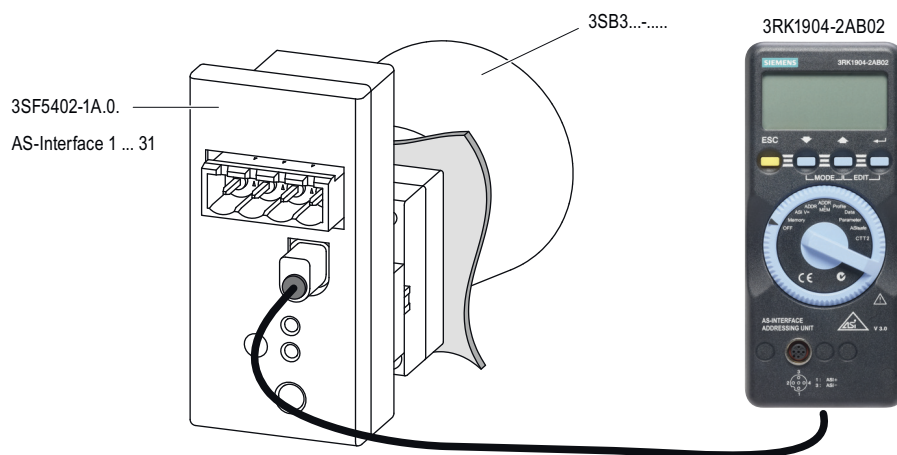


5.4.3 Addressing of AS-Interface modules

5.4.3.1 Addressing AS-i slaves



5.4.3.2 Addressing the AS-i F adapter



5.5 Technical specifications

5.5.1 Technical specifications in the Siemens SiePortal

Technical data sheet

You can find the technical specifications for the product in Siemens SiePortal (<https://sieportal.siemens.com/su/bldxc>).

1. Enter the article number of the desired device in the "Products" field.
2. Click the "Technical specifications" link in the result.

5.5.2 Technical specifications of AS-i slaves

AS-Interface slaves		3SF5500-0BC 3SF5500-0CC 4I/4O (Slave)	3SF5500-0BB 3SF5500-0CB 4I/3O (A/B slave)	3SF5500-0BA 3SF5500-0DA 3SF5500-0CA (F slave)
Rated operational current I_e	A	0,6		
Rated operational voltage U_e		24 V DC -15 % / +10 % PELV		
Rated insulation voltage U_i	V	32		
Rated impulse withstand voltage U_{imp}	V	800		
Performance Level		PLe		
Category		4		
Safety integrity level		SIL 3		
Standard		EN 954-1		
I/O configuration (Hex) / ID code (Hex) ID1 code I		7 / 0	7 / A	0 / B
(Hex) / ID2 code (Hex) I		0 ... F / F	0 ... 7 / E	0 ... F / F
Total current consumption I	mA	≤ 280	≤ 280	≤ 60
Sensor supply (short circuit and overload proof)				
Voltage range U_{out}	V DC	20 ... 30	20 ... 30	—
Switching current I	mA	Approx. 5 mA	Approx. 5 mA	—
Outputs (supplied from AS-Interface)				
Load voltage ¹⁾ U_{out}	V DC	20 ... 30	20 ... 30	—
Current-carrying capacity ²⁾	mA	≤ 180	≤ 180	—
Switching rate	Hz	100	100	—
Short-circuit protection I_{out}		Integrated	Integrated	—
Reverse polarity protection I		Integrated	Integrated	—
Inputs				

5.5 Technical specifications

AS-Interface slaves	3SF5500-0BC		3SF5500-0BB	3SF5500-0BA
	3SF5500-0CC		3SF5500-0CB	3SF5500-0DA
	4I/4O		4I/3O	3SF5500-0CA
	(Slave)		(A/B slave)	(F slave)
Low signal range	I _{in}	—	—	Contact open
High signal range	I _{in}	—	—	Contact closed dynamically (I _{peak} ≥ 5 mA)
Immunity to noise (EN 61000, EN 61496-1)				
IEC 61000-4-2	kV	4 / 8 (encapsulated)		
IEC 61000-4-3	V/m	10		
IEC 61000-4-4	kV	1 kV (A) / 2 kV (B)		
Mechanical data				
Degree of protection with metal enclosure	IP20			
Degree of protection with plastic enclosure	IP20			
Shock load (IEC 60068-2-27)	30 g / 11 ms, half-sine			
Vibratory load (IEC 60068-2-6)	10 ... 100 Hz, 5 g			
Temperature range				
Rated temperature T _a	°C	25		
Ambient temperature T _a	°C	−25 ... +70		
Storage temperature T _s	°C	−40 ... +80		

5.5.3 Technical specifications of AS-Interface F adapter

AS-Interface F adapter		3SF5402-1AA03 3SF5402-1AA04 3SF5402-1AA05	3SF5402-1AB03 3SF5402-1AB04 3SF5402-1AB05
Rated operational current I_e	A	0,6	
Rated operational voltage U_e		24 V DC -15 % / +10 % PELV	
Rated insulation voltage U_i	V	32	
Rated impulse withstand voltage U_{imp}	V	800	
Performance Level		PLe	
Category		4	
Safety integrity level		SIL 3	
Standard		EN 954-1	
I/O configuration (Hex) / ID code (Hex) ID1 code	I	0 / B	7 / B
(Hex) / ID2 code (Hex)	I	F / F	F / 0
Total power consumption	I	≤ 60 mA	≤ 60 mA
Reverse polarity protection	I	Integrated	Integrated
Inputs			
Low signal range	I_{in}	Contact open	Contact open

AS-Interface F adapter		3SF5402-1AA03 3SF5402-1AA04 3SF5402-1AA05	3SF5402-1AB03 3SF5402-1AB04 3SF5402-1AB05
High signal range	I_{in}	Contact closed dynamically ($I_{peak} \geq 5 \text{ mA}$)	Contact closed dynamically ($I_{peak} \geq 5 \text{ mA}$)
LED control	U_{out}	—	20 V ... 25 V
Maximum current	I_{max}	—	20 mA
Maximum cable length		—	100 mm
Immunity to noise (EN 61000, EN 61496-1)			
IEC 61000-4-2	kV	4 / 8 (front plate mounting)	4 / 8 (front plate mounting)
IEC 61000-4-310 V/m	V/m	10	10
IEC 61000-4-4		1 kV (A) / 2 kV (B)	1 kV (A) / 2 kV (B)
Mechanical data			
Degree of protection		IP20	IP20
Shock load (IEC 60068-2-27)		30 g / 11 ms, half-sine	30 g / 11 ms, half-sine
Vibratory load (IEC 60068-2-6)		10 ... 500 Hz, 5 g	10 ... 500 Hz, 5 g
Temperature range			
Rated temperature	T_u	25 °C	25 °C
Ambient temperature	T_a	–25 °C ... +70 °C	–25 °C ... +70 °C
Storage temperature	T_s	–40 °C ... +80 °C	–40 °C ... +80 °C

5.6 Dimensional drawings

5.6.1 CAx data in the Siemens SiePortal

You can find CAx data for the product in the SiePortal (<https://sieportal.siemens.com/su/bldxc>).

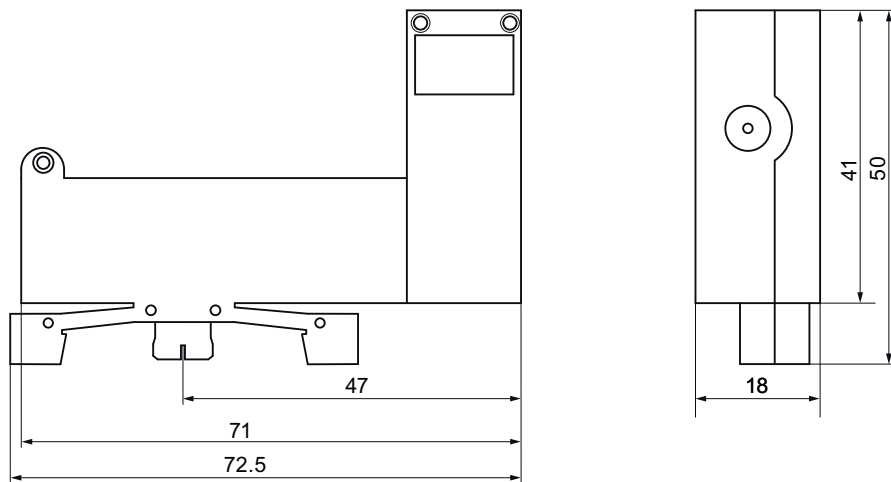
1. Enter the article number of the desired device in the "Products" field.
2. Click the "CAx data" link in the result.

5.6.2 Dimensional drawings of AS-i slaves

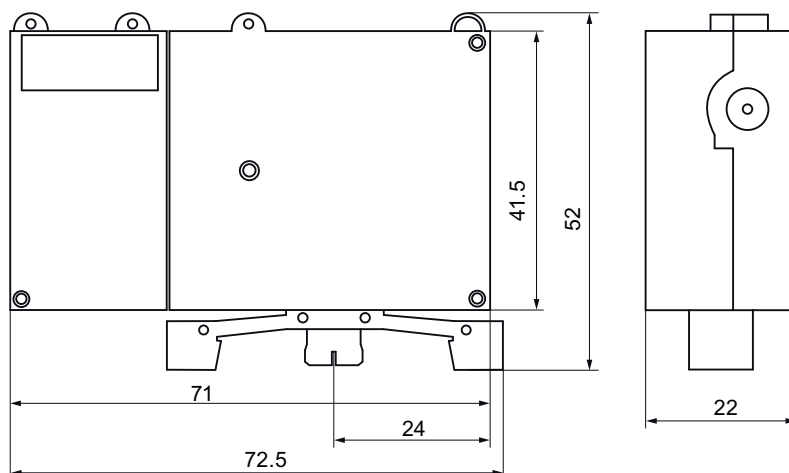
Note

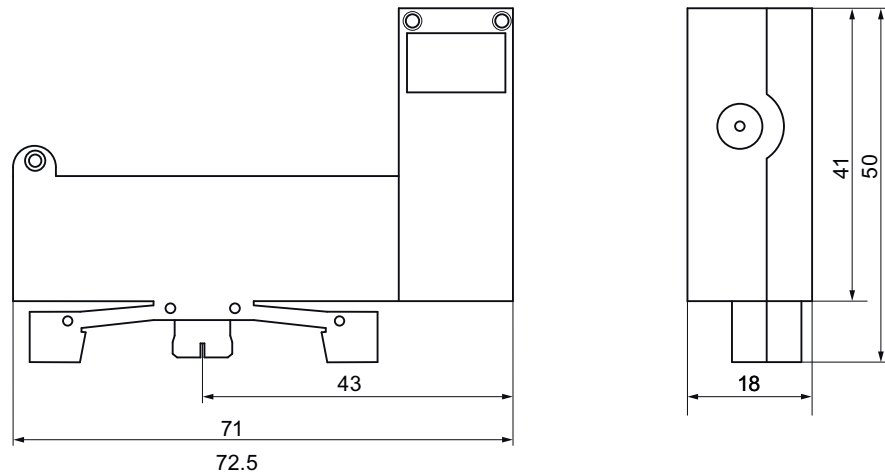
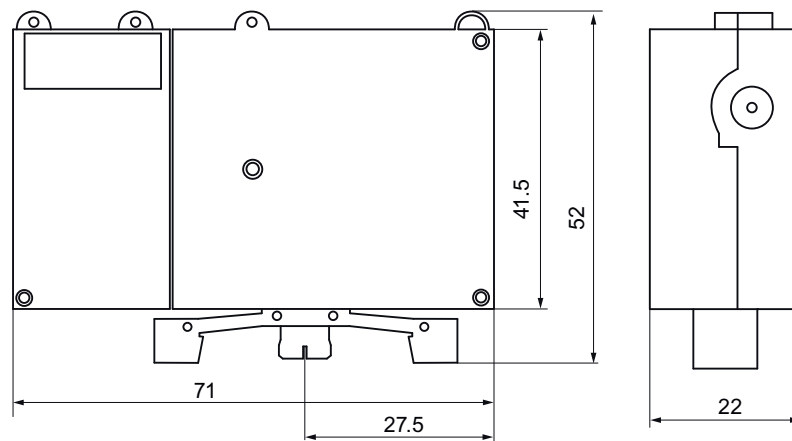
All dimensions specified in mm.

F slave for plastic enclosures (3SF5500-0BA)



A/B slave 4I/3O and slave 4I/4O for plastic enclosures (3SF5500-0BB)



AS-Interface F slave for metal enclosures (3SF5500-0CA)**A/B slave 4I/3O and slave 4I/4O for metal enclosures (3SF5500-0BB)**

5.6.3 Dimensional drawings of F adapter

F adapter for front plate mounting 3SF5402-1AA03

AS-Interface F adapter for 3SB3 EMERGENCY-STOP mushroom pushbuttons for front plate mounting, screw terminals

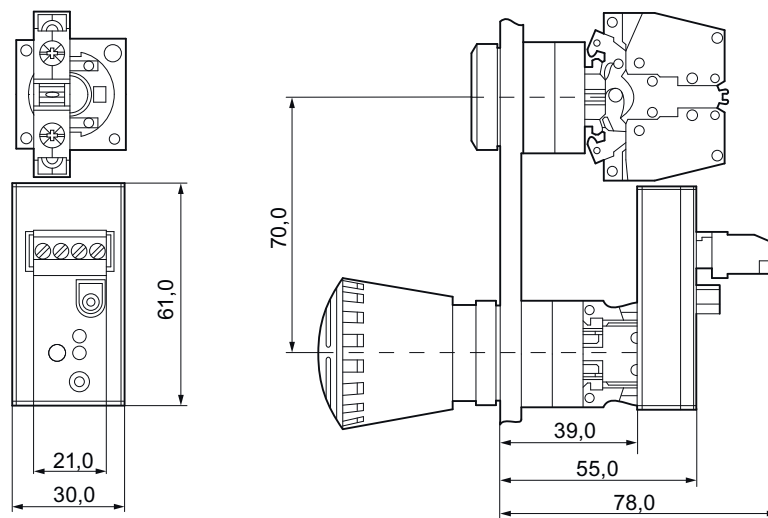


Figure 5-1 3SF5402-1AA03, 3SF5402-1AB03

AS-Interface F adapter for 3SB3 EMERGENCY-STOP mushroom pushbuttons for front plate mounting, spring-type terminals

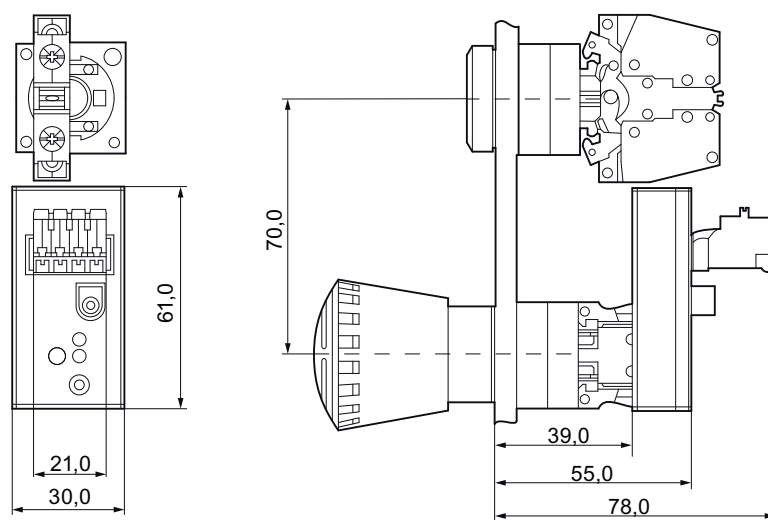


Figure 5-2 3SF5402-1AA04, 3SF5402-1AB04

AS-Interface F adapter for 3SB3 EMERGENCY STOP mushroom pushbuttons for front plate mounting, insulation piercing method

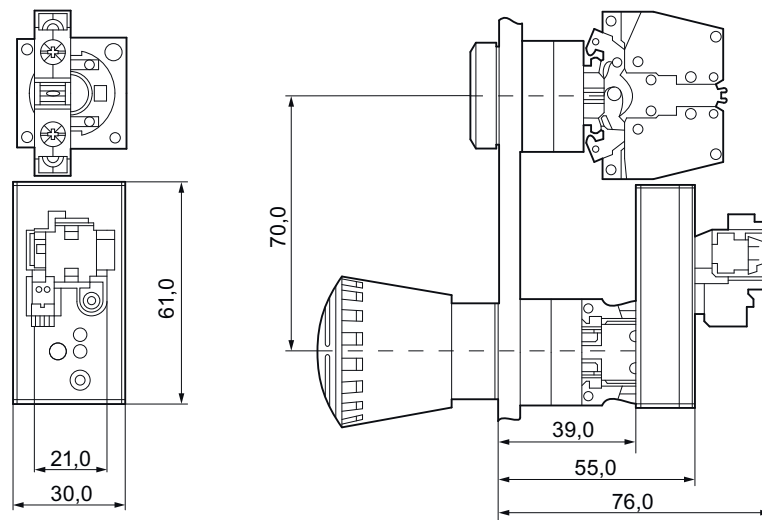
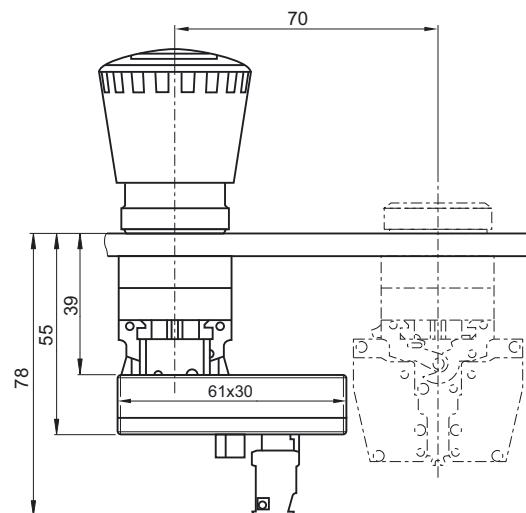


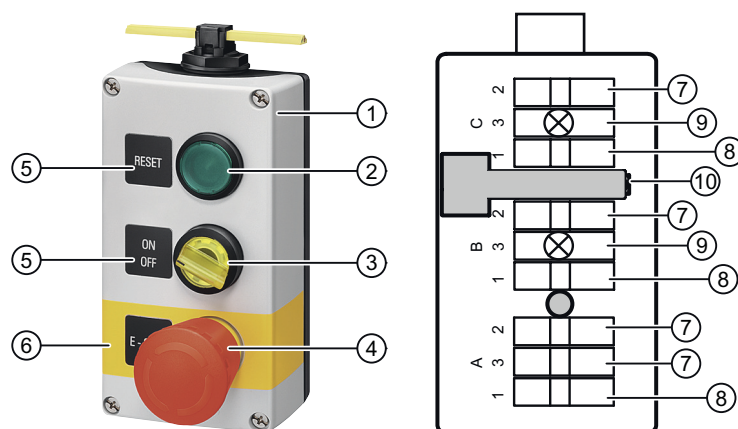
Figure 5-3 3SF5402-1AA05, 3SF5402-1AB05

5.6.4 AS-Interface F adapter for EMERGENCY STOP mushroom pushbuttons



5.7 Application examples

5.7.1 Application example for customized equipment



- ① Enclosures with 3 command points
- ② Pushbutton with raised button
- ③ Selector switch illuminated
- ④ EMERGENCY STOP mushroom pushbutton, diameter 40 mm
- ⑤ Self-adhesive inscription labels
- ⑥ Yellow backing plate as contrasting surface for EMERGENCY STOP, self-adhesive, with recess for labeling plate
- ⑦ Contact block 1 NC
- ⑧ Contact block 1 NO
- ⑨ Lampholder or LED
- ⑩ AS-Interface A/B slave

Note

Mounting position of the EMERGENCY STOP mushroom pushbutton

The EMERGENCY STOP mushroom pushbutton may be mounted only at the first or last command point in the enclosure.

5.7.2 Equipment of an EMERGENCY STOP enclosure



Note

Mounting positions

The mounting positions are marked by inscriptions in the lower part of the enclosure.

Actuating element	Mounting position
AS-Interface F slave	A3
Contact block 1 NO	A1
Contact block 1 NC	A2

5.7.3 EMERGENCY STOP with signaling contact interrogated via AS-i bus

NOTICE

Risk of material damage.

When installing wiring, make sure that cables are not routed across one another.

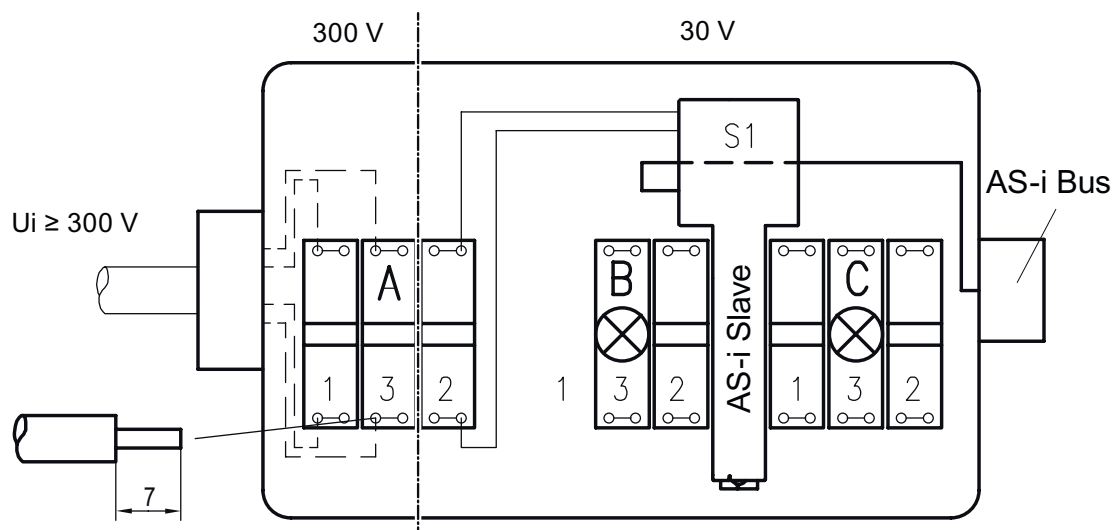


Figure 5-4 Correct wiring

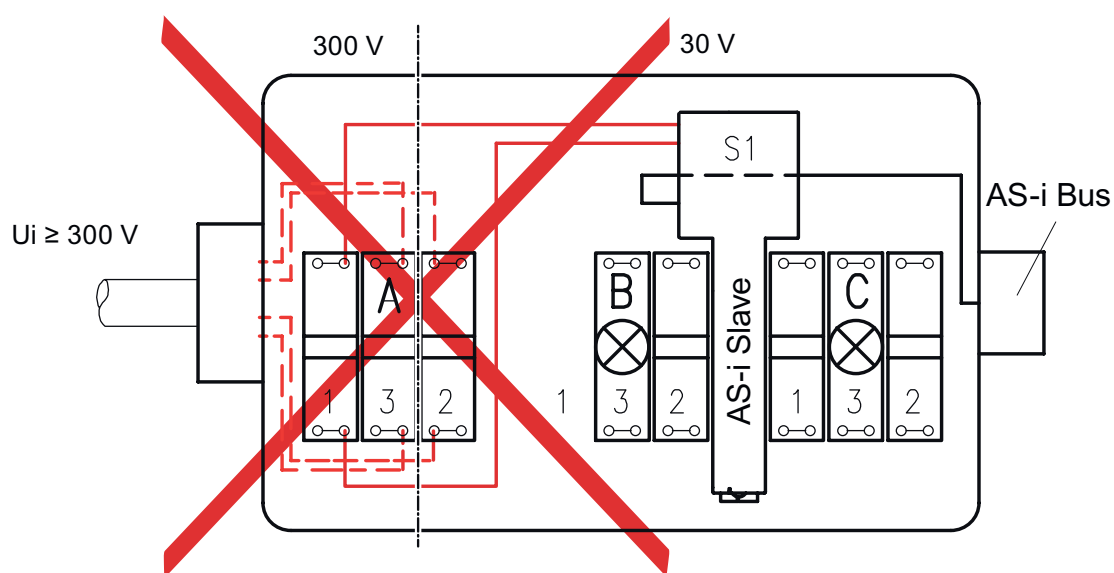


Figure 5-5 Incorrect wiring

5.7.4 Mounting positions

The mounting position of the contact blocks and lampholders is specified by the combination of letters and numbers (permissible numbers: 1, 2, 3).

The lowest mounting position of an actuator is always A and the highest possible is F (for enclosures with 6 command points). This yields the following highest possible mounting positions, depending on the number of command points in the enclosure:

- Enclosure with 2 actuators $\Rightarrow$ B
- Enclosure with 3 actuators $\Rightarrow$ C
- Enclosure with 4 actuators $\Rightarrow$ D
- Enclosure with 6 actuators $\Rightarrow$ F

Contact blocks can be installed at the mounting positions 1 and/or 2, but lampholders only at mounting position 3.

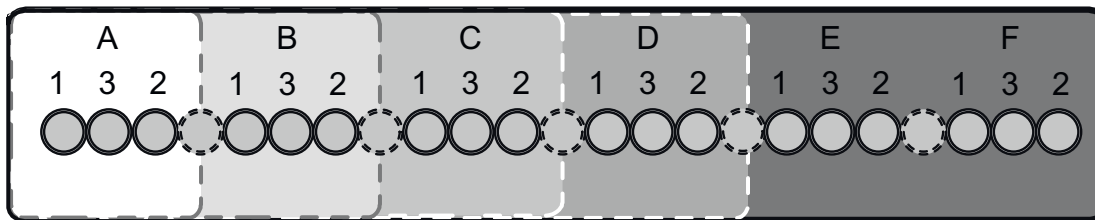


Figure 5-6 Labeling for mounting positions in the enclosure lower part for enclosures with 1 to 6 command points

Mounting positions of the ASi F slave

Note

Mounting position of the AS-Interface slave

The AS-i F slave may only be mounted in the enclosure at the slots marked with "3".

The AS-i F slaves are factory-mounted at mounting position A3. At the customer's request, the ASi F slave can also be mounted at the highest mounting position of the actuator. The following mounting positions are possible:

- Enclosure with 3 command points $\Rightarrow$ C3
- Enclosure with 4 command points $\Rightarrow$ D3
- Enclosure with 6 command points $\Rightarrow$ F3

Note

Enclosures with 2 command points

Enclosures with 2 command points cannot be equipped with an ASi F slave.

Mounting positions of the ASi standard slaves (A/B slaves)

The ASi standard slaves (3SF5500-0.B, 3SF5500-0.C) are always mounted at the mounting positions for support terminals. These mounting positions are always located between the mounting panels of the actuators and can be recognized by the additional rib of the mounting support.

The following ASi slaves can be mounted:

- Enclosure with 2, 3, 4 and 6 command points $\Rightarrow$ 1 ASi standard slave (slave 1)
- Enclosure with 4 and 6 command points $\Rightarrow$ 2 ASi standard slaves (slaves 1 and 2)
- Metal enclosure with 6 command points $\Rightarrow$ 2 ASi standard slaves (slaves 1 and 2)

Note**Metal enclosure with 4 command points**

Metal enclosures with 4 command points can be equipped with a maximum of one AS-i standard slave.

Note**Enclosures with one command point**

Enclosures with only one command point cannot be equipped with ASi standard slaves.

Mounting position of the AS-Interface standard slave as the first slave

Command points in the enclosure	Mounting position between mounting panels
2	A and B
3	B and C
4	B and C (with plastic enclosure)
4	C and D (with metal enclosure)
6	B and C

Mounting position of the AS-Interface standard slave as the second slave

Command points in the enclosure	Mounting position between mounting panels
4	C and D (with plastic enclosure)
6	D and E

Example

An enclosure with 6 command points is to be equipped with 2 AS-i standard slaves and 1 ASi F slave.

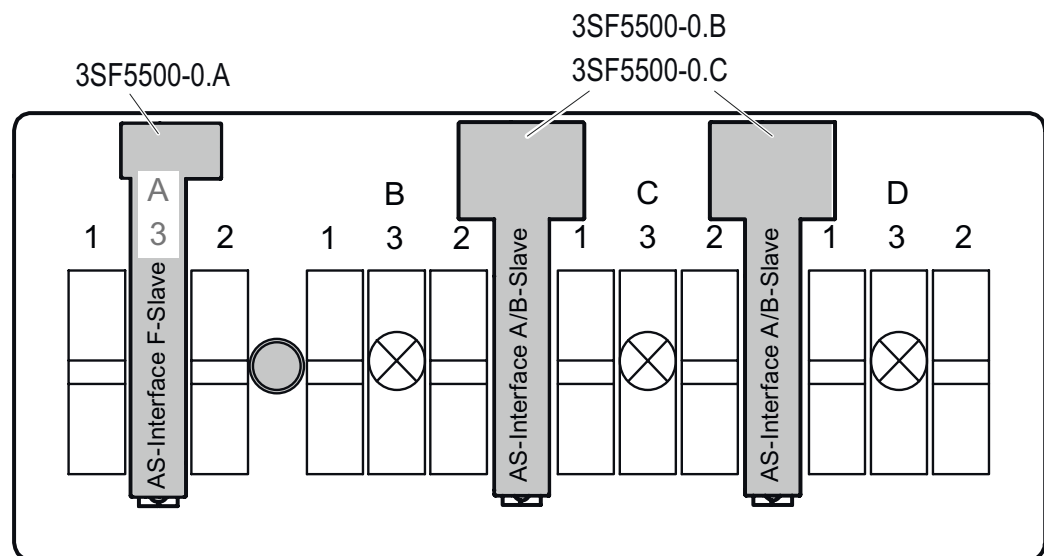
1. Mount slave 1 between command points B and C.
2. Mount slave 2 between command points D and E.
3. Mount the AS-i F slave at A3.

5.7.5 Equipping with 1 AS-i F slave and 2 A/B slaves

An enclosure with 4 command points is to be equipped as follows:

- 1 x AS-i F slave
- 2 x A/B slaves
- 3 lampholders

Actuating element	Mounting position
AS-Interface F slave	A3
AS-Interface A/B slave 1	Between mounting panels B and C (with plastic enclosures only)
AS-Interface A/B slave	Between mounting panels C and D
Lampholders	3

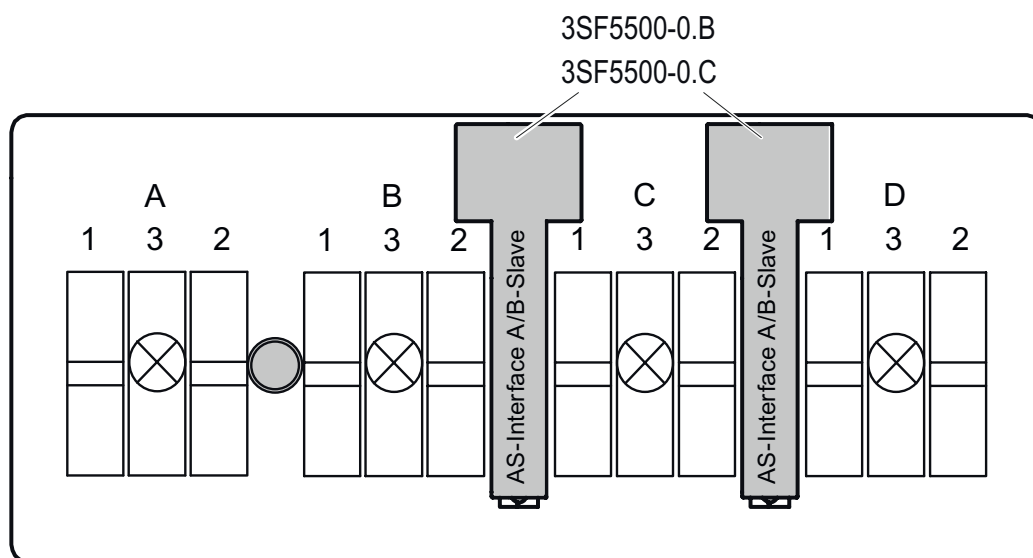


5.7.6 Equipping with 2 A/B slaves

An enclosure with 4 command points is to be equipped as follows:

- 2 x A/B slaves
- 4 lampholders

Actuating element	Mounting position
AS-Interface A/B slave	Between mounting panels B and C and between C and D (with plastic enclosures only)
Lampholders	3

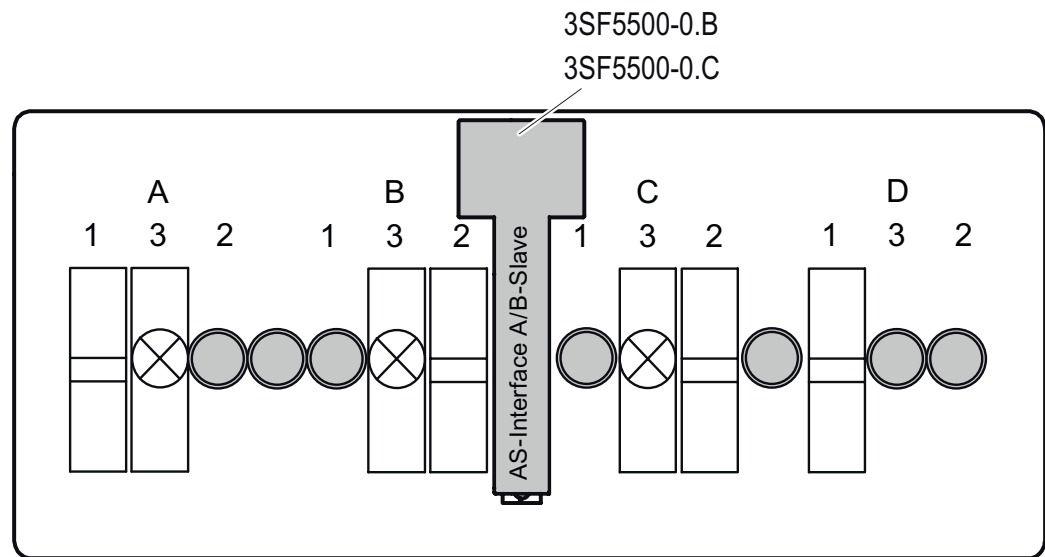


5.7.7 Equipping with 1 A/B slave

An enclosure with 4 command points is to be equipped as follows:

- 1 x A/B slave
- 3 lampholders

Actuating element	Mounting position
AS-Interface A/B slave	Between mounting panels B and C (plastic enclosure), between C and D (metal enclosure)
Lampholders	3



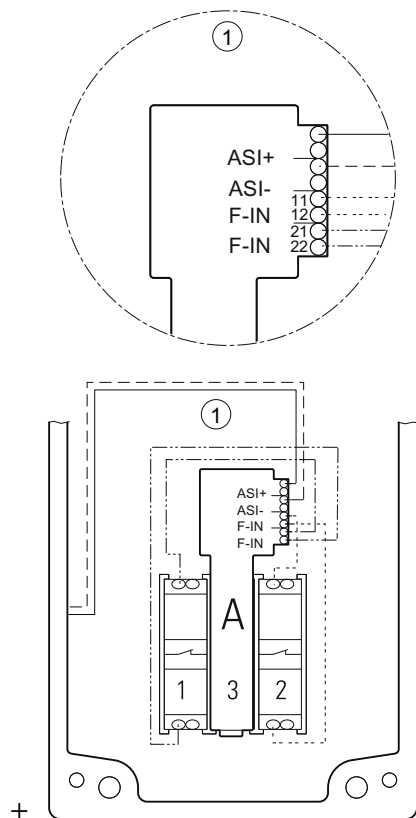
5.7.8 Wiring examples

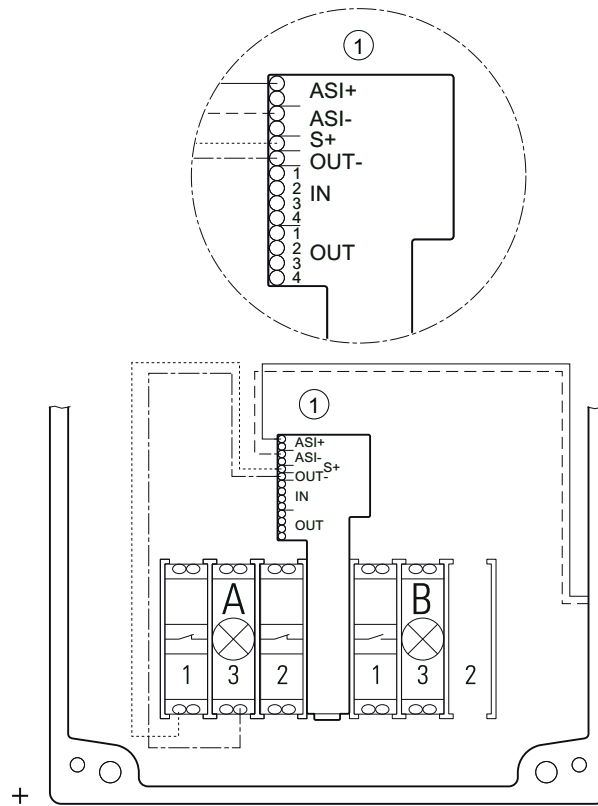
Enclosures with AS-Interface are available as prewired units. Examples of circuit arrangements are illustrated in the diagrams below.

Note

For reasons of clarity, the input and output wiring is not shown in the diagrams.

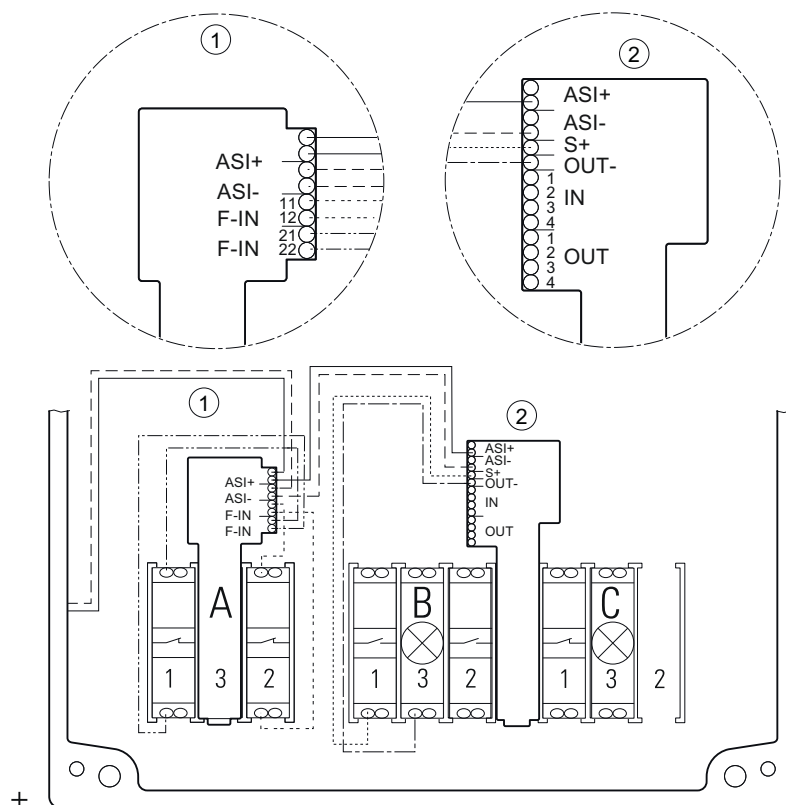
AS-i enclosure with one command point with one AS-i F slave (EMERGENCY STOP), wired to left



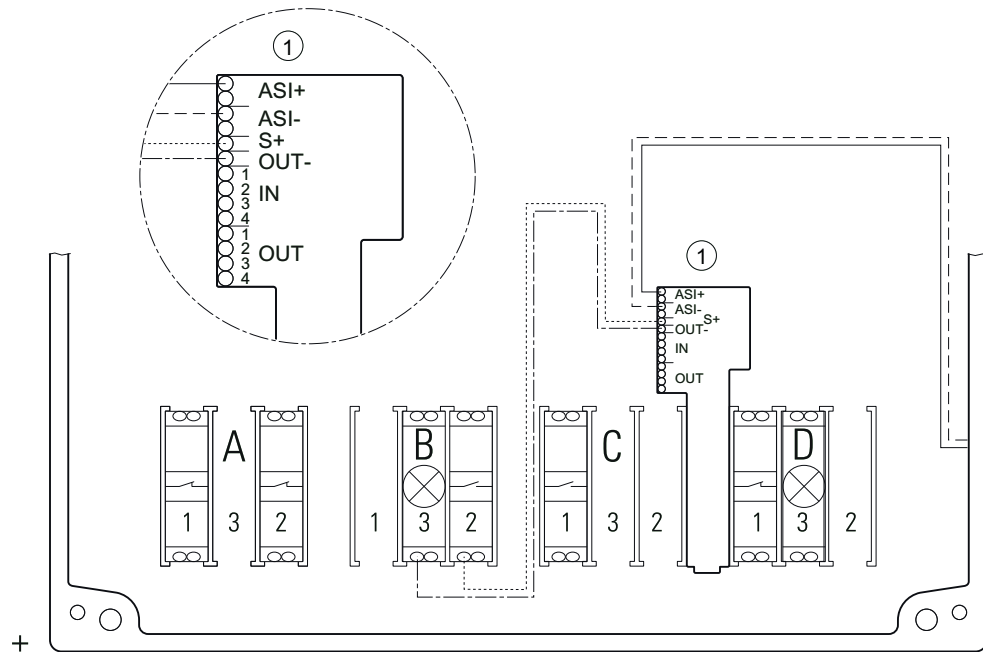
AS-i enclosure with two command points, wired to right**Note****Enclosures with 2 command points**

Enclosures with 2 command points cannot be equipped with an ASi F slave (EMERGENCY STOP).

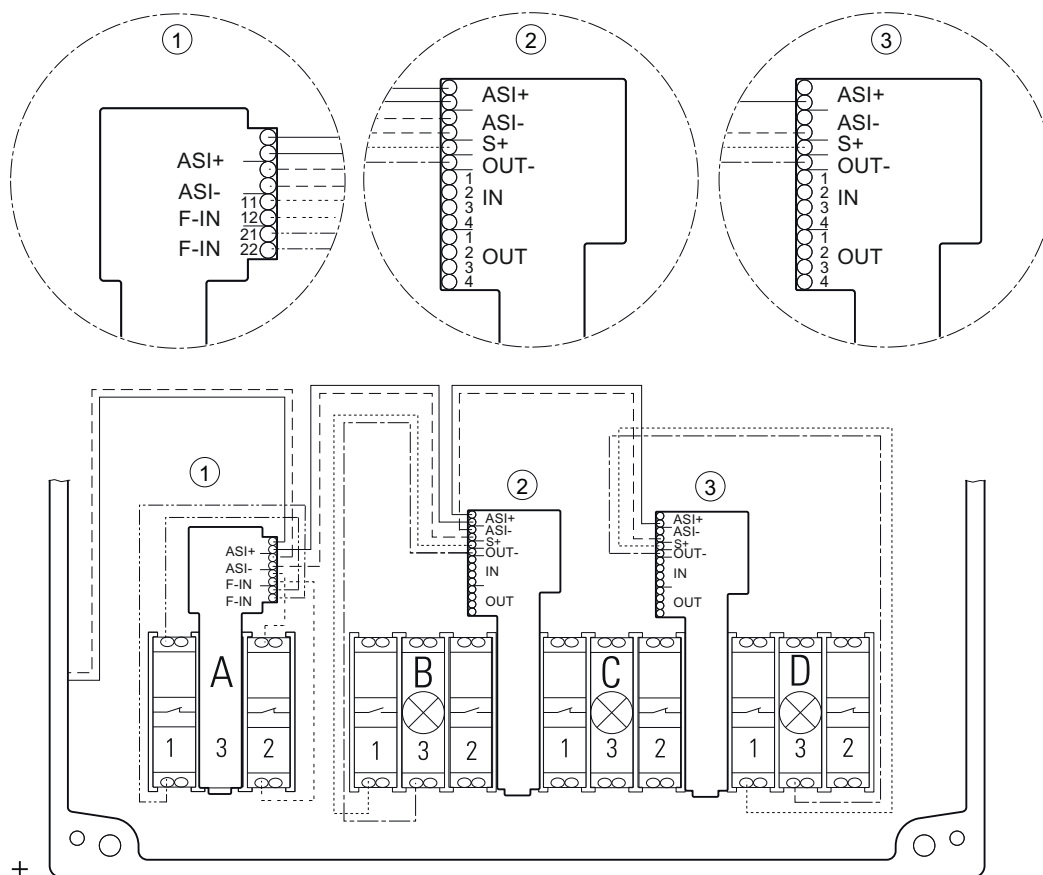
AS-i enclosure with three command points with one AS-i F slave (EMERGENCY STOP) in A3, wired to left



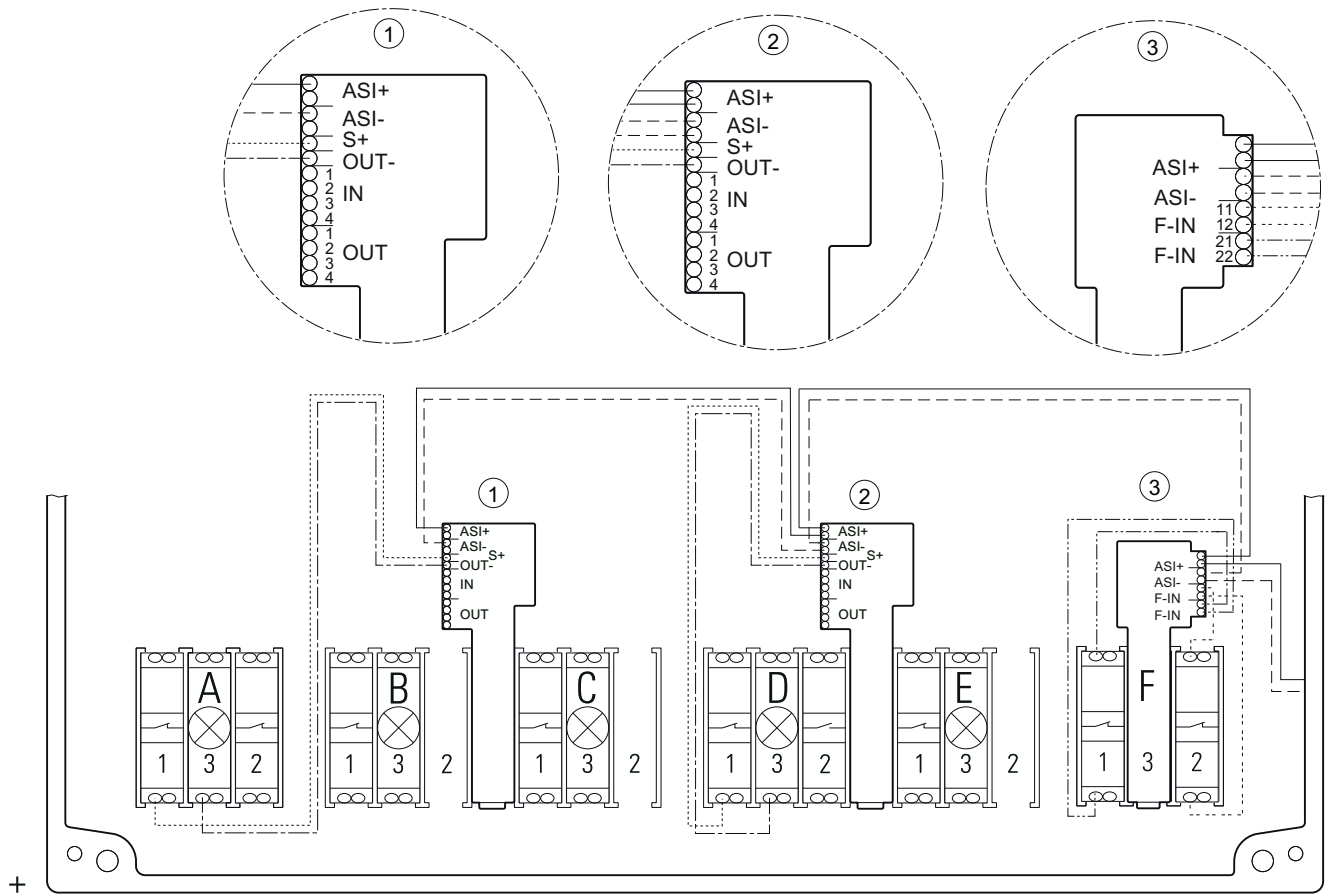
AS-i enclosure with four command points with conventionally wired EMERGENCY STOP in A, wired to right



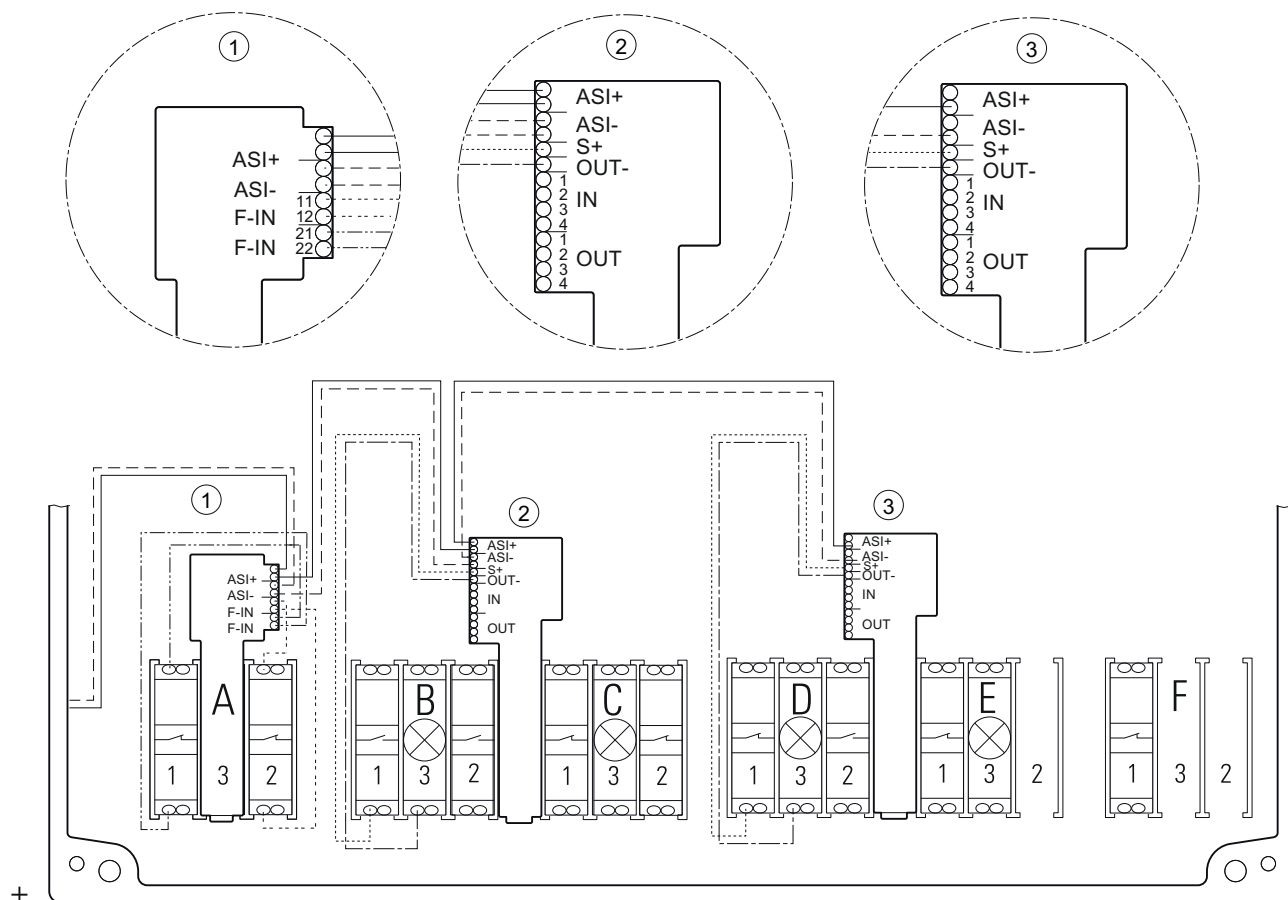
AS-i enclosure with four command points with one AS-i F slave (EMERGENCY STOP) in A3, wired to left



AS-i enclosure with six command points with one AS-i F slave (EMERGENCY STOP) in F3, wired to right



AS-i enclosure with six command points with one AS-i F slave (EMERGENCY STOP) in A3, wired to left



3SB3 two-hand operation consoles

6.1 Application areas

Two-hand operation consoles are used for machines and systems with danger areas for the purpose of controlling the location of both hands of the operator. Through a simultaneous and location-controlled use of both hands, protection from dangerous movement in the danger area of the machine is ensured.

Two-hand operation consoles are used for the following safety requirements:

- Safety at presses and punches
- Safety at printing presses
- Safety at paper processing machines

The synchronous and location-controlled operation using both hands occurs throughout the duration of the danger. Bypassing of the safety mechanism or accidental actuation, e.g., by elbows, arms or knees, is effectively prevented by protective collars over the actuating elements. The sloping shape of the top enables ergonomic operation and working position. Expansion to include additional operator controls is possible.

The control command is given by pressing the two mushroom pushbuttons on the sides simultaneously (within 0.5 s of each other) and must be maintained for as long as a hazard exists.

For evaluation of the control commands, the associated 3TK2834 and 3TK2835 two-hand control units are offered as overtravel test devices in relay technology.

6.2 Overview of two-hand operation consoles

Two-hand operation consoles		Article No.
	Two-hand operation console, metal enclosure	
	With standard equipment	3SB3863-4BB
	With standard equipment and 4 additional holes for 22.5 mm command devices	3SB3863-4BA
	Empty enclosure, unequipped	3SB3863-4BC
	Two-hand operation console, plastic enclosure	
	With standard equipment and preset breaking points for 8 additional 22.5 mm command devices, with knock-outs for metric cable glands	3SB3863-1BB3
Accessories for two-hand operation consoles		

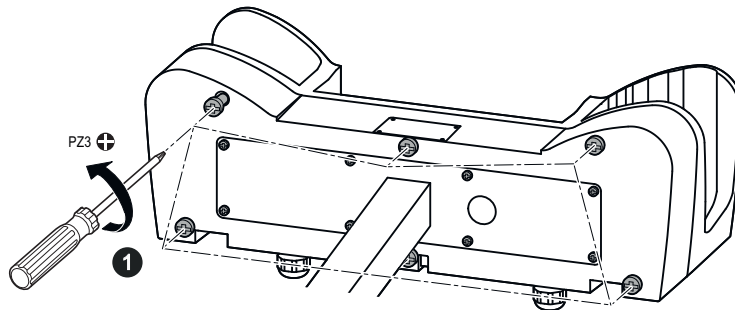
6.3 Mounting

Two-hand operation consoles		Article No.
	Stand for two-hand operation console	
	With knock-outs for metric cable glands	3SB3901-0AQ3

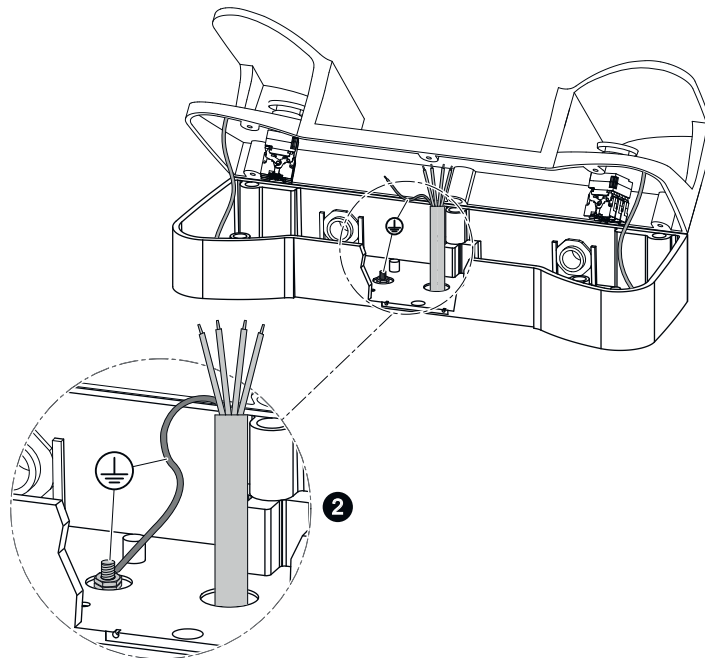
6.3 Mounting

The two-hand operation console can be mounted on the associated stand or directly on the machine using the holes in the rear wall.

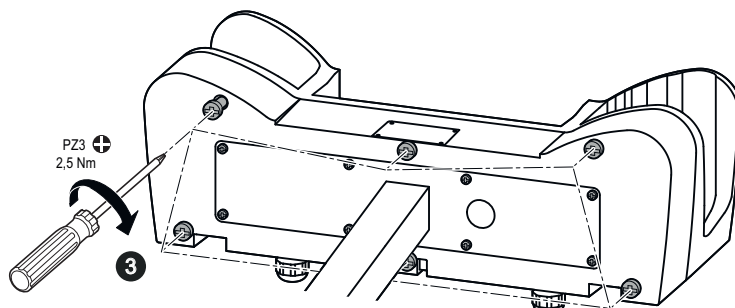
1. Unscrew the cover on the bottom of the two-hand operation console.



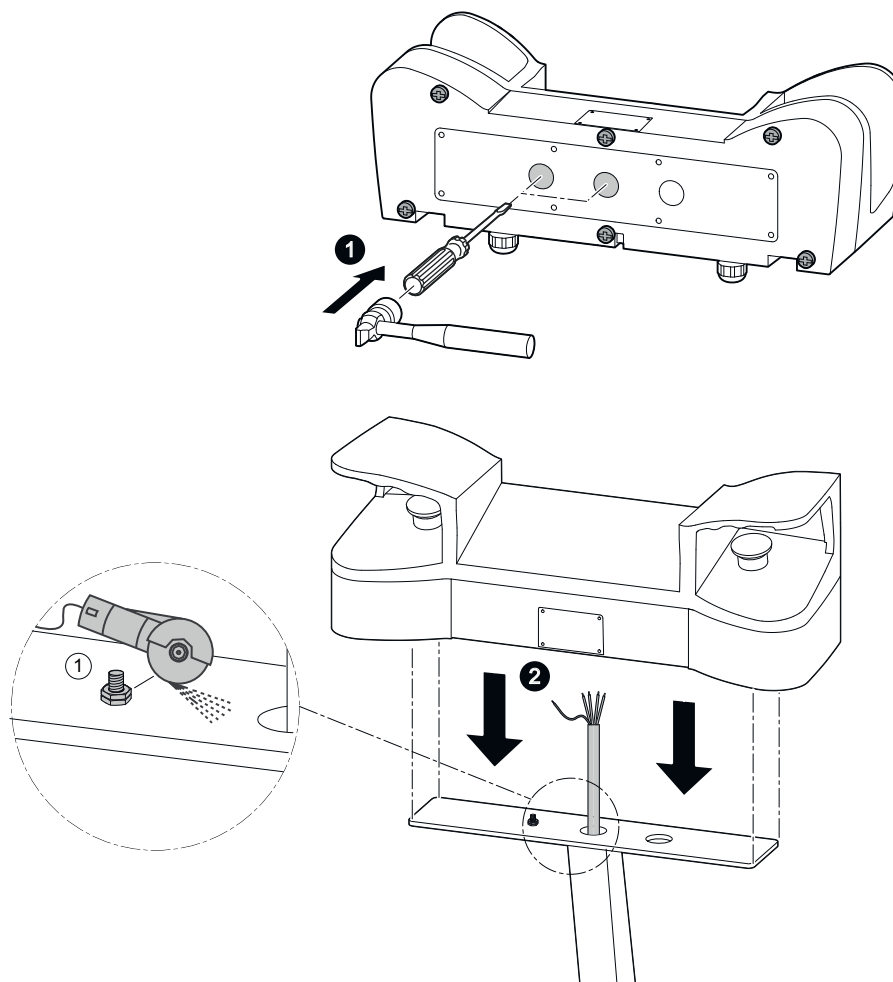
2. Wire and ground the two-hand operation console.



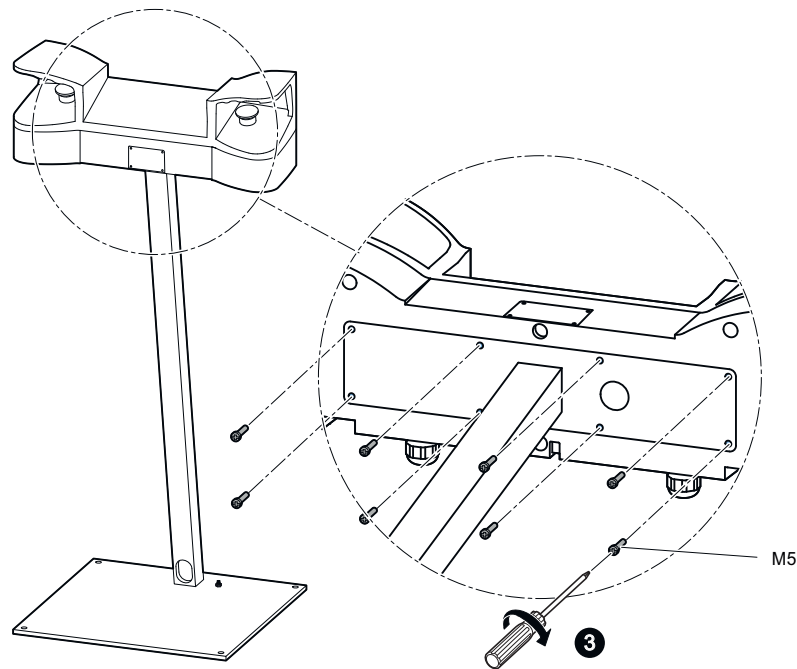
3. Screw on the cover.



6.3.1 Mounting on stand



- ① For the two-hand operation console with plastic enclosure 3SB3863-1BB3, the grounding screw must be removed.



6.4 Technical specifications

6.4.1 Technical specifications in the Siemens SiePortal

Technical data sheet

You can find the technical specifications for the product in Siemens SiePortal (<https://sieportal.siemens.com/su/bldxc>).

1. Enter the article number of the desired device in the "Products" field.
2. Click the "Technical specifications" link in the result.

Type	3SB3863-1B.	3SB3863-4B.
Two-hand operation consoles		
Standards	IEC 60947-5-1 / IEC 60947-5-5, EN ISO 13850, EN 574	
Material of the enclosure	Plastic	Metal
Material of the actuator and indicator	Plastic	Metal
Degree of protection according to IEC 60529 (VDE 0470 Part 1)	IP65	
Climatic test in accordance with EN ISO 6270-2: Saturated atmosphere with variations in air temperature	KTW24	
Rated insulation voltage U_i	V	400
Rated impulse withstand voltage U_{imp}	kV	6

6.5 Accessories

Type		3SB3863-1B.	3SB3863-4B.
Power P_{Vmax}	W	2,5	
I_e @	A	≤ 10	
I_e @ $\leq 3 \times$	A	≤ 8	
Ambient temperature	°C	-25 ... +70	
Conductor cross-sections screw terminal ¹⁾			
• Finely stranded, without end sleeves	mm ²	—	
• Finely stranded, with end sleeves according to DIN 46228	mm ²	2 × (0,5 ... 1,5)	
• Solid	mm ²	2 × (1 ... 1,5)	
• Solid, with end sleeves according to DIN 46228	mm ²	2 × (0,5 ... 0,75)	
• AWG cables, solid or stranded		2 × AWG 18 ... 14	
Tightening torque, connection screw	Nm	0,8	

1) For standard screwdriver size 2 or Pozidriv 2

6.5 Accessories

6.5.1 Equipment

The two-hand operation consoles are pre-equipped with 3SB3 command devices. In the case of plastic enclosures the command points are equipped as standard with actuators and indicators made of plastic, in the case of metal enclosures they are equipped with actuators and indicators made of metal.

The standard equipment comprises:

- Two black mushroom pushbuttons, diameter 40 mm, 1 NO + 1 NC, Article No. 3SB3000-1GA11 or 3SB3500-1GA11
- One red EMERGENCY STOP mushroom pushbutton according to EN ISO 13850, diameter 40 mm, with positive latching, 2 NC, Article No. 3SB3000-1HA20 or 3SB3500-1HA20

An unequipped empty enclosure is also available in the metal version.

The plastic version can be retrofitted with up to 8 command points on a customer-specific basis. The surface of the console has premachined breaking points for this purpose.

The following components are not integral parts of the product. They can be ordered separately:

Accessories	Article No.
Labeling plate	3SB3901-0CH
Pushbuttons or indicator lights	3SB2 / 3SB3

Accessories	Article No.
Lampholders	3SB2304-2A lampholder W2 x 4.6 d without lamp 3SB2304-2F lampholder W2 x 4.6 d with incandescent lamp 6 V 3SB2304-2H lampholder W2 x 4.6 d with incandescent lamp 24 V
Key-operated switches	3SB3000-4LD05 3SB3000-4PD05
Stands for two-hand operation console	3SB3901-0AQ3

6.6 Dimension drawings

6.6.1 CAx data in the Siemens SiePortal

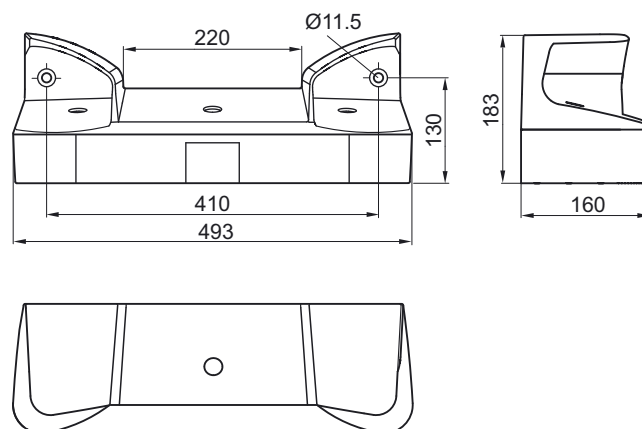
You can find CAx data for the product in the SiePortal (<https://sieportal.siemens.com/su/bldxc>).

1. Enter the article number of the desired device in the "Products" field.
2. Click the "CAx data" link in the result.

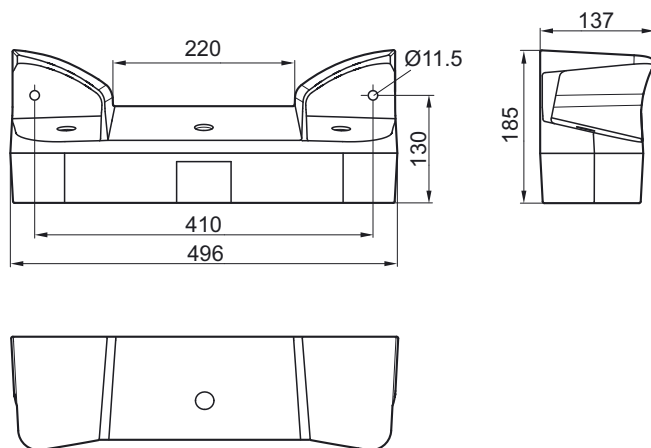
Note

All dimensions specified in mm.

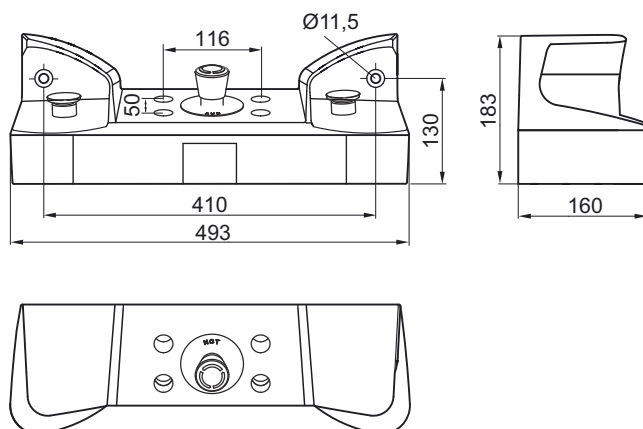
3SB3863-1 operation console with plastic enclosure



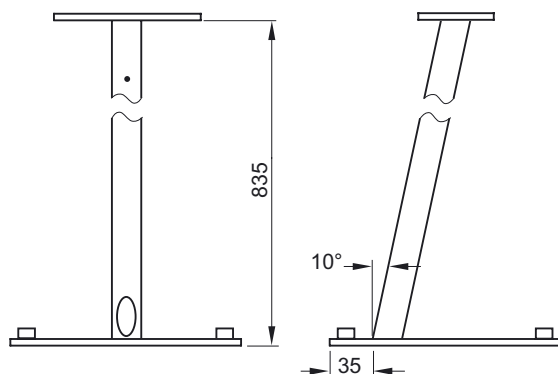
3SB3863-4 operation console with metal enclosure



3SB3863-4BA operation console with 4 additional holes

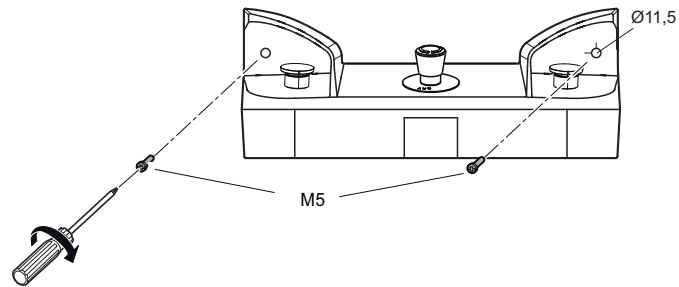


3SB3901-0AQ3 stand



6.7 Application examples

Two-hand operation console, wall-mounted



Appendix

A.1 Certifications and approvals

Approval markings



Communautés Européennes

(The CE approval mark is required in order to market your products within Europe. The CE mark indicates to European authorities that your claims of product compliance meet the applicable standards.)



Underwriters Laboratories Inc.

(Product safety certification organization)

(Approval mark for Canada and USA)



Underwriters Laboratories Inc.

(Product safety certification organization)



UL Recognized Component Mark

(Approval mark for recognized components)



Canadian Standards Association

(Zertifizierung für den kanadischen Markt)



Atmosphère explosible

(Explosion protection)



China Compulsory Certification

(Certification system in China)

A.2 List of abbreviations

Abbreviation	Meaning
AC	Alternating current
AC-12	Control of resistive loads and solid-state loads with isolation by optocouplers
AC-15	Utilization category for contactor relays according to IEC 60947-5-1 AC-15 Control of electromagnetic loads (> 72 VA).
ASIsafe	Concept for integration of safety-related components in an AS-Interface network
AWG	American Wire Gauge = coding for wire diameters in North America
BG	Employer's Liability Insurance Associations
BKS	Manufacturer of locking systems and cylinder locks
Bus	Binary Unit System System for transferring data between multiple nodes
C-Charakteristik	Circuit breakers with C characteristic are used for cables to loads with high inrush current.
CE	CE marking Confirmation of conformity of the product with the applicable EU directives and compliance with the essential requirements contained in these directives.
CES	Manufacturer of locking systems and cylinder locks
CCC	China Compulsory Certification. The CCC certificate is the compulsory Chinese certificate for various product groups, especially electronic products and products in the automobile industry.
CSA	Canadian Standards Association Provider of product testing and certification services in North America.
C-UL-US	C-UL-US Listing approval mark This classification mark is used for products that are sold in Canadian and U.S. markets. It indicates that Canadian and U.S. requirements for classified products have been fulfilled.
DC	Direct current
DC-13	Utilization category for contactor relays according to IEC 60947-5-1 DC-13 Control of DC electromagnets
DIAZED	Diametrically graded two-part Edison fuse DIAZED is a trademark of Siemens AG. The neutral standard designation is D fuse.
DIN	The "Deutsches Institut für Normung" is the German institution that is responsible for standards development and that represents German interests in European and global standards organizations.
EMC	Electromagnetic compatibility
EN	Europäische Norm (European standard)
GOST	Certification for Russia
IEC	International Electrotechnical Commission
IP	Ingress protection
ISO	International Organization for Standardization
KFW	Saturated atmosphere with variations in air humidity and temperature
KK	Constant saturated atmosphere

Abbreviation	Meaning
KTW	Saturated atmosphere with variations in air temperature
LED	Light emitting diode
M12	Metric ISO thread
CET	Central European Time
NC	NC contact
PDF	Platform-independent file format for documents (Portable Document Format)
PE	Protective Earth
SELV	Safety extra-low voltage
PFD	Probability of dangerous failure on demand
UL	Underwriters Laboratories Inc. U.S. organization for certifying electrotechnical products.
NO	NO contact
SIL	Safety Integrity Level
VDE	Verband der Elektrotechnik Elektronik Informationstechnik e. V. (Association of Electrical Engineering, Electronics and Information Technology (Germany))

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