SIEMENS

Industrial Controls

SIRIUS ACT

3SU1 Pushbuttons and Signaling Devices

System Manual

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Answers for industry.

SIEMENS

Industrial Controls

Command and signaling devices SIRIUS ACT 3SU1 pushbuttons and signaling devices

System Manual

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

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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

1.1 Responsibility of the user for system configuration and functionality

The products described here have been developed to perform safety-related functions as part of an overall system or machine.

A complete safety-related system generally includes sensors, evaluation units, signaling devices and concepts for safe tripping.

The manufacturer of a system or machine is responsible for ensuring its correct overall function.

Siemens AG, its subsidiaries and affiliated companies (hereinafter referred to as "Siemens") are not able to guarantee all properties of an overall system or machine not designed by Siemens.

Siemens also does not assume any liability for recommendations that are made or implied in the following description. No new guarantee, warranty, or liability claims beyond the scope of the general terms of delivery of Siemens may be derived based on the following description.

1.2 Target group

This documentation contains information for the following target groups:

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

1.3 Purpose of this documentation

This System Manual describes the many different possible uses of the
SIRIUS ACT (3SU1) command devices and signaling devices and provides the following
information:

- Information regarding integration of the 3SU1 command devices and signaling devices
  into the system environment

- Information on the principle of operation, selection, installation, and connection of
  command devices and signaling devices

- Technical information such as dimension drawings and internal circuit diagrams.

The information in this manual enables you to configure and commission the command
devices and signaling devices.

1.4 Required knowledge

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

- Low-voltage industrial controls
- Digital circuit logic
- Automation systems
- AS-Interface
- IO-Link
- Safety technology

1.5 Scope of validity of the system manual

Scope of validity of the system manual

The system manual is valid for the present command devices and signaling devices. It contains a description of the devices that are valid at the time of publication.

1.6 Further documentation

Please observe the following Operating Instructions for this system manual.

Operating Instructions title[1]	Article number[1]
SIRIUS Complete Units with EMERGENCY STOP 3SU11..-1.	3ZX1012-0SU11-1AA1
SIRIUS AS-Interface Module (Front Plate Mounting) 3SU14.0-1E..0-.AA0	3ZX1012-0SU14-1AA1
SIRIUS AS-Interface Module (Base Mounting) in accordance with the Machinery Directive	3ZX10120SU14-1CA1
SIRIUS Enclosures with EMERGENCY STOP 3SU18..-.N	3ZX1012-0SU18-1NA1
SIRIUS Two-Hand Operation Consoles 3SU18..-3 in accordance with the Machinery Directive	3ZX1012-0SU18-3AA1
SIRIUS Two-Hand Operation Consoles 3SU18..-3	3ZX1012-0SU18-3NA1
SIRIUS AS-Interface Module (Base Element) 3SU14..-.E	3ZX1012-0SU14-1EA1
SIRIUS Electronic Module for ID Key-Operated Switches 3SU14..-.G	3ZX1012-0SU14-1GA1
SIRIUS Sensor Switches	3ZX1012-0SU12-1SA1

[1] The documents are available for download free of charge in the Service&Support Portal.

1.7 Siemens Industry Online Support

Information and Service

In Siemens Industry Online Support, you can obtain up-to-date information from our global support database quickly and simply. To accompany our products and systems, we offer a wealth of information and services that provide support in every phase of the lifecycle of your machine or plant – from planning and implementation, through commissioning, up to maintenance and modernization:

- Product support
- Application examples
- Services
- Forum
- mySupport

Link: Siemens Industry Online Support (https://support.industry.siemens.com/cs/de/en)

Product support

You will find here all the information and comprehensive know-how covering all aspects of your product:

- **FAQs**

  Our answers to frequently asked questions.

- **Manuals/operating instructions**

  Read online or download, available as PDF or individually configurable.

- **Certificates**

  Clearly sorted according to approving authority, type and country.

- **Characteristic curves**

  For support in planning and configuring your system.

- **Product announcements**

  The latest information and news concerning our products.

- **Downloads**

  You can find here updates, service packs, HSPs and much more for your product.

- **Application examples**

  Function blocks, background and system descriptions, performance statements, demonstration systems, and application examples, clearly explained and represented.

- **Technical data**

  Technical product data for support in planning and implementing your project.

Link: Product support (https://support.industry.siemens.com/cs/ww/en/ps)

mySupport

With "mySupport", your personal workspace, you get the very best out of your Industry Online Support. Everything to enable you to find the right information every time.

The following functions are now available:

- **Personal messages**
  Your personal mailbox for exchanging information and managing your contacts

- **Inquiries**
  Use our online form for specific solution suggestions, or send your technical inquiry directly to a specialist in Technical Support

- **Notifications**
  Make sure you always have the latest information - individually tailored to your needs

- **Filters**
  Simple management and re-use of your filter settings from Product Support and the Technical Forum

- **Favorites / Tags**
  Create your own knowledge database by assigning "Favorites" and "Tags" to documents – simply and efficiently

- **Entries last viewed**
  Clear presentation of your last viewed entries

- **Documentation**
  Configure your individual documentation from different manuals – quickly and without complications

- **Personal data**
  Change personal data and contact information here

- **CAx data**
  Simple access to thousands of items of CAx data such as 3D models, 2D dimension drawings, EPLAN macros and much more

1.8 Configurator for SIRIUS ACT command devices and signaling devices

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

The configurator for SIRIUS ACT pushbuttons and signaling devices and matching accessories is an easy-to-use selection and configuration tool. You can select the individual components and plan your system in accordance with your specific requirements. 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.

A further aid to configuring your customized enclosure is the Configuration Identification Number (CIN).

When you finish configuring your customized enclosure, you receive a CIN. With this number, you can open and order the enclosure from anywhere in the world. The CINs are also saved with the user login and can be selected on your Start page.

 Link: Configurator (http://www.siemens.com/sirius/configurators)

1.9 Advantages through energy efficiency

Advantages through energy efficiency

Siemens offers you a unique portfolio for efficient energy management in industry – a process that serves to optimally shape your energy requirement. Operational energy management is subdivided into three phases:

- Identifying

- Evaluating

- Realizing

Siemens supports you with suitable hardware and software solutions in every phase of a project.

More information can be found on the Internet (http://www.automation.siemens.com/mcms/industrial-controls/en/energy-efficiency).

The 3SU1 pushbuttons and signaling devices contribute to energy efficiency throughout the plant as follows:

- Low power consumption as a result of LED technology

- Long service life
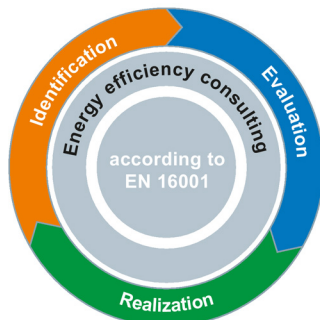
Figure 1-1   Overview of the energy management process

1.10 Recycling and disposal

Recycling and disposal

These devices can be recycled thanks to their low pollutant content. For environmentally-friendly recycling and disposal of your electronic waste, please contact a company certified for the disposal of electronic waste.

1.11 Correction sheet

Correction sheet

A correction sheet is included at the end of the manual. Please use it to record your suggestions for improvements, additions and corrections, and return the sheet to us. This will help us to improve the next edition of the manual.

Safety notes 2

> **⚠ DANGER**
>
> **Hazardous voltage. Will cause death or serious injury.**
>
> - Turn off and lock out all power supplying this device before working on this device.
> - 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 this documentation, a "qualified person" is someone who is authorized to energize, ground, and tag equipment, systems, and circuits in accordance with established safety procedures.

Note

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

Note

Always make sure that the components (particularly those with a holder or actuator) are securely installed (free from vibration). Mount them on a support of at least 1 mm thickness.

2.1 Intended use

⚠ WARNING
Hazardous Voltage.
Can Cause Death, Serious Injury, or Property Damage.
Proper use of hardware products
This equipment is only allowed to be used for the applications described in the catalog and in the technical description, and only in conjunction with non-Siemens equipment and components recommended by Siemens.
Correct transport, storage, installation and assembly, as well as careful operation and maintenance, are required to ensure that the product operates safely and without faults.
EU note: Commissioning is absolutely prohibited until it has been ensured that the machine in which the component described here is to be installed complies with the stipulations of the Directive 2006/42/EC.

2.2 Current information about operational safety

Important note for maintaining operational safety of your system

> ⚠ **WARNING**
>
> **Hazardous Voltage**
> **Can Cause Death, Serious Injury, or Property Damage.**
> **Please take note of our latest information.**
>
> Systems with safety-related characteristics are subject to special operational safety requirements on the part of the operator. The supplier is also obliged to comply with special product monitoring measures. For this reason, we publish a special newsletter containing information on product developments and features that are (or could be) relevant to operation of safety-related systems. By subscribing to the appropriate newsletter, you will ensure that you are always up-to-date and able to make changes to your system, when necessary:
>
> SIEMENS newsletter (http://www.industry.siemens.com/newsletter)
>
> Request the following newsletter under "Products and Solutions":
> - Industrial Controls - SIRIUS News (en)
> - Safety Integrated Newsletter

2.3 ATEX for intrinsically safe circuits

The intrinsic safety of a circuit is achieved by limiting the current and voltage. This property limits the "intrinsically safe" protection type to circuits with relatively low power. Suitable applications are found, for example, in measuring and control engineering.

The purpose of pushbuttons and signaling devices is to reliably signal conditions (for example, sources of faults or interference factors) on machinery and installations so that the affected equipment can be controlled and brought into a safe state if a hazardous situation develops.

From our portfolio of pushbuttons and signaling devices, non-illuminated actuators, contact modules, empty enclosures and special accessories (see table below) are categorized in accordance with the ATEX Directive 94/9/EC as simple electrical equipment and are thus suitable for use in intrinsically safe circuits.

The devices listed in the overview below are assigned to Temperature Class T4.

3SU1 pushbuttons and signaling devices

	Type	Version	Basis for approval
Actuating and signaling elements	3SU10.0-.....-.... 3SU10.2-.....-.... 3SU11.0-.....-.... 3SU12.0-.....-....	Plastic or metal version	Simple electrical equipment according to DIN EN 60079-11
Contact modules	3SU1400-.AA10-..A0 3SU1400-.DA..-.AA0	Spring-loaded terminals or screw terminals	
Holders	3SU1500-0AA10-0AA0 3SU1550-0AA10-0AA0	Plastic or metal version	
Empty enclosure	3SU18..-.AA..-....	Plastic or metal version	
Accessories	3SU19.0-0A…-0..0 3SU19.0-0B…-0..0		

Setting up an intrinsically safe area

To avoid closing and opening sparks, the capacitance and inductance of an intrinsically safe circuit are also limited depending on the maximum voltage and current values. No sparks and no thermal effects that could result in the ignition of a potentially explosive atmosphere can occur either in standard operation or in the event of a fault. For this reason, intrinsically safe circuits may be connected or disconnected under power during operation because safety is ensured even in the event of short-circuit or interruption.

The circuit principle of the intrinsically safe protection type is shown in the diagram below:
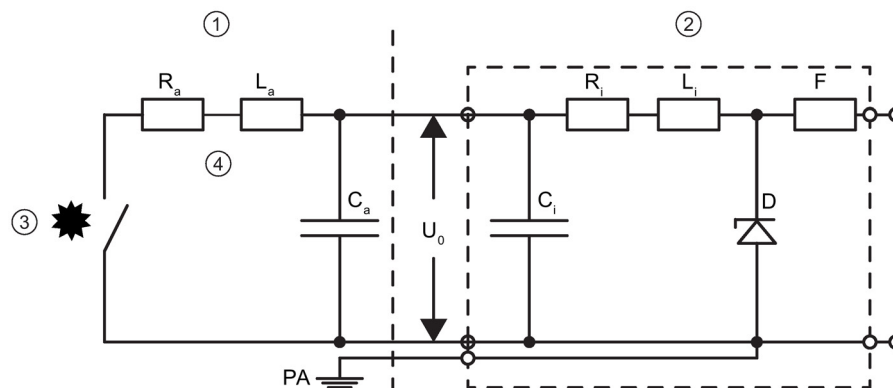
①	Hazardous area
②	Safe area
③	Spark energy limited
④	Temperature rise limited
U_0	Max. output voltage
I_0	Max. output current
R_i	Internal resistance
L_i	Internal inductance
C_i	Internal capacitance
F	Fuse
D	Z diode
PA	Equipotential bonding
R_a	External resistance
L_a	External inductance
C_a	External capacitance

Overview 3

3.1 Overview of the device range

3SU1 pushbuttons and signaling devices

	SIRIUS ACT pushbuttons and signaling devices			
	3SU10 actuating and signaling elements 3SU11 complete units[1)] 3SU12 compact units[1)]	3SU14 modules without holder 3SU15 modules with holder	3SU18 enclosures	3SU18..-3 two-hand operation consoles
Description	• Pushbuttons • Mushroom pushbuttons • EMERGENCY STOP mushroom pushbuttons • Sensor switches • Selector switches • Twin pushbuttons • Key-operated switches • Indicator lights • Illuminated pushbuttons	• Contact modules • LED modules • LED test modules • AS-Interface module (front plate mounting) • AS-Interface module (base mounting)	• EMERGENCY STOP enclosures • Number of command points: 1, 2, 3, 4 and 6 • Also, customized enclosures on request	• Two-hand operation consoles including EMERGENCY STOP and two mushroom pushbuttons • Additional commanding devices can be mounted
Version	Front ring / Collar: • Metal / Metal • Metal, matte / Metal • Metal, matte / Plastic • Plastic / Plastic	Plastic, black	Enclosure / Front ring: • Plastic / Plastic, black • Metal / Metal • Metal / Metal, matte	• Plastic • Metal
Installation / Connection	• One-man installation without special tools • Modular equipping of the actuating elements with contact and/or LED modules • Screw terminal, spring-loaded terminal, solder pin connection • Installation M12 connector	• Base mounting or front plate mounting in screw terminal or spring-loaded terminal • PCB mounting and insulation piercing method (AS-Interface module)	Vertical / Horizontal	• Can be mounted on a wall, stand, or directly within the system

	SIRIUS ACT pushbuttons and signaling devices			
	3SU10 actuating and signaling elements 3SU11 complete units[1] 3SU12 compact units[1]	3SU14 modules without holder 3SU15 modules with holder	3SU18 enclosures	3SU18..-3 two-hand operation consoles
Degree of protection	• IP66 / IP67 / IP69 (plastic / metal) • NEMA4	Enclosure: IP40 Connecting terminals: IP20	IP66 / IP67 / IP69 (plastic / metal)	IP66 / IP67 / IP69 (plastic / metal)
Approval	• UL • CSA • CE • VDE	• UL, CSA, CE • c UL us, CE, C-Tick, KCC, TÜV, CCC	• UL • CSA • CE • CCC	• UL • CSA • CE • CCC
Relevant standards	• IEC/EN 60947-1 • IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • EN ISO 13850	• IEC/EN 60947-1 • IEC/EN 60947-5-1 • IEC/EN 61508 • EN ISO 13849-1	• IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • EN ISO 13850 • IEC/EN 60947-1 • EN ISO 13849-1	• IEC/EN 60947-5-1 • IEC/EN 60947-5-5 • IEC/EN 61508 • EN ISO 13850
AS-Interface	Fast and easy connection to AS-Interface. Possibility of direct connection of EMERGENCY STOP devices via standard AS bus with safety-related communication.		• Enclosure with integrated AS-Interface • Standard pushbuttons and EMERGENCY STOP devices can be mounted inside enclosures. • Modular structure	Metal consoles can be retrofitted with safe AS-Interface.
Safety	EMERGENCY STOP mushroom pushbuttons for shutdown of systems in an emergency situation The devices can be used up to SIL CL 3 according to IEC 62061 and PL e Cat. 4 according to ISO 13849-1.	Contact module with installation monitoring	EMERGENCY STOP function with latching according to ISO 13850	EMERGENCY STOP function with latching according to ISO 13850
Options	• Link to the configurator for customized enclosures: Configurator (http://www.siemens.com/sirius/configurators)			
	• Do-it-yourself labeling using Label Designer Label Designer (http://www.siemens.com/sirius-label-designer) (labels for self-inscription)			

[1] Holder included in the scope of supply

3.2 Application areas

SIRIUS 3SU1 actuating and signaling elements are available in 4 design lines:

- Plastic
- Metal matte
- Metal
- Metal matte for recessed mounting

They can be integrated using conventional controls or via AS-Interface depending on requirements

Enclosures

When controllers are at a physically separate location, actuating elements and indicator lights in enclosures serve as manual control devices. Their enclosures are equipped with the actuating elements and the round lens assemblies with a nominal diameter of 22.5 mm.

EMERGENCY STOP mushroom pushbuttons

- Safe and fast stopping of systems and machines in dangerous situations

Two-hand operation consoles

The two-hand operation consoles are required for machines and systems with danger areas for the purpose of controlling the location of both hands of the operator.

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

- Safety at presses and punching machines
- Safety at printing presses
- Safety at paper processing machines
- Safety in the chemical industry
- Safety in the rubber and plastics industries

3.3   Types of 3SU10 actuating elements and signaling elements

The 3SU10 pushbuttons and signaling devices represent a modular system for front plate mounting and rear cable connection. Alternatively, individual elements can also be supplied for use on printed-circuit boards. Complete 3SU11 unit combinations are offered for the most common applications. On the 3SU12 compact units, the electrical module is permanently installed and is only secured using the holder

Design of a 3SU1 actuating or signaling element

① Actuator (in this case: pushbutton)

② Front ring

③ Seal

④ Collar

3SU10 actuating and signaling elements

The 3SU10 actuating and signaling elements are available in the following designs:

- Front ring and collar in plastic
- Front ring in metal matte and collar in plastic
- Front ring and collar in metal
- Front ring in metal matte and collar in metal

Front ring material	Collar material	Examples
Plastic	Plastic	3SU100
Metal, matte	Plastic	3SU103
Metal	Metal	3SU105
Metal, matte	Metal	3SU106

3SU15 holders

Holders are available in plastic and metal versions.

A holder has three slots as standard.

Material	Examples
Plastic	
Metal	

3SU14 contact modules

The contact modules are equipped with a slow-action contact (1 NO contact or 1 NC contact). These ensure a high contact stability even with small voltages and currents (e.g., 5 V/1 mA).
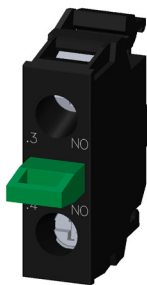
Figure 3-1   Example: Contact module 3SU1400-2AA10-1LA0

Connection system

Devices with the following connections are available:

● Screw terminals with open terminal points, captive screws, funnel-shaped cable entries and screwdriver guides

● Spring-loaded terminals for vibration-resistant connection

● Solder pin connection (0.8 mm × 0.8 mm solder pins)

Design of a 3SU10 and 3SU11 command point

A modular command point consists of the following elements:

- An actuating or signaling element in front of the control panel
- A holder for securing behind the control panel
- Up to three contact modules in a row and/or two contact modules and one LED module behind the control panel
- A maximum of 3x2 (1-pole) contact modules can be stacked with a 3-slot holder
- A comprehensive range of accessories for labeling

Stackability

With SIRIUS ACT, the modules are mounted on the holder without any further accessories. The modules can be stacked without needing to use a tool (max. 2 x 1-pole modules behind one other).
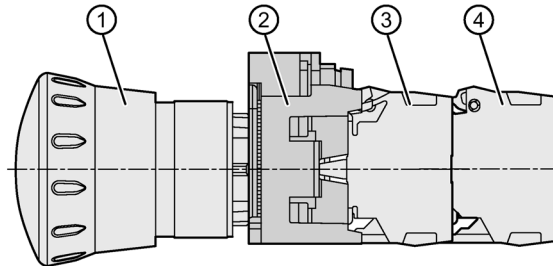
①	Actuating element (here: EMERGENCY STOP mushroom pushbutton)
②	Holder
③	Module 1
④	Module 2

3.4 Media resistance

The devices are suitable for use in any climate (KTW 24) and designed for standard industrial applications.

The use of polyamide gives the SIRIUS ACT devices improved resistance to oils and detergents. This material can be lasered for customized labeling.

3.5   Failure rates

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

λ = [0.1 x C / B10]

λD = [0.1 x 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.

3SU10 device range

<div style="text-align: right; font-size: 3em;">4</div>

4.1 Application areas

The actuating and signaling elements in the SIRIUS ACT range have a front plate seal (with self-sticking effect). As a result, a single person working alone can securely install actuators, indicators, holders or contact and LED modules using just one hand.

Contact modules have high contact stability and can be combined with all types of actuator.

They are integrated using conventional controls or via AS-Interface.

Application areas:

- Control of machines
- Elevators
- Control cabinets
- Rail / marine applications
- Power plants
- Mills / presses
- etc.

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.

Key-operated switches

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

Enclosures

When controllers are at a physically separate location, pushbuttons and indicator lights in enclosures serve as manual control devices. The enclosures are equipped with the actuating and signaling elements with nominal inside diameter = 22.5 mm.

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 DIN ISO 13850.

The illuminated versions of the EMERGENCY STOP mushroom pushbuttons improve the visibility of the command point and can convey additional information.

EMERGENCY STOP devices can be connected directly via the standard ASi bus. This applies to all SIRIUS ACT EMERGENCY STOP devices for front plate mounting and mounting in enclosures.

A front plate-mounted EMERGENCY STOP can be connected directly to the ASi bus via a fail-safe ASi module. For control systems according to IEC 60204-1 or DIN EN 60204-1 (VDE 0113 Part 1), the EMERGENCY STOP mushroom pushbuttons of the 3SU1 series can be used as EMERGENCY STOP devices.

4.2 Overview

4.2.1 Holders

The holders are used to secure the actuating or signaling elements and the contact module or LED module. The holders are designed for mounting in front plates with a plate thickness of 1 to 6 mm.

When delivered, the holders are set to a control panel thickness of approximately 3 mm. They are placed in the ↑ arrow direction from the rear onto the actuating and signaling elements. The fastening screw is located at the top. If they are to be mounted in a plate that is > 3 mm thick, you must adjust the fastening screw of the holder before you install the holder.

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 plate thickness of the relevant accessory.

Tool

For securing, we recommend a size 2 screwdriver (cross-tip DIN ISO 87641PZD1 or flat-head DIN ISO 2380-1 A/B 1 x 4.5). The tightening torque is 1.0 to 1.2 Nm.

Grounding of the front plate

If you mount a metal actuator on a metal front plate using a metal holder, the actuator is grounded via the tip of the fastening screw. This enables grounding via the connection on the front plate.

① ②
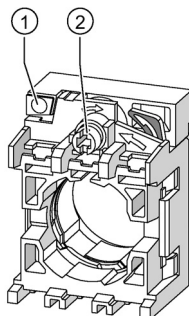
① Hole for grounding stud (accessory: 3SU1950-0KK80-0AA0)
② Fastening screw

NOTICE
Mounting 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 the metal holders, and connect it to ground by means of a grounding stud (3SU1950-0KK80-0AA0).

⚠ CAUTION
Risk of injury
To ensure secure connection of the grounding cable, the grounding studs (3SU1950-0KK80-0AA0) must be fastened with ring cable lugs.
The grounding stud is not included in the scope of supply and must be ordered separately. For information, please refer to Chapter "Accessories (Page 259)".

Note

The operator is responsible for checking that the protective measure (grounding) is effective.

Procedure
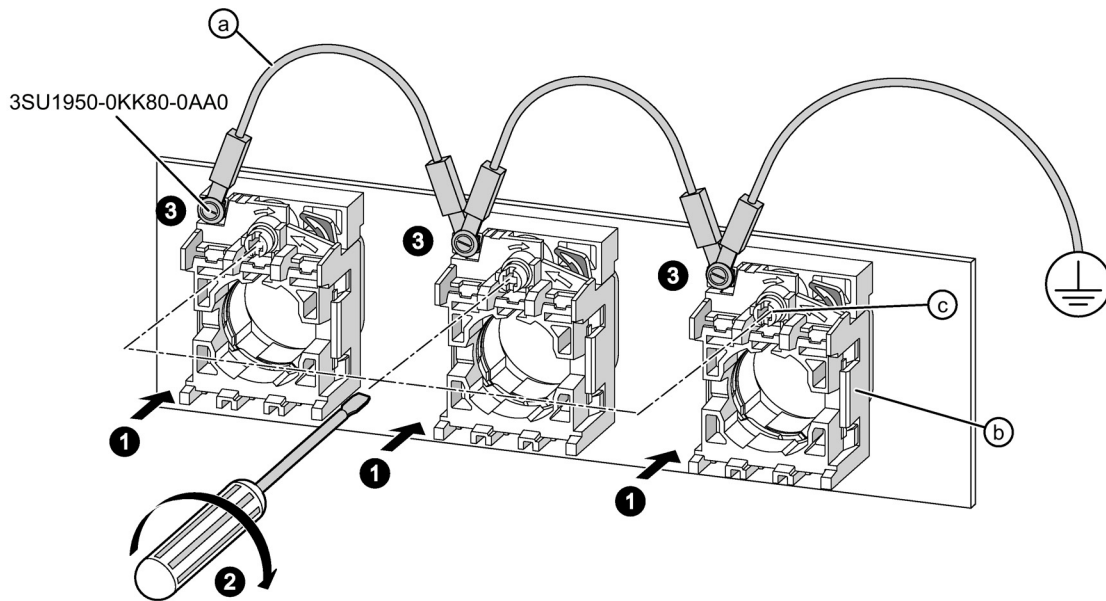
3SU1950-0KK80-0AA0

1. Attach the holder (b) to the actuating element from behind.

2. Tighten the holder screw (c).

3. Secure the grounding cable (a) with ring cable lugs to the grounding stud (3SU1950-0KK80-0AA0), tightening torque: 0.8 - 1.0 Nm.

Module slot position

The holders are available in metal or plastic versions with 3 slot positions for contact or LED modules.

The module slot positions (contact or LED modules) are indicated on top of the holder. The large digits designate the modules that are snapped directly onto the holder. The small digits indicate the position of stacked modules.
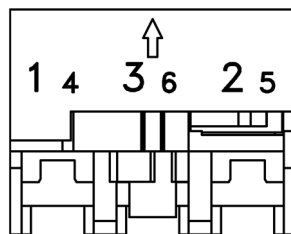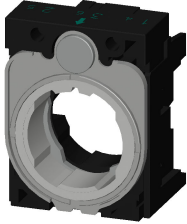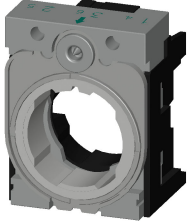
Figure 4-1   Marking of slot positions
on the 3-slot holder

Assignment of the holders to the actuating and signaling elements

The following assumptions apply when assigning holders to the actuating elements and signaling elements:

Front ring material	Collar material	Bore diameter	Holder (plastic)	Holder (metal)
Plastic	Plastic	22.5 mm	✓	✓
Metal, matte	Plastic	22.5 mm	✓	✓
Metal	Metal	22.5 mm	---	✓
Metal, matte	Metal	30.5 mm	---	✓

Overview of holders without modules

Material	3-slot holder (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221520)
Plastic	3SU1500-0AA10-0AA0
Metal	3SU1550-0AA10-0AA0

Overview of holders with contact module

These variants are preassembled. You need only snap them onto the actuator, tighten the fastening screws and connect the cables.
You can find information about the contact modules used in Chapter "Contact modules for front plate mounting (Page 135)".

Holder position 1	Holder position 2	Holder position 3	Article number
Plastic (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221521)			
3SU1400-1AA10-1BA0	—	—	3SU1500-1AA10-1BA0
3SU1400-1AA10-1CA0	—	—	3SU1500-1AA10-1CA0
3SU1400-1AA10-1BA0	—	3SU1400-1AA10-1BA0	3SU1500-1AA10-1NA0
Metal (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221521)			
3SU1400-1AA10-1BA0	—	—	3SU1550-1AA10-1BA0
3SU1400-1AA10-1CA0	—	—	3SU1550-1AA10-1CA0
3SU1400-1AA10-1BA0	—	3SU1400-1AA10-1BA0	3SU1550-1AA10-1NA0

3SU1400-1AA10-1BA0: Contact module 1NO normally open contact

3SU1400-1AA10-1CA0: Contact module 1NC normally closed contact

3SU1400-1AA10-1FA0: Contact module 1NO1NC normally open contact/normally closed contact

Overview of holders (plastic) with 1 contact and LED module

These variants are preassembled. You need only snap them onto the actuator, tighten the fastening screws and connect the cables.

The LED module included in the scope of supply is a wide-voltage module with a voltage range from 6 to 24 V AC/DC.

You can find information on the contact and LED modules used in Chapters "Contact modules for front plate mounting (Page 135)" and "LED modules for front plate mounting (Page 137)".

Holder position 1	Holder position 2	Holder position 3	Article number
Plastic (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221521)			
3SU1400-1AA10-1BA0	3SU1401-1BG00-1AA0	—	3SU1400-1AA10-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG00-1AA0	—	3SU1501-1AG00-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG00-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG00-1NA0
3SU1400-1AA10-1BA0	3SU1401-1BG20-1AA0	—	3SU1501-1AG20-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG20-1AA0	—	3SU1501-1AG20-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG20-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG20-1NA0
3SU1400-1AA10-1BA0	3SU1401-1BG30-1AA0	—	3SU1501-1AG30-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG30-1AA0	—	3SU1501-1AG30-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG30-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG30-1NA0
3SU1400-1AA10-1BA0	3SU1401-1BG40-1AA0	—	3SU1501-1AG40-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG40-1AA0	—	3SU1501-1AG40-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG40-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG40-1NA0
3SU1400-1AA10-1BA0	3SU1401-1BG50-1AA0	—	3SU1501-1AG50-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG50-1AA0	—	3SU1501-1AG50-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG50-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG50-1NA0
3SU1400-1AA10-1BA0	3SU1401-1BG60-1AA0	—	3SU1501-1AG60-1BA0
3SU1400-1AA10-1CA0	3SU1401-1BG60-1AA0	—	3SU1501-1AG60-1CA0
3SU1400-1AA10-1BA0	3SU1401-1BG60-1AA0	3SU1400-1AA10-1BA0	3SU1501-1AG60-1NA0

3SU1400-1AA10-1BA0: Contact module 1NO normally open contact

3SU1400-1AA10-1CA0: Contact module 1NC normally closed contact

3SU1400-1AA10-1FA0: Contact module 1NO1NC normally open contact/normally closed contact

3SU1400-1AA10-1BA0: LED module

4.2.2 Devices for use on 3-slot holder

4.2.2.1 22.5 mm pushbuttons

Pushbuttons are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. The buttons can be replaced from the front by the user.

Pushbuttons are available in different variants according to the following features:

- Height of button

- Height of front ring

- Collar and front ring material

- Colors of the buttons

- Switching function: momentary contact variants and latching variants

For further information refer to Chapters "Installation (Page 89)", "22.5 mm pushbuttons with standard inscription (Page 80)" and "Accessories (Page 231)"

	Pushbuttons			
	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Collar / Front ring material	**Article number**			
Plastic / Plastic	3SU1000-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221475)			
• Black	3SU1000-0Ax10-0AA0	3SU1000-0Bx10-0AA0	3SU1000-0Cx10-0AA0	3SU1000-0DB10-0AA0
• Red	3SU1000-0Ax20-0AA0	3SU1000-0Bx20-0AA0	3SU1000-0Cx20-0AA0	3SU1000-0DB20-0AA0
• Yellow	3SU1000-0Ax30-0AA0	3SU1000-0Bx30-0AA0	3SU1000-0Cx30-0AA0	3SU1000-0DB30-0AA0
• Green	3SU1000-0Ax40-0AA0	3SU1000-0Bx40-0AA0	3SU1000-0Cx40-0AA0	3SU1000-0DB40-0AA0
• Blue	3SU1000-0Ax50-0AA0	3SU1000-0Bx50-0AA0	3SU1000-0Cx50-0AA0	3SU1000-0DB50-0AA0
• White	3SU1000-0Ax60-0AA0	3SU1000-0Bx60-0AA0	3SU1000-0Cx60-0AA0	3SU1000-0DB60-0AA0
• Clear	3SU1000-0AB70-0AA0	—	—	—
Plastic / Metal, matte	3SU1030-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226610)			
• Black	3SU1030-0Ax10-0AA0	3SU1030-0Bx10-0AA0	3SU1030-0Cx10-0AA0	—
• Red	3SU1030-0Ax20-0AA0	3SU1030-0Bx20-0AA0	3SU1030-0Cx20-0AA0	—
• Yellow	3SU1030-0Ax30-0AA0	3SU1030-0Bx30-0AA0	3SU1030-0Cx30-0AA0	—
• Green	3SU1030-0Ax40-0AA0	3SU1030-0Bx40-0AA0	3SU1030-0Cx40-0AA0	—
• Blue	3SU1030-0Ax50-0AA0	3SU1030-0Bx50-0AA0	3SU1030-0Cx50-0AA0	—
• White	3SU1030-0Ax60-0AA0	3SU1030-0Bx60-0AA0	3SU1030-0Cx60-0AA0	—
• Clear	3SU1030-0AB70-0AA0	—	—	—

Metal / Metal	3SU1050-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221476)			
• Black	3SU1050-0Ax10-0AA0	3SU1050-0Bx10-0AA0	3SU1050-0Cx10-0AA0	—
• Red	3SU1050-0Ax20-0AA0	3SU1050-0Bx20-0AA0	3SU1050-0Cx20-0AA0	—
• Yellow	3SU1050-0Ax30-0AA0	3SU1050-0Bx30-0AA0	3SU1050-0Cx30-0AA0	—
• Green	3SU1050-0Ax40-0AA0	3SU1050-0Bx40-0AA0	3SU1050-0Cx40-0AA0	—
• Blue	3SU1050-0Ax50-0AA0	3SU1050-0Bx50-0AA0	3SU1050-0Cx50-0AA0	—
• White	3SU1050-0Ax60-0AA0	3SU1050-0Bx60-0AA0	3SU1050-0Cx60-0AA0	—
• Clear	3SU1050-0AB70-0AA0	—	—	—

x: A = latching (push to unlatch)

x: B = momentary contact

4.2.2.2   22.5 mm illuminated pushbuttons

Illuminated pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. A variant with a fixed pushbutton can be used as an indicator light. The buttons can be replaced from the front by the user.

The illuminated pushbuttons are available in different variants according to the following features:

- Height of button
- Collar and front ring material
- Colors of the buttons
- Switching function: momentary contact variants and latching variants.
- Illumination

You will find additional information in Chapters "Installation (Page 89)" and "Accessories (Page 231)"

	Illuminated pushbuttons			
	Flat button Flat front ring	Raised button Flat front ring	Flat button Raised front ring	Flat button Raised, castellated front ring
Collar / Front ring material	**Article number**			
Plastic / Plastic	3SU1001-0 (https://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221475)			
• Amber	3SU1001-0Ax00-0AA0	3SU1001-0Bx00-0AA0	—	—
• Red	3SU1001-0Ax20-0AA0	3SU1001-0Bx20-0AA0	3SU1001-0BB20-0AA0	—
• Yellow	3SU1001-0Ax30-0AA0	3SU1001-0Bx30-0AA0	3SU1001-0BB30-0AA0	—
• Green	3SU1001-0Ax40-0AA0	3SU1001-0Bx40-0AA0	3SU1001-0BB40-0AA0	—
• Blue	3SU1001-0Ax50-0AA0	3SU1001-0Bx50-0AA0	3SU1001-0BB50-0AA0	—
• White	3SU1001-0Ax60-0AA0	3SU1001-0Bx60-0AA0	—	—
• Clear	3SU1001-0Ax70-0AA0	3SU1001-0Bx70-0AA0	3SU1001-0BB70-0AA0	3SU1001-0DB50-0AA0
Plastic / Metal, matte	3SU1031-0 (https://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221475)			
• Amber	3SU1031-0Ax00-0AA0	3SU1031-0Bx00-0AA0	—	—
• Red	3SU1031-0Ax20-0AA0	3SU1031-0Bx20-0AA0	3SU1031-0BB20-0AA0	—
• Yellow	3SU1031-0Ax30-0AA0	3SU1031-0Bx30-0AA0	3SU1031-0BB30-0AA0	—
• Green	3SU1031-0Ax40-0AA0	3SU1031-0Bx40-0AA0	3SU1031-0BB40-0AA0	—
• Blue	3SU1031-0Ax50-0AA0	3SU1031-0Bx50-0AA0	3SU1031-0BB50-0AA0	—
• White	3SU1031-0Ax60-0AA0	3SU1031-0Bx60-0AA0	—	—
• Clear	3SU1031-0Ax70-0AA0	3SU1031-0Bx70-0AA0	3SU1031-0BB70-0AA0	—

Metal / Metal	3SU1051-0 (https://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221475)			
• Amber	3SU1051-0Ax00-0AA0	3SU1051-0Bx00-0AA0	—	—
• Red	3SU1051-0Ax20-0AA0	3SU1051-0Bx20-0AA0	3SU1051-0BB20-0AA0	—
• Yellow	3SU1051-0Ax30-0AA0	3SU1051-0Bx30-0AA0	3SU1051-0BB30-0AA0	—
• Green	3SU1051-0Ax40-0AA0	3SU1051-0Bx40-0AA0	3SU1051-0BB40-0AA0	—
• Blue	3SU1051-0Ax50-0AA0	3SU1051-0Bx50-0AA0	3SU1051-0BB50-0AA0	—
• White	3SU1051-0Ax60-0AA0	3SU1051-0Bx60-0AA0	—	—
• Clear	3SU1051-0Ax70-0AA0	3SU1051-0Bx70-0AA0	3SU1051-0BB70-0AA0	—

x: A = latching (push to unlatch)

x: B = momentary contact
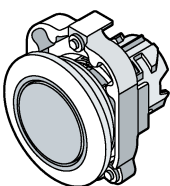
4.2.2.3 30.5 mm pushbuttons

Pushbuttons and illuminated pushbuttons in the 30.5 mm diameter size are intended for flat mounting. The series is available in metal and metal matte versions.
You must use the metal holder (3SU1550-0AA10-0AA0) for mounting.
In addition, the adapter for actuators and indicators for flat mounting must be mounted between the front plate and the holder. This is included in the scope of supply, but can also be ordered as a separate item (3SU1950-0KJ80-0AA0).
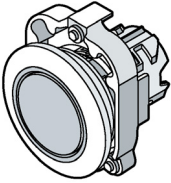
Pushbuttons

Typical diagram	Collar / Front ring material	Article number
	Metal / Metal, matte	3SU1060 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226911)
	• Black	3SU1060-0Jx10-0AA0
	• Red	3SU1060-0Jx20-0AA0
	• Yellow	3SU1060-0Jx30-0AA0
	• Green	3SU1060-0Jx40-0AA0
	• Blue	3SU1060-0Jx50-0AA0
	• White	3SU1060-0Jx60-0AA0

x: A = latching (push to unlatch)

x: B = momentary contact

Illuminated pushbuttons

Typical diagram	Collar / Front ring material	Article number
	Metal / Metal, matte	3SU1061 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10228067)
	• Red	3SU1061-0Jx20-0AA0
	• Yellow	3SU1061-0Jx30-0AA0
	• Green	3SU1061-0Jx40-0AA0
	• Blue	3SU1061-0Jx50-0AA0
	• Clear	3SU1061-0Jx70-0AA0

x: A = latching (push to unlatch)

x: B = momentary contact

4.2.2.4 Twin pushbuttons

Twin pushbuttons are used to actuate contact modules and can also function as display devices. Thanks to separate actuating surfaces, it is possible to switch up to 2 independent module positions separately using only one command point. The switching function of all versions of the twin pushbuttons is latching.

Twin pushbuttons are available in different variants according to the following features:

● Height of button (flat or raised) with 2 different button combinations:

 – Flat / flat

 – Flat / raised

● Collar and front ring material

● Colors of the buttons

Twin pushbuttons are supplied as standard with pressure plates ①.
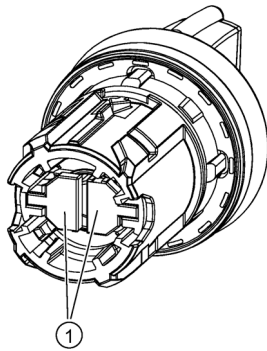
Figure 4-2   Typical diagram

Each pressure plate can be individually removed and reinstalled.

The twin pushbuttons are designed in such a way that, by using an LED module, the center surface of the twin pushbutton can be illuminated.

The pressure plates must be removed before the LED module is installed.

In the case of illuminated twin pushbuttons, this step is not necessary because they are already prepared for illumination at the factory.

For further information refer to Chapters "Installation (Page 89)" and "Twin pushbuttons with standard inscription (Page 82)"
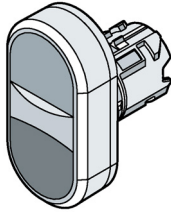
With standard installation (arrow on collar at the top), the upper button always has the first specified color and the lower button the second specified color. The same principle is used with the button heights. The first specified height refers to the top button, and the second specified height to the lower button.

Example: 3SU1051-3BB42-0AA0

Top button = green and flat

Lower button = red and raised

Typical diagram	Twin pushbuttons	Illuminated twin pushbuttons
Collar / Front ring material	**Article number**	
Plastic / Plastic	3SU1000-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221485)	
• Black / Black	3SU1000-3xB11-0AA0	---
• Green / Red	3SU1000-3xB42-0AA0	3SU1001-3xB42-0AA0
• White / Black	3SU1000-3xB61-0AA0	3SU1001-3xB61-0AA0
• White / White	3SU1000-3xB66-0AA0	3SU1001-3xB66-0AA0
Plastic / Metal, matte	3SU1030-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226612)	
• Black / Black	3SU1030-3xB11-0AA0	---
• Green / Red	3SU1030-3xB42-0AA0	3SU1031-3xB42-0AA0
• White / Black	3SU1030-3xB61-0AA0	3SU1031-3xB61-0AA0
• White / White	3SU1030-3xB66-0AA0	3SU1031-3xB66-0AA0
Metal / Metal	3SU1050-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221486)	
• Black / Black	3SU1050-3xB11-0AA0	---
• Green / Red	3SU1050-3xB42-0AA0	3SU1051-3xB42-0AA0
• White / Black	3SU1050-3xB61-0AA0	3SU1051-3xB61-0AA0
• White / White	3SU1050-3xB66-0AA0	3SU1051-3xB66-0AA0

x: A = twin pushbutton with flat button

x: B = twin pushbutton with raised button

4.2.2.5 Mushroom pushbuttons

Mushroom pushbuttons are used to actuate contact modules. Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand. By pressing or pulling these buttons, it is possible to generate up to 3 signals with just a single device.

They are available with actuators in diameter 30 mm, 40 mm or 60 mm.

Mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Switch positions (2 or 3)
- Pull to unlatch

For further information, refer to Chapter "Installation (Page 89)".

Overview of mushroom pushbuttons

Typical diagram	Diameter 30 mm	
	Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	Switch positions	Article number	
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)	
• Black	2-position	3SU1000-1AA10-0AA0	3SU1000-1AD10-0AA0
• Red	2-position	3SU1000-1AA20-0AA0	3SU1000-1AD20-0AA0
• Yellow	2-position	3SU1000-1AA30-0AA0	3SU1000-1AD30-0AA0
• Green	2-position	—	3SU1000-1AD40-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226614)	
• Black	2-position	3SU1030-1AA10-0AA0	3SU1030-1AD10-0AA0
• Red	2-position	3SU1030-1AA20-0AA0	3SU1030-1AD20-0AA0
• Yellow	2-position	—	3SU1030-1AD30-0AA0
• Green	2-position	—	3SU1030-1AD40-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)	
• Black	2-position	3SU1050-1AA10-0AA0	3SU1050-1AD10-0AA0
• Red	2-position	3SU1050-1AA20-0AA0	3SU1050-1AD20-0AA0
• Yellow	2-position	—	3SU1050-1AD30-0AA0
• Green	2-position	—	3SU1050-1AD40-0AA0

Typical diagram		Diameter 40 mm	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article number**	
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)	
• Black	2-position	3SU1000-1BA10-0AA0	3SU1000-1BD10-0AA0
• Red	2-position	3SU1000-1BA20-0AA0	3SU1000-1BD20-0AA0
• Yellow	2-position	3SU1000-1BA30-0AA0	3SU1000-1BD30-0AA0
• Green	2-position	3SU1000-1BA40-0AA0	3SU1000-1BD40-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226614)	
• Black	2-position	3SU1030-1BA10-0AA0	3SU1030-1BD10-0AA0
• Red	2-position	3SU1030-1BA20-0AA0	3SU1030-1BD20-0AA0
• Yellow	2-position	3SU1030-1BA30-0AA0	3SU1030-1BD30-0AA0
• Green	2-position	3SU1030-1BA40-0AA0	3SU1030-1BD40-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)	
• Black	2-position	3SU1050-1BA10-0AA0	3SU1050-1BD10-0AA0
	3-position	3SU1050-1EA20-0AA0	3SU1050-1ED10-0AA0
• Red	2-position	3SU1050-1BA20-0AA0	3SU1050-1BD20-0AA0
	3-position	3SU1050-1EA20-0AA0	3SU1050-1ED20-0AA0
• Yellow	2-position	3SU1050-1BA30-0AA0	3SU1050-1BD30-0AA0
• Green	2-position	3SU1050-1BA40-0AA0	3SU1050-1BD40-0AA0

Typical diagram	Diameter 60 mm	
	Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	**Switch positions**	**Article number**
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)
• Black	2-position	3SU1000-1CA10-0AA0	3SU1000-1CD10-0AA0
• Red	2-position	3SU1000-1CA20-0AA0	3SU1000-1CD20-0AA0
• Yellow	2-position	—	3SU1000-1CD30-0AA0
• Green	2-position	—	3SU1000-1CD40-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)
• Black	2-position	3SU1030-1CA10-0AA0	3SU1030-1CD10-0AA0
• Red	2-position	3SU1030-1CA20-0AA0	3SU1030-1CD20-0AA0
• Yellow	2-position	—	3SU1030-1CD30-0AA0
• Green	2-position	—	3SU1030-1CD40-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)
• Black	2-position	3SU1050-1CA10-0AA0	3SU1050-1CD10-0AA0
	3-position	—	—
• Red	2-position	3SU1050-1CA20-0AA0	3SU1050-1CD20-0AA0
	3-position	—	—
• Yellow	2-position	—	3SU1050-1CD30-0AA0
• Green	2-position	—	3SU1050-1CD40-0AA0

4.2.2.6 Illuminated mushroom pushbuttons

Illuminated mushroom pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand. By pressing or pulling these buttons, it is possible to generate up to 3 signals with just a single device.
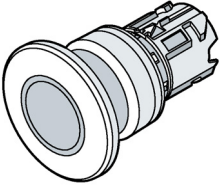
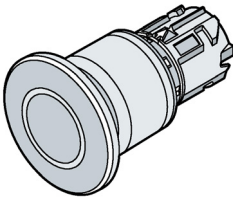They are available with actuators in diameter 30 mm, 40 mm or 60 mm.

Illuminated pushbuttons are available in different variants according to the following features:

● Collar and front ring material

● Color of actuators

● Switching functions: latching / momentary contact

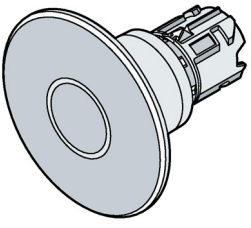● Switch positions (2 or 3)

● Pull to unlatch

● Illumination

For further information refer to Chapter "Installation (Page 89)"

Overview of illuminated mushroom pushbuttons

		Diameter 30 mm	
		Latching (pull to unlatch)	Momentary contact
Collar / Front ring material	Switch positions	Article number	
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)	
• Red	2-position	3SU1001-1AA20-0AA0	3SU1001-1AD20-0AA0
• Yellow	2-position	3SU1001-1AA30-0AA0	3SU1001-1AD30-0AA0
• Green	2-position	3SU1001-1AA40-0AA0	3SU1001-1AD40-0AA0
• Blue	2-position	3SU1001-1AA50-0AA0	3SU1001-1AD50-0AA0
• White	2-position	3SU1001-1AA60-0AA0	3SU1001-1AD60-0AA0
• Clear	2-position	—	3SU1001-1AD70-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226614)	
• Red	2-position	3SU1031-1AA20-0AA0	3SU1031-1AD20-0AA0
• Yellow	2-position	3SU1031-1AA30-0AA0	3SU1031-1AD30-0AA0
• Green	2-position	3SU1031-1AA40-0AA0	3SU1031-1AD40-0AA0
• Blue	2-position	3SU1031-1AA50-0AA0	3SU1031-1AD50-0AA0
• White	2-position	3SU1031-1AD60-0AA0	3SU1031-1AD60-0AA0
• Clear	2-position	—	3SU1031-1AD70-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)	
• Red	2-position	3SU1051-1AA20-0AA0	3SU1051-1AD20-0AA0
	3-position	—	—
• Yellow		3SU1051-1AA30-0AA0	3SU1051-1AD30-0AA0
• Green	2-position	3SU1051-1AA40-0AA0	3SU1051-1AD40-0AA0
	3-position	—	—
• Blue	2-position	3SU1051-1AA50-0AA0	3SU1051-1AD50-0AA0
• White	2-position	3SU1051-1AD60-0AA0	3SU1051-1AD60-0AA0
	3-position	—	—
• Clear	2-position	—	3SU1051-1AD70-0AA0

| Collar / Front ring material | Switch positions | Diameter 40 mm | |
		Latching (pull to unlatch)	Momentary contact
		Article number	
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)	
• Red	2-position	3SU1001-1BA20-0AA0	3SU1001-1BD20-0AA0
• Yellow	2-position	3SU1001-1BA30-0AA0	3SU1001-1BD30-0AA0
• Green	2-position	3SU1001-1BA40-0AA0	3SU1001-1BD40-0AA0
• Blue	2-position	3SU1001-1BA50-0AA0	3SU1001-1BD50-0AA0
• White	2-position	3SU1001-1BA60-0AA0	3SU1001-1BD60-0AA0
• Clear	2-position	—	3SU1001-1BD70-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226614)	
• Red	2-position	3SU1031-1BA20-0AA0	3SU1031-1BD20-0AA0
• Yellow	2-position	3SU1031-1BA30-0AA0	3SU1031-1BD30-0AA0
• Green	2-position	3SU1031-1BA40-0AA0	3SU1031-1BD40-0AA0
• Blue	2-position	3SU1031-1BA50-0AA0	3SU1031-1BD50-0AA0
• White	2-position	3SU1031-1BA60-0AA0	3SU1001-1BD60-0AA0
• Clear	2-position	—	3SU1031-1BD70-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)	
• Red	2-position	3SU1051-1BA20-0AA0	3SU1051-1BD20-0AA0
	3-position	3SU1051-1EA20-0AA0	3SU1051-1ED20-0AA0
• Yellow		3SU1051-1BA30-0AA0	3SU1051-1BD30-0AA0
• Green	2-position	3SU1051-1BA40-0AA0	3SU1051-1BD40-0AA0
	3-position	3SU1051-1EA40-0AA0	—
• Blue	2-position	3SU1051-1BA50-0AA0	3SU1051-1BD50-0AA0
• White	2-position	3SU1051-1BA60-0AA0	3SU1051-1BD60-0AA0
	3-position	—	3SU1051-1ED60-0AA0
• Clear	2-position	—	3SU1051-1BD70-0AA0

Collar / Front ring material	Switch positions	Diameter 60 mm	
		Latching (pull to unlatch)	Momentary contact
		Article number	
Plastic / Plastic		3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221478)	
• Black	2-position	3SU1001-1CA10-0AA0	3SU1001-1CD10-0AA0
• Red	2-position	3SU1001-1CA20-0AA0	3SU1001-1CD20-0AA0
• Yellow	2-position	—	3SU1001-1CD30-0AA0
• Green	2-position	—	3SU1001-1CD40-0AA0
Plastic / Metal, matte		3SU103 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226614)	
• Black	2-position	3SU1031-1CA10-0AA0	3SU1031-1CD10-0AA0
• Red	2-position	3SU1031-1CA20-0AA0	3SU1031-1CD20-0AA0
• Yellow	2-position	—	3SU1031-1CD30-0AA0
• Green	2-position	—	3SU1031-1CD40-0AA0
Metal / Metal		3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221477)	
• Black	2-position	3SU1051-1CA10-0AA0	3SU1051-1CD10-0AA0
	3-position	—	—
• Red	2-position	3SU1051-1CA20-0AA0	3SU1051-1CD20-0AA0
	3-position	—	—
• Yellow	2-position	—	3SU1051-1CD30-0AA0
• Green	2-position	—	3SU1051-1CD40-0AA0
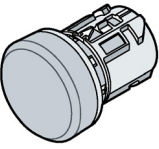
4.2.2.7 22.5 mm indicator lights

Indicator lights function as indicators and signaling devices. They are equipped with a smooth-surfaced lens that cannot be replaced by the user.

Indicator lights are available in different variants according to the following features:

● Collar and front ring material

● Color of the lenses

For further information, refer to Chapter "Installation (Page 89)".

	Indicator lights
Typical diagram	
Collar / Front ring material	**Article number**
Plastic / Plastic	3SU100 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221491)
● Amber	3SU1001-6AA00-0AA0
● Red	3SU1001-6AA20-0AA0
● Yellow	3SU1001-6AA30-0AA0
● Green	3SU1001-6AA40-0AA0
● Blue	3SU1001-6AA50-0AA0
● White	3SU1001-6AA60-0AA0
● Clear	3SU1001-6AA70-0AA0
Metal / Metal	3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221492)
● Amber	3SU1051-6AA00-0AA0
● Red	3SU1051-6AA20-0AA0
● Yellow	3SU1051-6AA30-0AA0
● Green	3SU1051-6AA40-0AA0
● Blue	3SU1051-6AA50-0AA0
● White	3SU1051-6AA60-0AA0
● Clear	3SU1051-6AA70-0AA0

4.2.2.8   30.5 mm indicator lights

Indicator lights in the 30.5 mm diameter size are intended for flat mounting. These are pushbuttons in which the button has been locked (fixed button). The series is available in the metal matte version.

The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

In addition, the adapter for actuators and indicators for flat mounting must be mounted between the front plate and the holder. This is included in the scope of supply, but can also be ordered as a separate item (3SU1950-0KJ80-0AA0).

		Indicator lights
	Collar / Front ring material	Article number
	Metal / Metal, matte	3SU106 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226911)
Typical diagram	• Red	3SU1061-0JD20-0AA0
	• Yellow	3SU1061-0JD30-0AA0
	• Green	3SU1061-0JD30-0AA0
	• Blue	3SU1061-0JD50-0AA0
	• Clear	3SU1061-0JD70-0AA0

4.2.2.9   22.5 mm selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

Selector switches are available in different variants according to the following features:

- Actuators (short / long selector or rotary knob)
- Switch positions
- Collar and front ring material
- Color of actuators
- Switching functions: latching / momentary contact
- Can be illuminated

In the delivery state, selector switches are fitted with pressure plates ①.
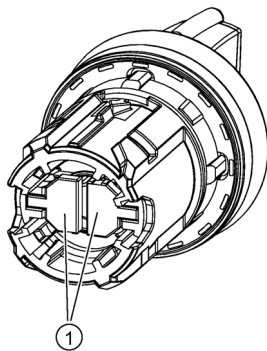
Typical diagram

Each pressure plate can be individually removed and reinstalled. A pressure plate always actuates the contact modules mounted on the holder at position 3/6 (center position), and the corresponding outer contact modules at position 1/4 or 2/5.

If a pressure plate is not used, only the corresponding outer contact at position 1/4 or 2/5 is actuated.
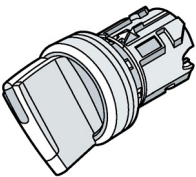
Note about installation of LED modules: The pressure plates must be removed before the LED module is installed.

For further information refer to Chapter "Installation (Page 89)"

The table shows the contact module / LED module actuation with differently mounted pressure plates using the example of a selector switch with 3 switch positions and equipped contact modules and LED modules.

	Switch position left			Switch position right		
Pressure plate ①	Contact module Position 1/4	Contact / LED module Position 3/6	Contact module Position 2/5	Contact module Position 1/4	Contact / LED module Position 3/6	Contact module Position 2/5
2 pressure plates mounted	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
1 pressure plate mounted on the right	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
1 pressure plate mounted on the left	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4
No pressure plate mounted	3 / 4	⊗	3 / 4	3 / 4	⊗	3 / 4

Selector switches with short selector

Typical diagram	2 switch positions	
	Latching, 90° (10:30/1:30 o'clock)	Momentary contact 45° (10:30/12 o'clock), reset from center to left
Collar / Front ring material	**Article number**	
Plastic / Plastic	3SU1002 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221483)	
• Red	3SU1002-2BF20-0AA0	3SU1002-2BC20-0AA0
• Yellow	3SU1002-2BF30-0AA0	3SU1002-2BC30-0AA0
• Green	3SU1002-2BF40-0AA0	3SU1002-2BC40-0AA0
• Blue	3SU1002-2BF50-0AA0	3SU1002-2BC50-0AA0
• Black / White	3SU1002-2BF60-0AA0	3SU1002-2BC60-0AA0
Plastic / Metal, matte	3SU1032 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226611)	
• Red	3SU1032-2BF20-0AA0	3SU1032-2BC20-0AA0
• Yellow	3SU1032-2BF30-0AA0	3SU1032-2BC30-0AA0
• Green	3SU1032-2BF40-0AA0	3SU1032-2BC40-0AA0
• Blue	3SU1032-2BF50-0AA0	3SU1032-2BC50-0AA0
• Black / White	3SU1032-2BF60-0AA0	3SU1032-2BC60-0AA0
Metal / Metal	3SU1052 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221484)	
• Red	3SU1052-2BF20-0AA0	3SU1052-2BC20-0AA0
• Yellow	---	3SU1052-2BC30-0AA0
• Green	3SU1052-2BF40-0AA0	3SU1052-2BC40-0AA0
• Blue	---	3SU1052-2BC50-0AA0
• Black / White	3SU1052-2BF60-0AA0	3SU1052-2BC60-0AA0

	3 switch positions
Collar / Front ring material	Article number
Plastic / Plastic	3SU1002 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221483)
• Red	3SU1002-2Bx20-0AA0
• Yellow	3SU1002-2Bx30-0AA0
• Green	3SU1002-2Bx40-0AA0
• Blue	3SU1002-2Bx50-0AA0
• Black / White	3SU1002-2Bx60-0AA0
Plastic / Metal, matte	3SU1032 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226611)
• Red	3SU1032-2Bx20-0AA0
• Yellow	3SU1032-2Bx30-0AA0
• Green	3SU1032-2Bx40-0AA0
• Blue	3SU1032-2Bx50-0AA0
• Black / White	3SU1032-2Bx60-0AA0
Metal / Metal	3SU1052 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221484)
• Red	3SU1052-2Bx20-0AA0
• Yellow	3SU1052-2Bx30-0AA0
• Green	3SU1052-2Bx40-0AA0
• Blue	3SU1052-2Bx50-0AA0
• Black / White	3SU1052-2Bx60-0AA0

x: L = selector switch latching, 2x45° (10:30/12/1:30 o'clock)

x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right

x: N = selector switch latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from right, latching to the left

x: P = selector switch momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from left, latching to the right

Selector switches with long selector

	2 switch positions	
       Typical diagram	Latching, 90° (10:30/1:30 o'clock)	Momentary contact 45° (10:30/12 o'clock), reset from center to left
Collar / Front ring material	Article number	
Plastic / Plastic	3SU1002 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221483)	
• Red	3SU1002-2CF20-0AA0	3SU1002-2CC20-0AA0
• Yellow	3SU1002-2CF30-0AA0	3SU1002-2CC30-0AA0
• Green	3SU1002-2CF40-0AA0	3SU1002-2CC40-0AA0
• Blue	3SU1002-2CF50-0AA0	3SU1002-2CC50-0AA0
• Black / White	3SU1002-2CF60-0AA0	3SU1002-2CC60-0AA0
Plastic / Metal, matte	3SU1032 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226611)	
• Red	3SU1032-2CF20-0AA0	3SU1032-2CC20-0AA0
• Yellow	3SU1032-2CF30-0AA0	3SU1032-2CC30-0AA0
• Green	3SU1032-2CF40-0AA0	3SU1032-2CC40-0AA0
• Blue	3SU1032-2CF50-0AA0	3SU1032-2CC50-0AA0
• Black / White	3SU1032-2CF60-0AA0	3SU1032-2CC60-0AA0
Metal / Metal	3SU1052 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221484)	
• Red	3SU1052-2CF20-0AA0	3SU1052-2CC20-0AA0
• Yellow	3SU1052-2CF30-0AA0	3SU1052-2CC30-0AA0
• Green	3SU1052-2CF40-0AA0	3SU1052-2CC40-0AA0
• Blue	3SU1052-2CF50-0AA0	3SU1052-2CC50-0AA0
• Black / White	3SU1052-2CF60-0AA0	3SU1052-2CC60-0AA0

	3 switch positions
Collar / Front ring material	Article number
Metal / Metal	3SU1052 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221484)
• Red	3SU1052-2Cx20-0AA0
• Yellow	3SU1052-2Cx30-0AA0
• Green	3SU1052-2Cx40-0AA0
• Blue	3SU1052-2Cx50-0AA0
• Black / White	3SU1052-2Cx60-0AA0

x: L = selector switch latching, 2x45° (10:30/12/1:30 o'clock)

x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right

x: N = selector switch latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from right, latching to the left

x: P = selector switch momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from left, latching to the right

Selector switches with rotary knob

Typical diagram	2 switch positions Latching, 90° (10:30/1:30 o'clock)
Collar / Front ring material	Article number
Plastic / Plastic	3SU1002 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221483)
• Black / White	3SU1002-2AF20-0AA0
Plastic / Metal, matte	3SU1032 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226611)
• Black / White	3SU1032-2AF20-0AA0
Metal / Metal	3SU1052 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221484)
• Black / White	3SU1052-2AF20-0AA0

4.2.2.10   30.5 mm selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

Selector switches in the 30.5 mm size are intended for flat mounting. The series is available in metal and metal matte versions.

Selector switches are available in different variants according to the following features:

● Actuators (short / long selector)

● Switch positions

● Collar and front ring material

● Color of actuators

● Switching functions: latching / momentary contact

● Can be illuminated

Note about installation:
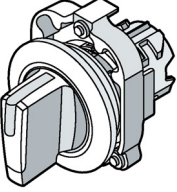
The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

In addition, the adapter for actuators and indicators for flat mounting must be mounted between the front plate and the holder. This is included in the scope of supply, but can also be ordered as a separate item (3SU1950-0KJ80-0AA0).

The pressure plates (standard scope of supply) must be removed before the LED module is installed.

Selector switches with short selector

Typical diagram	2 switch positions	
	Latching, 90° (10:30/1:30 o'clock)	Momentary contact 45° (10:30/12 o'clock), reset from center to left
Collar / Front ring material	**Article number**	
Metal / Metal, matte	3SU106 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226912)	
● Red	3SU1062-2DF20-0AA0	3SU1062-2DC20-0AA0
● Green	3SU1062-2DF40-0AA0	3SU1062-2DC40-0AA0
● Black / White	3SU1062-2DF60-0AA0	3SU1062-2DC60-0AA0

Typical diagram	3 switch positions
Collar / Front ring material	**Article number**
Metal / Metal, matte	3SU106 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226912)
• Red	3SU1062-2Ex20-0AA0
• Green	3SU1062-2Ex40-0AA0
• Black / White	3SU1062-2Ex60-0AA0

x: L = selector switch latching, 2x45° (10:30/12/1:30 o'clock)

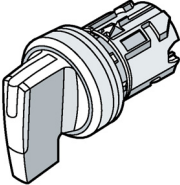x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right

x: N = selector switch latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from right, latching to the left

x: P = selector switch momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from left, latching to the right

Selector switches with long selector

Typical diagram	2 switch positions	
	Latching, 90° (10:30/1:30 o'clock)	Momentary contact 45° (10:30/12 o'clock), reset from center to left
Collar / Front ring material	Article number	
Metal / Metal, matte	3SU106 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226912)	
• Red	3SU1062-2EF20-0AA0	3SU1062-2EC20-0AA0
• Green	3SU1062-2EF40-0AA0	3SU1062-2EC40-0AA0
• Black / White	3SU1062-2EF60-0AA0	3SU1062-2EC60-0AA0

Typical diagram	3 switch positions
Collar / Front ring material	Article number
Metal / Metal, matte	3SU106 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226912)
• Red	3SU1062-2Ex20-0AA0
• Green	3SU1062-2Ex40-0AA0
• Black / White	3SU1062-2Ex60-0AA0

x: L = selector switch latching, 2x45° (10:30/12/1:30 o'clock)

x: M = selector switch momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right
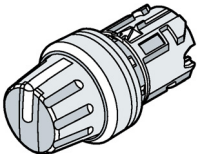
x: N = selector switch latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from right, latching to the left

x: P = selector switch momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from left, latching to the right

4.2.2.11 22.5 mm key-operated switches

Key-operated switches are equipped with a lock for safety reasons. Only an authorized group of persons who have access to the relevant key can perform a switching operation (in this case, actuation of contact modules). Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch.

Key-operated switches are available in different variants according to the following features:

● Key-operated switch manufacturer

● Key removal positions

● Switch positions

● Collar and front ring material

● Color of actuators

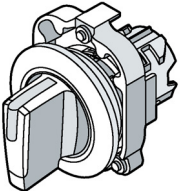● Switching functions: latching / momentary contact

For further information refer to Chapter "Installation (Page 89)"

Key-operated switches 2 switch positions (0 - I)

	Version	Article number
 Typical diagram		
Momentary contact (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Momentary contact 45° (10:30/12 o'clock), reset from center to left 	RONIS, SB30	3SU10x0-4BCy1-0AA0
	RONIS, 455	3SU10x0-4CCy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FCy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GCy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HCy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JCy1-0AA0
	CES, SSG10	3SU10x0-5BCy1-0AA0
	CES, LSG1	3SU10x0-5HCy1-0AA0
	BKS, S1	3SU10x0-5PCy1-0AA0
	IKON, 360012K1	3SU10x0-5XCy1-0AA0
Latching (https://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Latching, 90° (10:30/1:30 o'clock) 	RONIS, SB30	3SU10x0-4BFy1-0AA0
	RONIS, 455	3SU10x0-4CFy1-0AA0
	RONIS, 421	3SU10x0-4DFy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FFy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GFy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HFy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JFy1-0AA0
	CES, SSG10	3SU10x0-5BFy1-0AA0
	CES, LSG1	3SU10x0-5HFy1-0AA0
	CES, SSG10 with key monitoring	3SU10x0-5JFy1-0AA0
	BKS, S1	3SU10x0-5PFy1-0AA0
	BKS, E1	3SU10x0-5QFy1-0AA0
	BKS, E2	3SU10x0-5RFy1-0AA0
	BKS, E7	3SU10x0-5SFy1-0AA0
	BKS, E9	3SU10x0-5TFy1-0AA0
	IKON, 360012K1	3SU10x0-5XFy1-0AA0

x: 0 = Material plastic
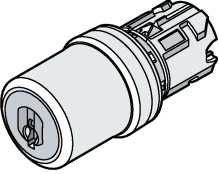
x: 3 = Material metal matte

x: 5 = Material metal

y: 0 = Key can be removed in position O

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

Key-operated switches 3 switch positions (I - 0 - II)

	Version	Article number
Typical diagram		
Momentary contact (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Momentary contact 2x45° (10:30/12/1:30 o'clock), 3 switch positions, momentary contact, reset from left + right	RONIS, SB30	3SU10x0-4BMy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FMy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HMy1-0AA0
	CES, SSG10	3SU10x0-5BMy1-0AA0
	BKS, S1	3SU10x0-5PMy1-0AA0
	IKON, 360012K1	3SU10x0-5XMy1-0AA0
Latching (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Latching, 2x45° (10:30/12/1:30 o'clock)	RONIS, SB30	3SU10x0-4BLy1-0AA0
	RONIS, 455	3SU10x0-4CLy1-0AA0
	O.M.R. 73037, red	3SU10x0-4FLy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GLy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HLy1-0AA0
	O.M.R. 73033, yellow	3SU10x0-4JLy1-0AA0
	CES, SSG10	3SU10x0-5BLy1-0AA0
	CES, SSG10 with key monitoring	3SU10x0-5JLy1-0AA0
	BKS, S1	3SU10x0-5PLy1-0AA0
	BKS, E2	3SU10x0-5RLy1-0AA0
	BKS, E9	3SU10x0-5TLy1-0AA0
	IKON, 360012K1	3SU10x0-5XLy1-0AA0
Momentary contact / latching (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Momentary contact / latching 2x45° (10:30/12/1:30 o'clock) reset from left, latching to the right	RONIS, SB30	3SU10x0-4BPy1-0AA0
	CES, SSG10	3SU10x0-5BPy1-0AA0
	BKS, S1	3SU10x0-5PPy1-0AA0

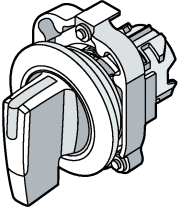| Momentary contact / latching (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221489)		
Latching / momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from right, latching to the left	RONIS, SB30	3SU10x0-4BNy1-0AA0
	O.M.R. 73038, light blue	3SU10x0-4GNy1-0AA0
	O.M.R. 73034, black	3SU10x0-4HNy1-0AA0
	CES, SSG10	3SU10x0-5BNy1-0AA0
	BKS, S1	3SU10x0-5PNy1-0AA0
	IKON, 360012K1	3SU10x0-5XNy1-0AA0

x: 0 = Material plastic

x: 3 = Material metal matte

x: 5 = Material metal

y: 0 = Key can be removed in position O,

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

y: 3 = Key can be removed in position II (right, with 3 positions only)

y: 4 = Key can be removed in positions I + II (left, right, with 3 positions only)

y: 5 = Key can be removed in positions O + I (center, left, with 3 positions only)

Special locks for key-operated switches

The plastic and metal key-operated switches of type RONIS, BKS, CES and IKON can be optionally ordered with additional locks.

Please note:

- For applications in which access security is important and several lock numbers are used, we recommend the use of BKS or CES key-operated switches.

- Special locks for **VW (E1, E2, E7, E9)** are supplied without keys. All other key-operated switches are supplied with 2 keys.

- With RONIS, the special locks SB31, 421 and 455 are possible.

Master and master-pass key systems

The following key systems can be supplied with BKS, CES or IKON key-operated switches:

- Central lock systems

- Master key systems

- Central master key systems

- Master-pass key systems

A security certificate is required when ordering key systems.
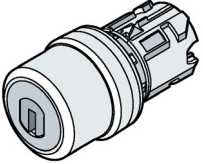
4.2.2.12 30.5 mm key-operated switches

Key-operated switches are equipped with a lock for safety reasons. Only an authorized group of persons who have access to the relevant key can perform a switching operation (in this case, actuation of contact modules). Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch.
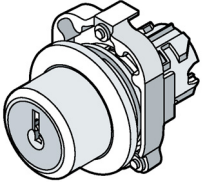
The metal holder (3SU1550-0AA10-0AA0) must be used when mounting.

In addition, the adapter for actuators and indicators for flat mounting must be mounted between the front plate and the holder. This is included in the scope of supply, but can also be ordered as a separate item (3SU1950-0KJ80-0AA0).

Key-operated switches are available in different variants according to the following features:

- Switch positions
- Key removal positions
- Color of actuators

30.5 mm diameter key-operated switches

	Version	Article number
Typical diagram	Latching (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226917)	
	RONIS, SB30	3SU1060-0JAy0-0AA0

y: 0 = Key can be removed in position O,

y: 1 = Key can be removed in any position

y: 2 = Key can be removed in position I

y: 3 = Key can be removed in position II (right, with 3 positions only)

y: 4 = Key can be removed in positions I + II (left, right, with 3 positions only)

y: 5 = Key can be removed in positions O + I (center, left, with 3 positions only)

4.2.2.13 ID key-operated switches

The ID key-operated switch is an electronic key-operated switch and has four switch positions that are selected by keys with different codes. Using the four ID keys with different codes, it is possible to select 1 to 4 positions. The ID keys are color-coded (yellow, blue, red, green, white) so that they can be clearly differentiated at a glance. The ID key-operated switch is intended primarily to replace the mechanical locks on different machines.
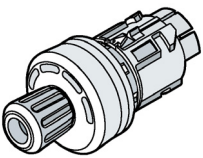
You will find additional information in Chapters "Installation (Page 89)" and "Application examples ID key-operated switches (Page 273)".

For the ID key-operated switches, two different versions of the electronic modules for ID key-operated switches without / with IO-Link communications interface are available. You will find information on the electronic modules in Chapters: 3SU14 contact modules and LED modules "Electronic module for ID key-operated switches (Page 142)", "Technical data (Page 263)".

You can find information on using the ID key-operated switch with IO-Link in Chapter "IO-Link (Page 205)".

Article numbers

ID key-operated switches

	Collar / Front ring material	Article number
	Plastic / Plastic 3SU1000-4WS (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221495)	
	• Black	3SU1000-4WS10-0AA0
	Plastic / Metal, matte 3SU1030-4WS (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226617)	
	• Black	3SU1030-4WS10-0AA0

You can find the appropriate ID keys in Chapter ID keys (Page 260).

4.2.2.14 Devices with inscription

Inscription of actuating and signaling elements

Direct inscription

Actuating and signaling elements made of plastic or metal can be optionally inscribed with a laser. The laser inscription is applied to the actuator, or to the front ring in the case of the selector switch.

The following types of device can be inscribed:

- Pushbuttons
- Illuminated pushbuttons
- Twin pushbuttons
- Mushroom pushbuttons
- Illuminated mushroom pushbuttons
- EMERGENCY STOP buttons
- Indicator light lenses
- Selector switches
- Key-operated switches

Certain pushbuttons and twin pushbuttons with printed characters are available as standard.

Inscription version

A letter height of 4 mm is used as standard for text inscriptions:

The typeface used is Arial. Other letter heights and typefaces are possible, but must be specified when ordering.
The maximum possible number of characters per line is as follows:

- 10 characters for one line of text
- 8 characters for 2 lines of text
- 6 characters for 3 lines of text, but 10 characters in the middle line.

Insert labels

You can use insert labels with label holders or backing plates for labeling your devices.

Please refer to Chapter "Accessories (Page 231)" for preprinted insert labels / label holders.

Customized inscriptions

Using the Label Designer software, which can be downloaded from the Internet, and the labeling plates for laser inscription you can create your own customized labels with a standard laser printer. The self-adhesive or snap-on labels can be stuck or snapped onto the corresponding label holder. Round labels are provided for inserting in illuminated pushbuttons and switches. The labels are suitable for inscription with one to three lines of text or symbols. For applications with more exacting requirements we recommend factory-printed labeling plates and insert labels (laser-printed or engraved depending on the type). You can download the Label Designer software from the following website: LabelDesigner (http://support.automation.siemens.com/WW/view/en/24559069)

22.5 mm pushbuttons with standard inscription

Pushbuttons with standard inscription are available in the design with flat button and flat front ring.

For further information refer to Chapters "22.5 mm pushbuttons (Page 47)" and "Installation (Page 89)".

Overview of pushbuttons

Collar / Front ring material	Inscription	Article number
Plastic / Plastic		
3SU1000-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221475)		
• Black	O	3SU1000-0AB10-0AD0
• Red	O	3SU1000-0AB20-0AD0
• Green	I	3SU1000-0AB40-0AC0
• Blue	R	3SU1000-0AB50-0AR0
• White	I	3SU1000-0AB60-0AC0
Plastic / Metal, matte		
3SU1030-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226610)		
• Black	O	3SU1030-0AB10-0AD0
• Red	O	3SU1030-0AB20-0AD0
• Green	I	3SU1030-0AB40-0AC0
• Blue	R	3SU1030-0AB50-0AR0
• White	I	3SU1030-0AB60-0AC0
Metal / Metal		
3SU1050-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221476)		
• Black	O	3SU1050-0AB10-0AD0
• Red	O	3SU1050-0AB20-0AD0
• Green	I	3SU1050-0AB40-0AC0
• Blue	R	3SU1050-0AB50-0AR0
• White	I	3SU1050-0AB60-0AC0

Twin pushbuttons with standard inscription

Twin pushbuttons are used to actuate contact modules and can also function as display devices. Thanks to separate actuating surfaces, it is possible to switch up to 2 independent module positions separately using only one command point. The switching function of all versions of the twin pushbuttons is latching.
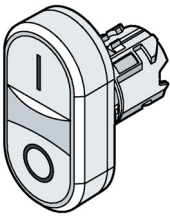
For further information refer to Chapters "Twin pushbuttons (Page 53)" and "Installation (Page 89)".

With standard installation (arrow on collar at the top), the upper button always has the first specified color and the lower button the second specified color. The same principle is used with the button heights. The first specified height refers to the top button, and the second specified height to the lower button.

Example: 3SU1051-3BB42-0AA0

Top button = green and flat
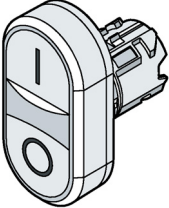
Lower button = red and raised

Typical diagram			Twin pushbuttons flat / flat	Twin pushbuttons flat / raised
Collar / Front ring material		**Inscription**	**Article number**	
Plastic / Plastic				
3SU1000-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221485)				
• Black / Black		Symbol No. 5264 / 5265 (IEC 60417)	3SU1000-3AB11-0AQ0	---
• Green / Red		I / O	3SU1000-3AB42-0AK0	3SU1000-3BB42-0AK0
• White / Black		I / O	3SU1000-3AB61-0AK0	3SU1000-3BB61-0AK0
• White / White		- / +	3SU1000-3AB66-0AL0	---
		Arrows, horizontal	3SU1000-3AB66-0AM0	---
		Arrows, vertical	3SU1000-3AB66-0AN0	---
Plastic / Metal, matte				
3SU1030-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226612)				
• Black / Black		Symbol No. 5264 / 5265 (IEC 60417)	3SU1030-3AB11-0AQ0	---
• Green / Red		I / O	3SU1030-3AB42-0AK0	3SU1030-3BB42-0AK0
• White / Black		I / O	3SU1030-3AB61-0AK0	3SU1030-3BB61-0AK0
• White / White		- / +	3SU1030-3AB66-0AL0	---
		Arrows, horizontal	3SU1030-3AB66-0AM0	---
		Arrows, vertical	3SU1030-3AB66-0AN0	---
Metal / Metal				
3SU1050-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221486)				
• Black / Black		Symbol No. 5264 / 5265 (IEC 60417)	3SU1050-3AB11-0AQ0	---
• Green / Red		I / O	3SU1050-3AB42-0AK0	3SU1030-3BB42-0AK0
• White / Black		I / O	3SU1050-3AB61-0AK0	3SU1030-3BB61-0AK0
• White / White		- / +	3SU1050-3AB66-0AL0	---
		Arrows, horizontal	3SU1050-3AB66-0AM0	---
		Arrows, vertical	3SU1050-3AB66-0AN0	---

x = A: Twin pushbutton with flat button

x = B: Twin pushbutton with raised button

Collar / Front ring material	Inscription	Twin pushbuttons illuminated flat / flat	Twin pushbuttons illuminated flat / raised
Plastic / Plastic		3SU1001-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221485)	
• Green / Red	I / O	3SU1001-3AB42-0AK0	3SU1001-3BB42-0AK0
	Arrows, horizontal	3SU1001-3AB42-0AN0	---
• White / Black	I / O	3SU1001-3AB61-0AK0	3SU1001-3BB61-0AK0
• White / White	- / +	3SU1001-3AB66-0AL0	---
	Arrows, horizontal	3SU1001-3AB66-0AN0	---
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1001-3AB66-0AP0	---
Plastic / Metal, matte		3SU1031-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226612)	
• Green / Red	I / O	3SU1031-3AB42-0AK0	3SU1031-3BB42-0AK0
	Arrows, horizontal	3SU1031-3AB42-0AN0	---
• White / Black	I / O	3SU1031-3AB61-0AK0	3SU1031-3BB61-0AK0
• White / White	- / +	3SU1031-3AB66-0AL0	---
	Arrows, horizontal	3SU1031-3AB66-0AN0	---
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1031-3AB66-0AP0	---
Metal / Metal		3SU1051-3 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221486)	
• Green / Red	I / O	3SU1051-3AB42-0AK0	3SU1051-3BB42-0AK0
	Arrows, horizontal	3SU1051-3AB42-0AN0	---
• White / Black	I / O	3SU1051-3AB61-0AK0	3SU1051-3BB61-0AK0
• White / White	- / +	3SU1051-3AB66-0AL0	---
	Arrows, horizontal	3SU1051-3AB66-0AN0	---
	Symbols "Circular saw blade" / "Tilt tipper"	3SU1051-3AB66-0AP0	---

4.2.2.15 Safety relays

EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are devices for actuating contact modules, and they are used in conjunction with a safety relay to bring a machine / plant to a safe state.

The EMERGENCY STOP mushroom pushbuttons are equipped with tamper protection (trigger action). The EMERGENCY STOP mushroom pushbutton does not latch without generating an EMERGENCY STOP signal. The EMERGENCY STOP signal is maintained until the EMERGENCY STOP device is reset (unlatched).
All SIRIUS ACT EMERGENCY STOP mushroom pushbuttons comply with
DIN EN ISO 13850.
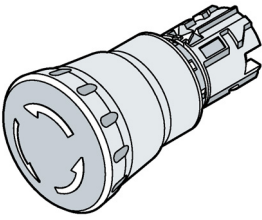
These pushbuttons are operated by pressure applied by the whole palm of the hand. EMERGENCY STOP mushroom pushbuttons are available with actuators in diameter 30 mm, 40 mm or 60 mm.

EMERGENCY STOP mushroom pushbuttons are available in different variants according to the following features:
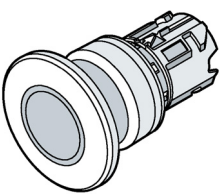
- Collar and front ring material

- Colors (special variants)

- Switching function: latching

- Illumination

- Rotate to unlatch

- Pull to unlatch

- Key-operated release (manipulation-proof)

For further information refer to Chapter "Installation (Page 89)". Please also note the information (on equipping) in Chapter "3SU14 contact modules and LED modules (Page 133)".
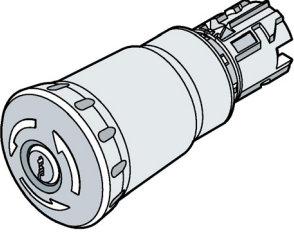
Overview of EMERGENCY STOP mushroom pushbuttons, rotate-to-unlatch type

Typical diagram	Diameter 30 mm	Diameter 40 mm	Diameter 60 mm
Collar / Front ring material	**Article number**		
Plastic / Plastic 3SU1000-1G (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221479)			
• Red	3SU1000-1GB20-0AA0	3SU1000-1HB20-0AA0	3SU1000-1JB20-0AA0
Metal / Metal 3SU1050-1G (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221480)			
• Red	3SU1050-1GB20-0AA0	3SU1050-1HB20-0AA0	3SU1050-1JB20-0AA0

Overview of EMERGENCY STOP mushroom pushbuttons, pull-to-unlatch type
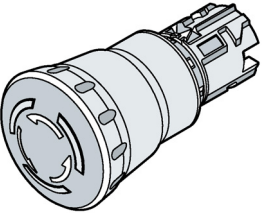
Typical diagram	Diameter 40 mm
Collar / Front ring material	**Article number**
Plastic / Plastic 3SU1000-1HA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221479)	
• Red	3SU1000-1HA20-0AA0
Metal / Metal 3SU1050-1HA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221480)	
• Red	3SU1050-1HA20-0AA0

Overview of EMERGENCY STOP mushroom pushbuttons, key-operated release (key-operated switch)

	Diameter 40 mm
Typical diagram	
Collar / Front ring material	**Article number**
Plastic / Plastic 3SU1000-1H (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221479)	
• Red	3SU1000-1H.20-0AA0[1]
Metal / Metal 3SU1050-1H (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221480)	
• Red	3SU1050-1H.20-0AA0[1]

[1] Different key numbers can be found in the catalog

Overview of illuminated EMERGENCY STOP mushroom pushbuttons

	Diameter 30 mm	Diameter 40 mm	Diameter 60 mm
Typical diagram			
Collar / Front ring material	**Article number**		
Plastic / Plastic 3SU1001-1 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221479)			
• Red	3SU1001-1GB20-0AA0	3SU1001-1HB20-0AA0	3SU1001-1JB20-0AA0
Metal / Metal 3SU1051-1 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221480)			
• Red	3SU1051-1GB20-0AA0	3SU1051-1HB20-0AA0	3SU1051-1JB20-0AA0

Overview of special variants of mushroom pushbuttons

The special variants of mushroom pushbuttons may not be used as EMERGENCY STOP devices compliant with DIN EN ISO 13850.

Collar / Front ring material	**Article number**
Plastic / Plastic 3SU1000-1H (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221479)	
• Black	3SU1000-1HB10-0AA0
• Blue	3SU1000-1HB50-0AA0
Metal / Metal 3SU1050-1H (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221480)	
• Black	3SU1050-1HB10-0AA0
	3SU1050-1HU10-0AA0
• Yellow	3SU1050-1HB30-0AA0

4.3 Mounting

4.3.1 Installation in front plates

Requirement

You need at least the following elements in order to construct a command point:

- An actuating or signaling element (3SU1) in front of the control panel
- A holder (3SU15) for securing behind the control panel
- Contact modules and / or an LED module (3SU14) behind the control panel
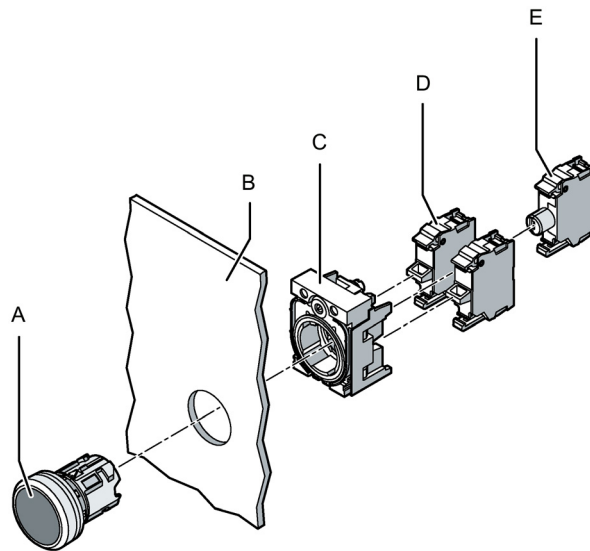
A	Actuating or signaling element
B	Front plate
C	Holder
D	Contact module
E	LED module

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).

2. Fit the holder (C) from behind (wiring side) onto the actuating or signaling element and lock it into place.

3. The unit must be aligned before it is finally tightened and secured against twisting (see Chapter Alignment (Page 97)).

4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).

5. Snap the contact module(s) (D) from behind onto the holder. To do this, hold the modules so that they are tilted downward slightly and place them onto the holder
from behind and then press them upwards until you feel the module latch in the holder.
Single- or two-pole contact modules can be mounted on the holder.
The modules can be stacked (max. 2 modules behind one another).

6. Mount an LED module (E), if necessary. You can mount the LED module on the holder only in position 3/6 (center position).

4.3.2 Mounting on printed-circuit boards
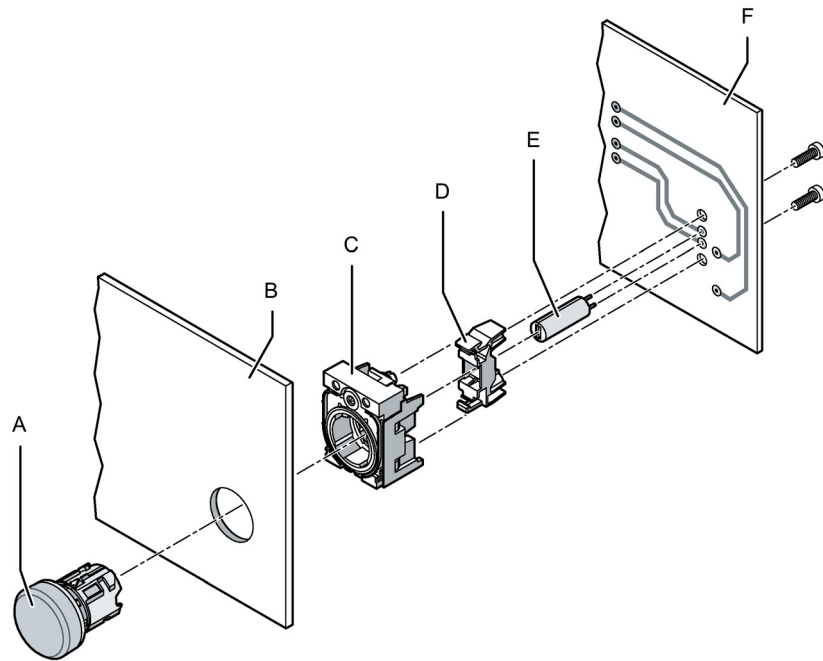
A	Actuating or signaling element (in this case: indicator light)
B	Front plate
C	Holder
D	PCB carrier
E	LED
F	Printed-circuit board

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).

2. Fit the holder (C) from behind onto the actuating or signaling element and lock it into place.

3. The unit must be aligned before it is finally tightened and secured against twisting (see Chapter "Alignment" (Page 97)).

4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 0.8 to 1.0 Nm).

5. Snap the PCB carrier (D) from behind onto the holder. To do this, hold the PCB carrier so that it is tilted downwards slightly and place it onto the holder from behind and then press it upwards until you feel the PCB carrier latch in the holder.

6. Equip the printed-circuit board (F) with the components.

7. Screw the PCB securely onto the PCB carrier.

Note

Number of PCB carriers

Make sure there is sufficient stability. Use several PCB carriers if necessary.

4.3.3 Base mounting

You can find information on base mounting in the section "3SU18 enclosures" in Chapter "Installation (Page 152)"

4.3.4 Installation sequence illustrated by example of EMERGENCY STOP mushroom pushbutton

Ø 22,4 mm
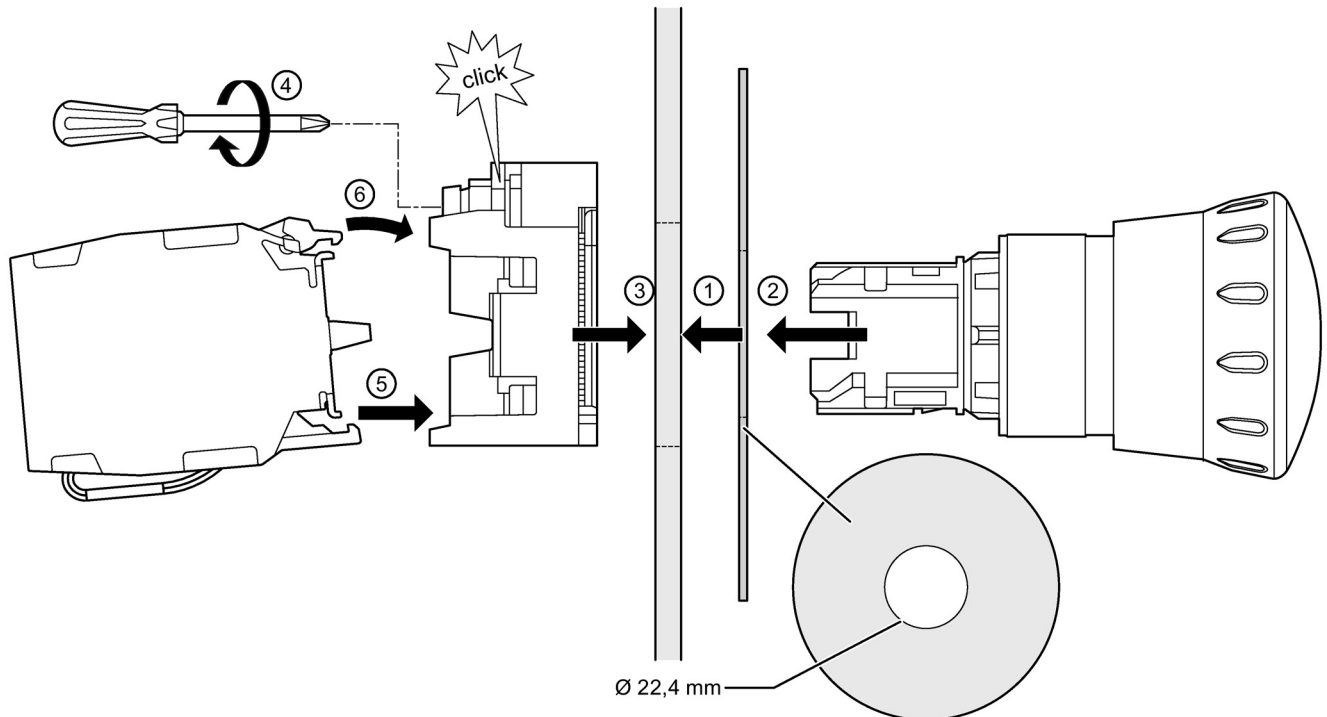
Procedure

①   Hold the backing plate (optional accessory) onto the front plate.

②   Insert the actuating/signaling element (EMERGENCY STOP mushroom pushbutton in this example) from the front into the opening of the backing plate and the front plate.

③   Fit the holder from behind

④   Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).

⑤   Snap the contact module(s) / LED module from behind onto the holder.

       Fit the narrow snap hook into the associated contour on the holder.

⑥   Engage the broad snap hook into the associated contour on the holder.

       Ensure secure latching.
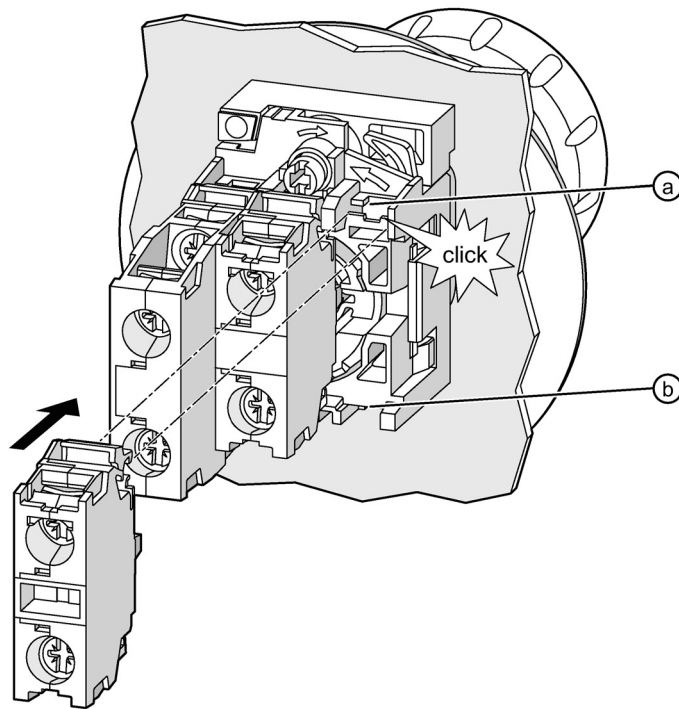
a   Broad snap hook

b   Narrow snap hook

Snapping the modules onto the holder ⑤ / ⑥

4.3.5 Installation sequence ID key-operated switch
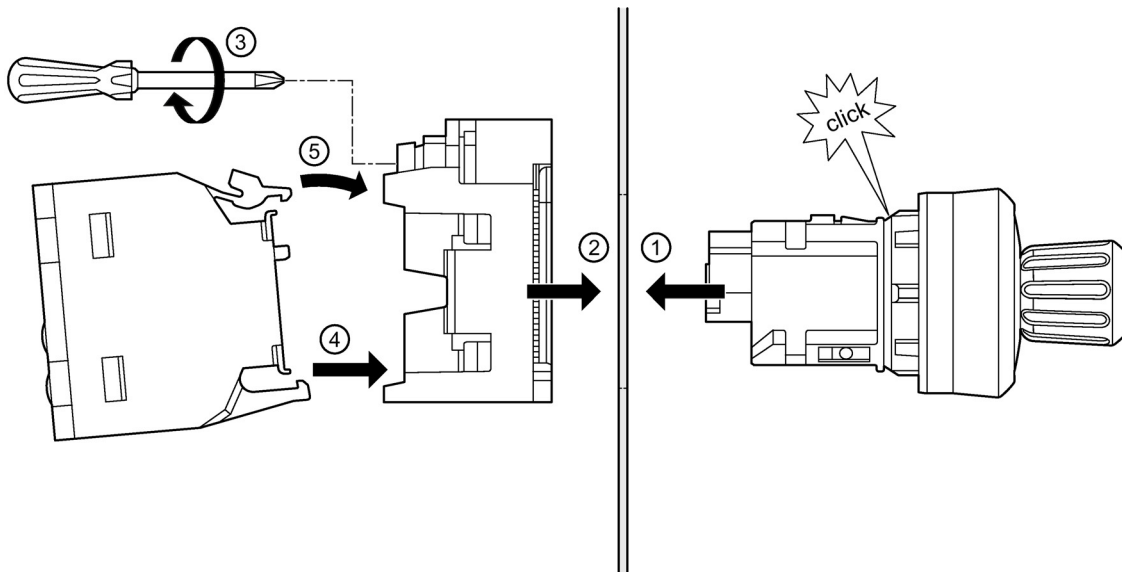
Procedure

①　Insert the ID key-operated switch from the front into the opening of the front plate.

②　Place the holder from behind onto the ID key-operated switch.

③　Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).

④　Snap the electronic module onto the back of the holder.
　　Fit the narrow snap hook into the associated contours on the holder.

⑤　Engage the broad snap hook into the associated contour on the holder.
　　Ensure secure latching
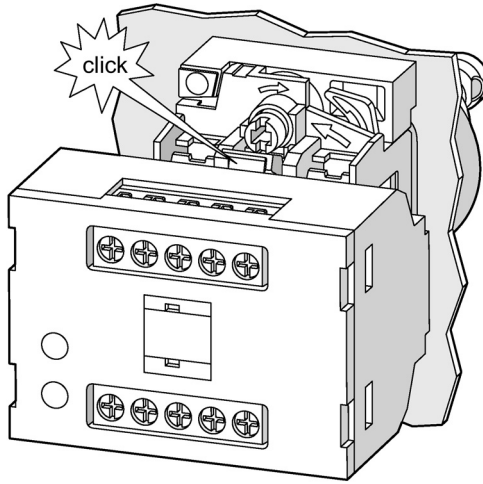
Snapping an electronic module onto the holder ④ / ⑤

4.3.6 Alignment

You must align the SIRIUS ACT devices before you finally tighten and secure them against twisting. You can do this in 4 different ways:

1. Alignment on horizontal guide line

2. Alignment with guide line on the arrow of the holder

3. Alignment with spirit level/ruler

4. Alignment on the fixing point

Procedure

Alignment on horizontal guide line

For this purpose, a horizontal line is drawn 18.5 mm above the center point of the 22.5 mm fixing hole. The holder can be aligned with this line when tightening the fixing screw.

Alignment with guide line on the arrow of the holder

In vertical alignment of the fixing hole, a vertical line is drawn to which the holder is aligned with the help of the printed arrow.

Alignment with spirit level/ruler

The spirit level is placed on an even surface of the holder. After alignment on the horizontal, the fixing screw is tightened. Alternatively, a ruler can be used with a range of devices. For this purpose, all holders must first be roughly aligned under the ruler. Then one holder after another is precisely aligned with the help of the applied ruler, and fixed with the fixing screw.

After the device has been aligned, you must tighten the fastening screw with a torque of between 1.0 and 1.2 Nm. The high transformation ratio of the fixing mechanism and the pointed teeth of the fixing collar provide rugged and long-lasting protection against twisting. You can then install the contact module and/or LED module(s) as required.

4.3.7 Disassembly sequence illustrated by example of EMERGENCY STOP mushroom pushbutton
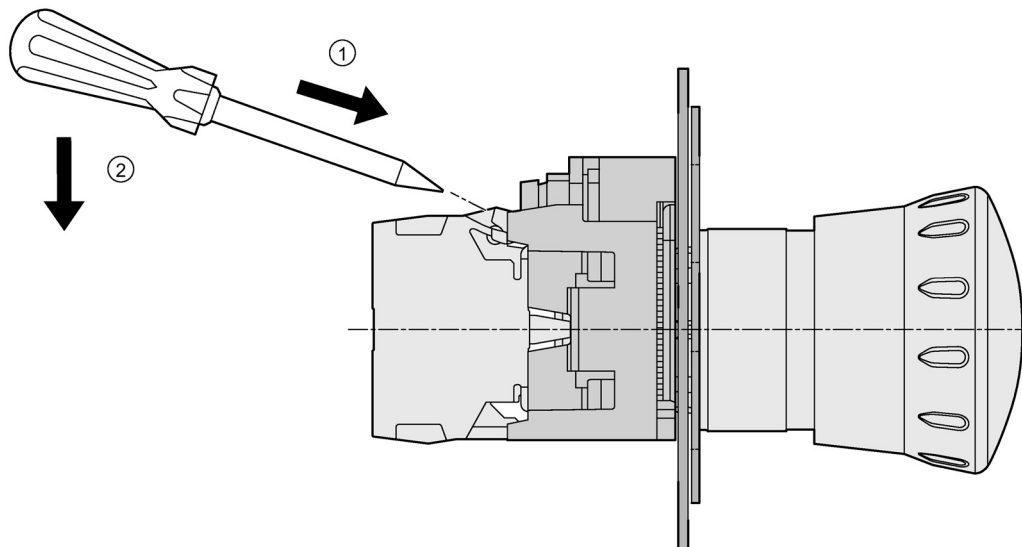
①   Insert a screwdriver into the opening of the latches (broad snap hook) of the contact modules or LED modules.

②   Press the screwdriver down to open the latches of the modules.
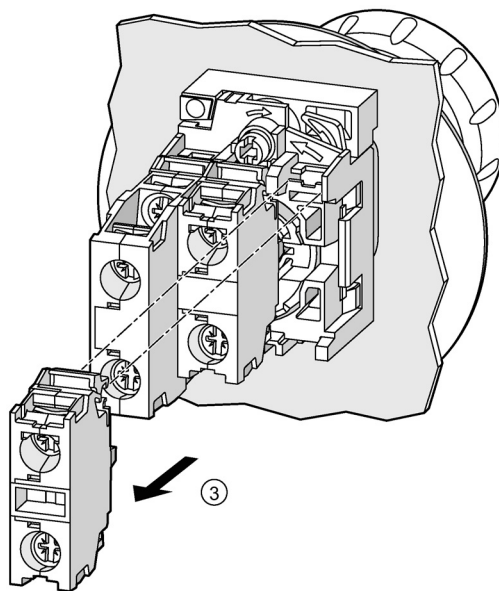
③   Remove the modules.
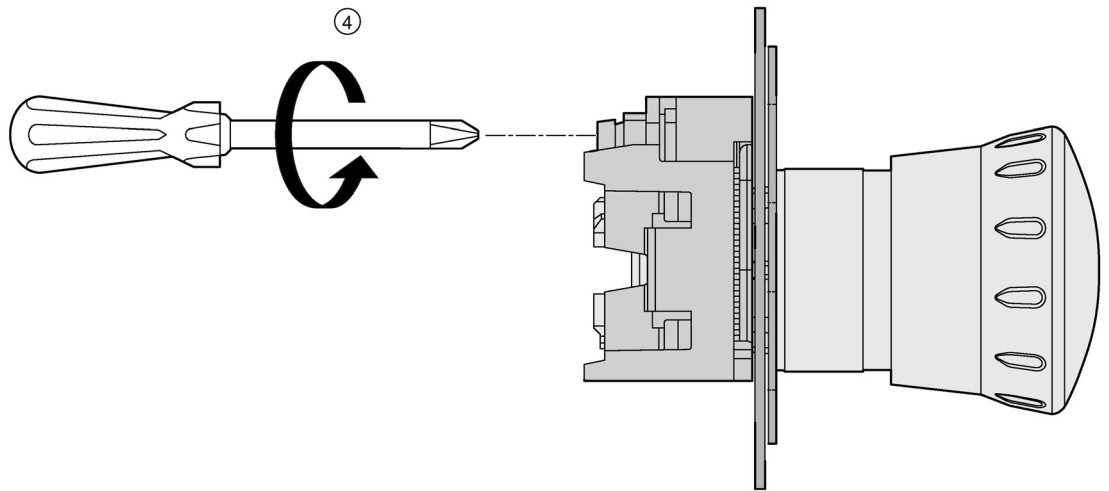
④ Remove the fastening screw from the holder.
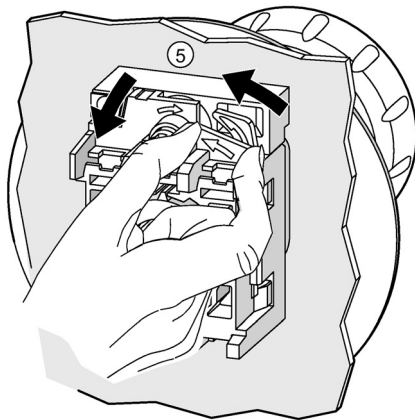
⑤ Unlock the holder.
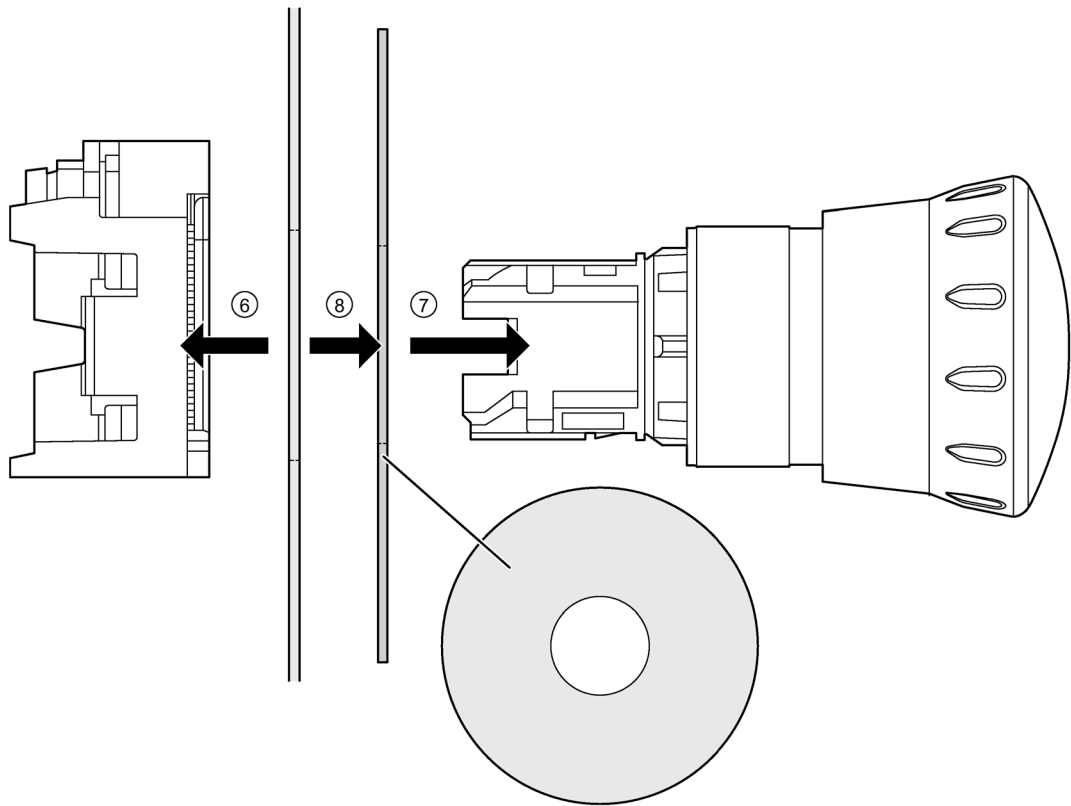
⑥　Remove the holder to the rear from the EMERGENCY STOP mushroom pushbutton (or any other actuating or signaling element).

⑦　Remove the EMERGENCY STOP mushroom pushbutton.

⑧　Remove the backing plate (optional step).

4.3.8 Disassembly of buttons

The buttons of the pushbuttons and illuminated pushbuttons can be replaced from the front by the user.
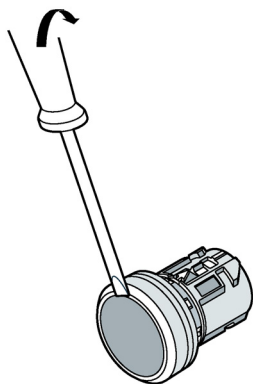
3SU11 complete units

<div align="right">

5

</div>

5.1 Product description

5.1.1 3SU11 design

The 3SU11 complete units are a modular range of devices for front plate mounting and rear cable connection. Complete units made up of an actuating or signaling element and contact modules and/or LED modules are offered for the most common applications.

The 3SU11 complete units are available in the following versions:

Material	Article number
Plastic	3SU110
Plastic / Metal, matte	3SU113
Metal	3SU115

3SU11 complete units are supplied with the following components:

● An actuating or signaling element in front of the control panel

● A holder for securing behind the control panel

● Up to two contact modules and / or one LED module

The complete units are supplied without the individual components installed.

You can find information on installing in Chapter "Installation (Page 119)".

For further information about contact modules refer to Chapter "3SU14 contact modules and LED modules (Page 133)"

5.2   Overview

Pushbuttons

Pushbuttons are used to actuate contact modules and allow short-time contact or permanent closing / opening of a contact element. The button caps can be replaced from the front by the user.

Pushbuttons are available in different variants according to the following features:

- Height of button
- Height of front ring
- Collar and front ring material
- Colors of the buttons
- Quantity and type of modules included in the scope of supply
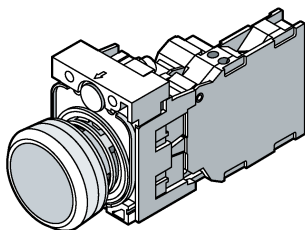
| Typical diagram | | | | | |

Pushbuttons (momentary contact type)

	Number of modules	Number of NO contacts	Number of NC contacts	Flat button	Raised button
Collar / Front ring material				**Article number**	
Plastic / Plastic					
3SU1100-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226606)					
• Black	1	1	0	3SU1100-0AB10-xBA0	—
	1	0	1	3SU1100-0AB10-xCA0	3SU1100-0BB10-1CA0[1)]
	1	1	1	3SU1100-0AB10-xFA0	3SU1100-0BB10-1FA0[1)]
• Red	1	1	0	3SU1100-0AB20-xBA0	—
	1	0	1	3SU1100-0AB20-xCA0	3SU1100-0BB20-1CA0[1)]
	1	1	1	3SU1100-0AB20-xFA0	3SU1100-0BB20-1FA0[1)]
• Yellow	1	1	0	3SU1100-0AB30-xBA0	—
	1	1	1	3SU1100-0AB30-xFA0	—
• Green	1	1	0	3SU1100-0AB40-xBA0	—
	1	1	1	3SU1100-0AB40-xFA0	—
• Blue	1	1	0	3SU1100-0AB50-xBA0	3SU1100-0BB50-1BA0[1)]
	1	1	1	3SU1100-0AB50-xFA0	—
• White	1	1	0	3SU1100-0AB60-xBA0	—
	1	1	1	3SU1100-0AB60-xFA0	—
• Clear	1	1	0	3SU1100-0AB70-1BA0[1)]	—
	1	1	1	3SU1100-0AB70-1FA0[1)]	—
• Gray	1	1	1	3SU1100-0AB80-1FA0[1)]	—

Plastic / Metal, matte					
3SU1130-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221496)					
• Black	1	1	0	3SU1130-0AB10-xBA0	—
	1	0	1	3SU1130-0AB10-xCA0	—
	1	1	1	3SU1130-0AB10-xFA0	—
• Red	1	1	0	3SU1130-0AB20-xBA0	—
	1	0	1	3SU1130-0AB20-xCA0	—
	1	1	1	3SU1130-0AB20-xFA0	—
• Yellow	1	1	0	3SU1130-0AB30-xBA0	—
	1	1	1	3SU1130-0AB30-xFA0	—
• Green	1	1	0	3SU1130-0AB40-xBA0	—
	1	1	1	3SU1130-0AB40-xFA0	—
• Blue	1	1	0	3SU1130-0AB50-xBA0	—
	1	1	1	3SU1130-0AB50-xFA0	—
• White	1	1	0	3SU1130-0AB60-xBA0	—
	1	1	1	3SU1130-0AB60-xFA0	—
Metal / Metal					
3SU1050-0AB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221497)					
• Black	1	1	0	3SU1150-0AB10-xBA0	—
	1	0	1	3SU1150-0AB10-xCA0	3SU1150-0BB10-1CA0[1]
	1	1	1	3SU1150-0AB10-xFA0	3SU1150-0BB10-1FA0[1]
• Red	1	1	0	3SU1150-0AB20-xBA0	---
	1	0	1	3SU1150-0AB20-xCA0	3SU1150-0BB20-1CA0[1]
	1	1	1	3SU1150-0AB20-xFA0	3SU1150-0BB20-1FA0[1]
• Yellow	1	1	0	3SU1150-0AB30-xBA0	—
	1	1	1	3SU1150-0AB30-xFA0	—
• Green	1	1	0	3SU1150-0AB40-xBA0	—
	1	1	1	3SU1150-0AB40-xFA0	—
• Blue	1	1	0	3SU1150-0AB50-xBA0	—
	1	1	1	3SU1150-0AB50-xFA0	—
• White	1	1	0	3SU1150-0AB60-xBA0	—
	1	1	1	3SU1150-0AB60-xFA0	—

x: 1 = screw terminals

x: 3 = spring-loaded terminals

[1] Available only with screw terminals

5.2.1   Illuminated pushbuttons

Illuminated pushbuttons

Illuminated pushbuttons are used to actuate contact modules and can also function as display devices by means of an LED module. A variant with a fixed pushbutton can be used as an indicator light. The buttons can be replaced from the front by the user.

The illuminated pushbuttons are available in different variants according to the following features:

- Height of button
- Collar and front ring material
- Colors of the buttons
- Illumination
- Quantity and type of modules included in the scope of supply
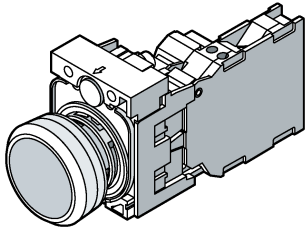
Typical diagram				
Illuminated pushbuttons (momentary contact type)				
	Number of modules	Number of NO contacts	Number of NC contacts	
Collar / Front ring material				**Article number**
Plastic / Plastic 3SU110 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221496)				
• Red	1	1	0	3SU110y-0AB20-xBA0
	1	0	1	3SU110y-0AB20-xCA0
	1	1	1	3SU110y-0AB20-xFA0
• Yellow	1	1	0	3SU110y-0AB30-xBA0
	1	1	1	3SU110y-0AB30-xFA0
• Green	1	1	0	3SU110y-0AB40-xBA0
	1	1	1	3SU110y-0AB40-xFA0
• Blue	1	1	0	3SU110y-0AB50-xBA0
	1	1	1	3SU110y-0AB50-xFA0
• White	1	1	0	3SU110y-0AB60-xBA0
		1	1	3SU110y-0AB60-xFA0
• Clear	1	1	0	3SU1100-0AB70-xBA0
	1	1	1	3SU110y-0AB70-xFA0
Plastic / Metal, matte 3SU113 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226606)				
• Red	1	1	0	3SU113y-0AB20-xBA0
	1	0	1	3SU113y-0AB20-xCA0
	1	1	1	3SU113y-0AB20-xFA0
• Yellow	1	1	0	3SU113y-0AB30-xBA0
	1	1	1	3SU113y-0AB30-xFA0
• Green	1	1	0	3SU113y-0AB40-xBA0
	1	1	1	3SU113y-0AB40-xFA0
• Blue	1	1	0	3SU113y-0AB50-xBA0
	1	1	1	3SU113y-0AB50-xFA0
• White	1	1	0	3SU113y-0AB60-xBA0
	1	1	1	3SU113y-0AB60-xFA0
• Clear	1	1	0	3SU113y-0AB70-xBA0
	1	1	1	3SU113y-0AB70-xFA0

Metal / Metal				
3SU105 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221497)				
• Amber	1	1	0	3SU115y-0AB00-xBA0
	1	1	1	3SU115y-0AB00-xFA0
• Red	1	1	0	3SU115y-0AB20-xBA0
	1	0	1	3SU115y-0AB20-xCA0
	1	1	1	3SU115y-0AB20-xFA0
• Yellow	1	1	0	3SU115y-0AB30-xBA0
	1	1	1	3SU115y-0AB30-xFA0
• Green	1	1	0	3SU115y-0AB40-xBA0
	1	1	1	3SU115y-0AB40-xFA0
• Blue	1	1	0	3SU115y-0AB50-xBA0
	1	1	1	3SU115y-0AB50-xFA0
• White	1	1	0	3SU115y-0AB60-xBA0
	1	1	1	3SU115y-0AB60-xFA0
• Clear	1	1	0	3SU115y-0AB70-xBA0
	1	1	1	3SU115y-0AB70-xFA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

y: 2 = 24 V AC/DC LED

y: 3 = 110 V AC LED

y: 6 = 230 V AC LED

5.2.2 Mushroom pushbuttons

Overview of 40 mm diameter mushroom pushbuttons

Mushroom pushbuttons are used to actuate contact modules.
Their large, easily accessible button surface makes them easy to operate with the whole palm of the hand.
By pressing or pulling these buttons, it is possible to generate up to 3 signals with just a single device.

The actuator is available in diameter 40 mm.

Mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material

- Quantity and type of modules included in the scope of supply

Typical diagram

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
Plastic / Plastic 3SU1100-1BA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221498)				
• Red	1	0	1	3SU1100-1BA20-xCA0
	1	1	1	3SU1100-1BA20-xFA0
Plastic / Metal, matte 3SU1130-1BA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226607)				
• Red	1	0	1	3SU1130-1BA20-1CA0
	1	1	1	3SU1130-1BA20-1FA0
Metal / Metal 3SU1150-1BA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221499)				
• Red	1	0	1	3SU1150-1BA20-xCA0
	1	1	1	3SU1150-1BA20-xFA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

5.2.3 EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are devices for actuating contact modules, and they are used in conjunction with a safety relay to bring a machine / plant to a safe state.

The EMERGENCY STOP mushroom pushbuttons are equipped with tamper protection (trigger action). The EMERGENCY STOP mushroom pushbutton does not latch without generating an EMERGENCY STOP signal. The EMERGENCY STOP signal is maintained until the EMERGENCY STOP device is reset (unlatched).
All SIRIUS ACT EMERGENCY STOP mushroom pushbuttons comply with DIN EN ISO 13850.
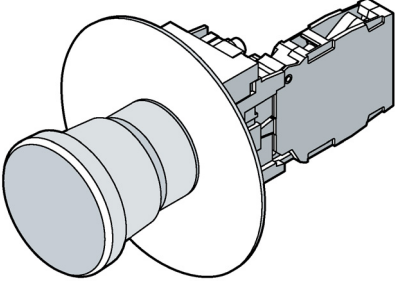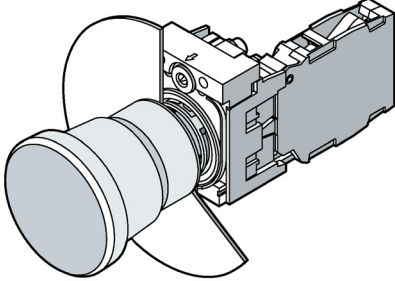
These pushbuttons are operated by pressure applied by the whole palm of the hand.

The actuators are available in diameter 40 mm.

EMERGENCY STOP mushroom pushbuttons are available in different variants according to the following features:

- Collar and front ring material
- Colors (special variants)
- Switching function: latching
- Rotate to unlatch
- Pull to unlatch
- Quantity and type of modules included in the scope of supply

Overview of 40 mm diameter EMERGENCY STOP mushroom pushbuttons, rotate-to-unlatch type

Typical diagram				Typical diagram
Collar / Front ring material	**Number of modules**	**Number of NO contacts**	**Number of NC contacts**	**Article number**
Plastic / Plastic				
3SU1100-1HB20 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221500)				
• Red	1	0	1	3SU1100-1HB20-xCy0
	1	1	1	3SU1100-1HB20-xFy0
	1	0	2	3SU1100-1LB20-xPy0
Metal / Metal				
3SU1150-1HB20 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221501)				
• Red	1	0	1	3SU1150-1HB20-xCy0
	1	1	1	3SU1150-1HB20-xFy0
	1	0	2	3SU1150-1LB20-xPy0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

y: F = without backing plate

y: G = backing plate: EMERGENCY STOP

y: H = backing plate: NOT-HALT

y: J = backing plate: ARRET D'URGENCE

Overview of 40 mm diameter EMERGENCY STOP mushroom pushbuttons, pull-to-unlatch type

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
Plastic / Plastic				
3SU1100-1HA20 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221500)				
• Red	1	0	1	3SU1100-1HA20-xCy0
	1	1	1	3SU1100-1HA20-xFy0
Metal / Metal				
3SU1150-1HA20 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221501)				
• Red	1	0	1	3SU1150-1HA20-xCy0
	1	1	1	3SU1150-1HA20-xFy0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

y: F = without backing plate

y: G = backing plate: EMERGENCY STOP

y: H = backing plate: NOT-HALT

y: J = backing plate: ARRET D'URGENCE

5.2.4 Indicator lights

Indicator lights function as indicators and signaling devices. They are equipped with a smooth-surfaced lens that cannot be replaced by the user

Indicator lights are available in different variants according to the following features:

- Collar and front ring material
- Colors
- Quantity and type of LED modules included in the scope of supply

Indicator lights with holder (available with screw terminals and spring-loaded terminals)	
Collar / Front ring material	Article number
Plastic / Plastic	3SU110 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221512)
• Amber	3SU110y-6AA00-xAA0
• Red	3SU110y-6AA20-xAA0
• Yellow	3SU110y-6AA30-xAA0
• Green	3SU110y-6AA40-xAA0
• Blue	3SU110y-6AA50-xAA0
• White	3SU110y-6AA60-xAA0
• Clear	3SU110y-6AA70-xAA0
Metal / Metal	3SU115 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221513)
• Amber	3SU115y-6AA00-xAA0
• Red	3SU115y-6AA20-xAA0
• Yellow	3SU115y-6AA30-xAA0
• Green	3SU115y-6AA40-xAA0
• Blue	3SU115y-6AA50-xAA0
• White	3SU115y-6AA60-xAA0
• Clear	3SU115y-6AA70-xAA0

x: 1 = screw terminals

x: 2 = spring-loaded terminals

y: 2 = variant with LED: 24 V AC/DC

y: 3 = variant with LED: 110 V AC

y: 6 = variant with LED: 230 V AC
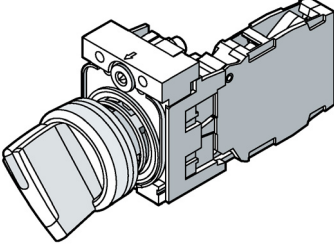
5.2.5 Selector switches

The selector switch is an actuator with 2 or 3 switch positions. Thanks to the rotary actuation, up to 3 contact modules can be operated with momentary contact or latching operation. The fiber-optic conductor integrated into the actuator can be illuminated using an LED module.

Selector switches are available in different variants according to the following features:

- Switch positions
- Collar and front ring material
- Quantity and type of modules included in the scope of supply

Short black handle, 2 switch positions, latching

Typical diagram				
Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
				Latching, 90° (10:30/1:30 o'clock)
Plastic / Plastic 3SU1100-2BF60 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221504)				
• White	1	0	1	3SU1100-2BF60-xBA0
	1	1	1	3SU1100-2BF60-xMA0
Plastic / Metal, matte 3SU1130-2BF60 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226609)				
• White	1	0	1	3SU1130-2BF60-xBA0
	1	1	1	3SU1130-2BF60-xMA0
Metal / Metal 3SU1150-2BF60 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221505)				
• White	1	0	1	3SU1150-2BF60-xBA0
	1	1	1	3SU1150-2BF60-xMA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

Short black handle, 3 switch positions

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number	
				Latching 2x45°	Momentary contact 2x45°reset from left + right
Plastic / Plastic					
3SU1100-2B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221504)					
• White	2	2	2	3SU1100-2BL60-xLA0	3SU1100-2BM60-xLA0
	2	2	0	3SU1100-2BL60-xNA0	3SU1100-2BM60-xNA0
Plastic / Metal, matte					
3SU1130-2B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226609)					
• White	2	2	0	3SU1130-2BL60-xLA0	3SU1130-2BM60-xLA0
	2	2	0	3SU1130-2BL60-xNA0	3SU1130-2BM60-xNA0
Metal / Metal					
3SU1150-2B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221505)					
• White	2	2	0	3SU1150-2BL60-xLA0	3SU1150-2BM60-xLA0
	2	2	0	3SU1150-2BL60-xNA0	3SU1150-2BM60-xNA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

5.2.6 Key-operated switches

Key-operated switches are equipped with a lock for safety reasons. Only an authorized group of persons who have access to the relevant key can perform a switching operation (in this case, actuation of contact modules). Up to 3 switch positions can be temporarily or permanently selected using a key-operated switch.

Key-operated switches are available in different variants according to the following features:

- Key-operated switch manufacturer
- Key removal positions
- Switch positions
- Collar and front ring material
- Color of actuators
- Quantity and type of modules included in the scope of supply

With Ronis SB30 lock, 2 switch positions; key removal in any position

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
Latching, 90° (10:30/1:30 o'clock)				
Plastic / Plastic 3SU1100-4BF11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221510)				
• Black	1	0	1	3SU1100-4BF11-xBA0
	1	1	1	3SU1100-4BF11-xFA0
Plastic / Metal, matte 3SU1130-4BF11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226615)				
• Black	1	0	1	3SU1130-4BF11-xBA0
	1	1	1	3SU1130-4BF11-xFA0
Metal / Metal 3SU1150-4BF11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221511)				
• Black	1	0	1	3SU1150-4BF11-xBA0
	1	1	1	3SU1150-4BF11-xFA0

Typical diagram

x: 1 = screw terminals

x: 3 = spring-loaded terminals

With CES SSG10 lock, 2 switch positions; key removal in any position

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
Latching, 90°(10:30/1:30 o'clock)				
Plastic / Plastic 3SU1100-5BF11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221510)				
• Black	1	0	1	3SU1100-5BF11-3FA0[1]

[1] Spring-loaded terminal

With Ronis SB30 lock, 3 switch positions; key removal in any position

Collar / Front ring material	Number of modules	Number of NO contacts	Number of NC contacts	Article number
Latching, 2x45°(10:30/12/1:30 o'clock)				
Plastic / Plastic 3SU1100-4BL11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221510)				
• Black	1	2	0	3SU1100-4BL11-1NA0[2]
Plastic / Metal, matte 3SU1130-4BL11 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226615)				
• Black	1	2	0	3SU1130-4BL11-1NA0[2]

[2] Screw terminal

5.3 Mounting

5.3.1 3SU11 front plate mounting
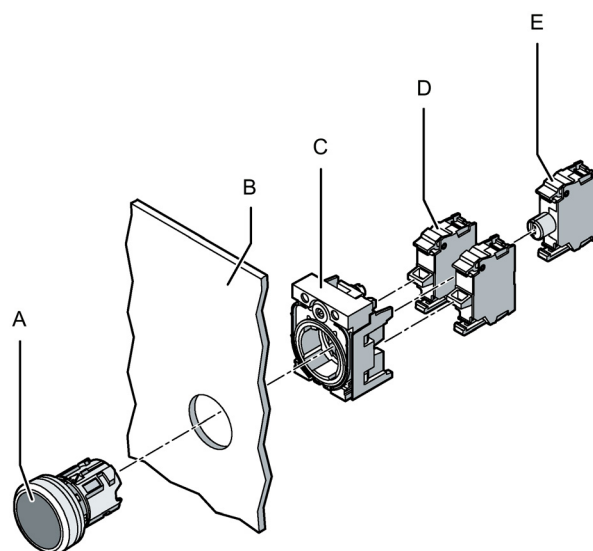
A   Actuating element
B   Front plate
C   Holder
D   Contact module
E   LED module

Procedure

1. Remove the components of the complete unit from the packaging

2. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).

3. Fit the holder (C) from behind (wiring side) onto the actuating or signaling element and lock it into place.

4. The unit must be aligned before it is finally tightened and secured against twisting (see Chapter "Alignment").

5. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).

6. Snap the contact module(s) (D) from behind onto the holder. To do this, hold the modules so that they are tilted downward slightly and place them onto the holder from behind and then press them upwards until you feel the module latch in the holder.

7. Mount an LED module (E), if necessary. You can mount the LED module on the holder only in position 3/6 (center position).

3SU12 compact units

<div style="text-align: right; font-size: 3em;">6</div>

Types of 3SU12 compact units

On the 3SU12 compact units, the electrical function (illumination and / or switching functions) is integrated into the actuating or signaling element. The electrical function is not expandable or replaceable. The compact versions are also not combinable with other modules of the 3SU10 / 3SU11 modular series.

3SU12 compact units are intended exclusively for front plate mounting.

The compact units are secured with the holder included in the scope of supply. The cables of the compact units are connected via the screw-type terminals attached to the rear.

You can find information on the holders in Chapter "Holders (Page 41)".
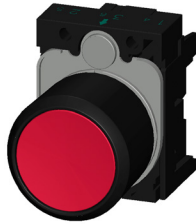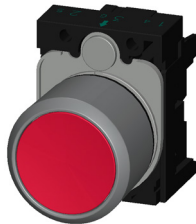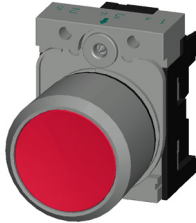
The following compact units are available:

● Pushbuttons with extended stroke

● Sensor switches (integrated contact module)

3SU12 actuating and signaling elements

The 3SU12 pushbuttons and signaling elements are available in the following designs:

● Front ring and collar in plastic

● Front ring in metal matte and collar in plastic

● Front ring and collar in metal

Actuating element material	Collar material	Examples
Plastic	Plastic	3SU120
Plastic	Metal matte	3SU123
Metal	Metal	3SU125

Holders

The holders with three slots are available in plastic and metal versions.

The following assumptions apply when assigning holders to the actuating elements and signaling elements:

Material	Plastic holder (3SU1500-0AA10-0AA0)	Metal holder (3SU1550-0AA10-0AA0)
Plastic	✓	✓
Metal	---	✓

Structure of a 3SU12 command point

A modular command point consists of the following elements:

- An actuating or signaling element in front of the control panel
- A holder for securing behind the control panel

6.1 Overview

6.1.1 Pushbuttons with extended stroke
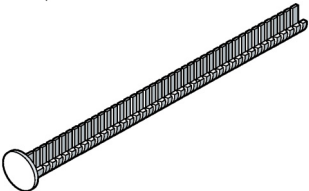
Pushbuttons with extended stroke are used to actuate a relay in the control cabinet. The pushbuttons are used as accessories for the Siemens Sivacon module. They are used as actuating elements without contact modules. These pushbuttons can only be used in conjunction with a 3SU1900-0KG10-0AA0 extension plunger.

	Pushbuttons with covered button	
	Flat button	Raised button
Collar / Front ring material	**Article number**	
Plastic / Plastic	3SU1200-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226601)	
• Black	---	3SU1200-0FB10-0AA0
• Red	3SU1200-0EB20-0AA0	---
• Green	3SU1200-0EB40-0AA0	---
Plastic / Metal, matte	3SU1230-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226627)	
• Black	---	3SU1230-0FB10-0AA0
• Red	3SU1230-0EB20-0AA0	---
• Green	3SU1230-0EB40-0AA0	---
Metal / Metal	3SU1250-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226602)	
• Black	---	3SU1230-0FB10-0AA0
• Red	3SU1250-0EB20-0AA0	---
• Green	3SU1250-0EB40-0AA0	---

	Pushbuttons with transparent button Labeling of the button is possible see Chapter "Devices with labeling (Page 79)" in this respect	
	Flat button	Raised button
Collar / Front ring material	Article number	
Plastic / Plastic	3SU1201-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226601)	
• Red	3SU1201-0EB20-0AA0	---
• Clear	3SU1201-0EB70-0AA0	---
Plastic / Metal, matte	3SU1231-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226627)	
• Red	3SU1231-0EB20-0AA0	---
• Clear	3SU1231-0EB70-0AA0	---
Metal / Metal	3SU1251-0EB (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226602)	
• Red	3SU1251-0EB20-0AA0	---
• Clear	3SU1251-0EB70-0AA0	---

The extension plunger compensates the distance between the pushbutton and the unlatching button of an overload relay. The length of the extension plunger can be adapted individually.
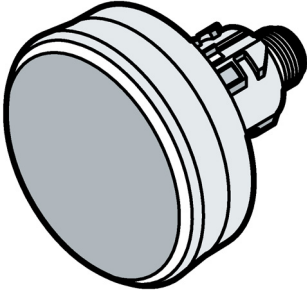
	Extension plungers	
	Material	Article number
	Plastic	3SU1900-0KG10-0AA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221537)

6.1.2   Sensor switches

Sensor switches are capacitive sensors that are actuated when the sensor surface is touched (without application of force or pressure).

Sensor switches are used to operate machines or as door opening switches and stop call buttons. Thanks to the water-sealed electronic circuitry and rugged enclosure materials used in their construction, these capacitive and fully electronic sensors are extremely durable. Since sensor switches have no moving mechanical parts, they are maintenance-free. Two integrated status display LEDs provide the user with visual feedback.

Sensor switches		
Typical diagram	**Material**	**Article number**
	Plastic / Plastic	3SU1200-1SK10-2SA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221502)

Application example

When the sensor switches are combined with the appropriate Siemens DIN EN 574-compliant evaluation devices with type III C certificate (devices from the SIRIUS 3SK1 Advanced safety relay range or devices from the 3RK3 Modular Safety System (MSS)), they can be deployed as a safety relay, for example, in two-hand control applications. A two-hand control device requires simultaneous actuation with both hands in order to start up a machine and to keep it in operation in a potentially risky situation. The two-hand control device must be located outside the hazard zone (and the hazard zone must be clearly visible) in order to prevent the operator from entering the zone before the machine has reached a complete standstill.

The control command is sent by actuating both pushbuttons simultaneously within 0.5 s.

The following properties must be provided for mobile two-hand control devices:

- Stability
- The safety distance must be maintained between the control actuating devices and the hazard zone
- In the case of adjustable control actuating devices, a latch must be available

The sensor switch provides effective shock protection and the operating surface is easy to clean (type of protection IP69)

A function test must be carried out before commissioning. The following properties must be checked in the function test:

- Simultaneous actuation (use of both hands)

- Synchronous actuation (synchronism ≤ 500 ms)

- Relationship between input signals and output signals

- Renewed generation of the output signal

 For further information refer to Chapters "Installation (Page 126)", "Two-hand operation console (Page 159)" and "Application examples (Page 265)".

6.1.2.1 Mounting

Systems designed for the installation and commissioning of the sensor switch must comply with the requirements of EN 574: 2008.

Prevention of accidental actuation and defeat (please also read EN 574, Section 8)

The sensor switches for a two-hand control circuit must be arranged according to the risk assessment for the individual application in such a way that the protective effect of the two-hand control circuit cannot be defeated. The probability of accidental actuation must be minimized. The use of a single hand, possible combinations of one hand and/or other parts of the body and/or the use of simple aids which would allow the protective circuit to be defeated must be taken into consideration so that there is no possibility that persons can enter the hazard zone when hazards exist. Accidental actuation (e.g. by the operator's clothing) must also be taken into account.

The following measures as defined by standard **EN 574: 2008** must be implemented:

- Prevention of protective circuit defeat by one hand

  – Spatial separation between control actuating devices (clearance) of at least 260 mm

- Prevention of defeat by hand and elbow of the same arm

  – Spatial separation between control actuating devices (clearance) of at least 550 mm. This clearance should not exceed 600 mm for ergonomic reasons

- Prevention of defeat by one hand and any other part of the body (e.g. knee, hip)

  – Arrangement of control actuating devices on a horizontal surface at a distance of at least 1100 mm above the floor or the access level.

The sensor switches should not be installed in an exposed location (i.e. without operation console or protective cover for switch) so as to prevent accidental actuation of the switch by falling objects.

Safety distance (refer also to EN 574, Section 9.8)

The safety distance between the sensor switches and the hazard zone must be large enough to ensure that the operator cannot enter the hazard zone after release of a sensor switch until all potentially hazardous machinery has ceased moving.

The safety distance "S" in mm is calculated according to the following formula:

$S = V \times T + C$

Key to formula:

V = Hand/arm speed = 1600 mm/s

T = Reaction time in seconds (the reaction time of the sensor switch is max. **50 ms**)

C = Additional value = 250 mm

If entry of persons into the hazard zone following actuation of the sensor switch can be reliably prevented, the additional value C can be set to "0".

However, the minimum clearance must always be 100 mm.

Mounting

The sensor switch can be mounted on front plates and in the following enclosures of the SIRIUS ACT series:

- 3SU1801-1AA00-1AA1 (plastic enclosure; command point in center)

- 3SU1851-1AA00-1AA1 (metal enclosure; command point in center)

- 3SU1803-0AA00-0AB1 (two-hand operation console, plastic)

- 3SU1853-3AA00-0AA1 (two-hand operation console, metal)

Procedure (example of mounting on front plate)
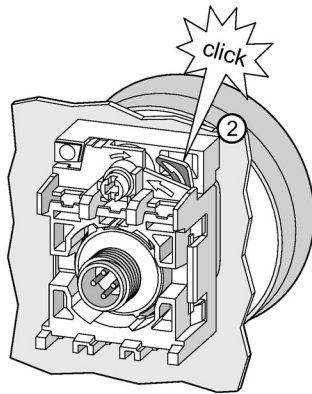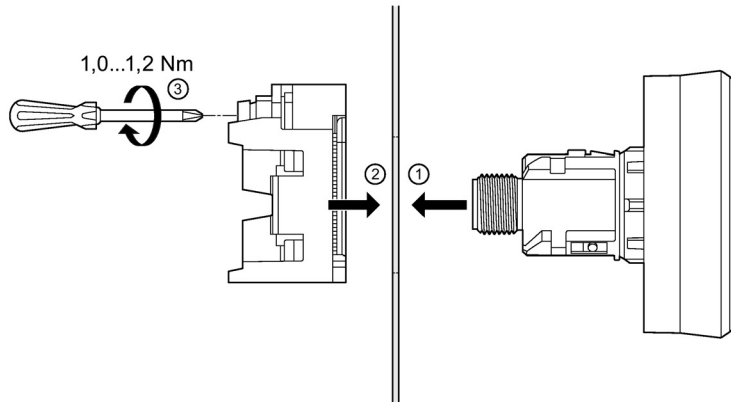
1. Insert the sensor switch into an enclosure (e.g. 3SU18..-3 two-hand operation console) or front plate ①.

2. Align the sensor switch so that it is positioned correctly (LED).

3. Place the holder ② from behind onto the sensor switch and lock it in position.

4. Turn the screw ③ at the holder until the sensor switch is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).

5. Connect the sensor switch to a controller using a connector (3SU1900-0KL10-0AA0).

Connector (3SU1900-0KK10-0AA0)
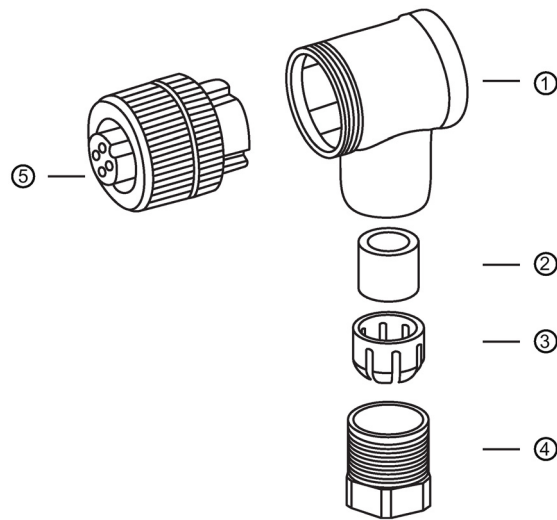
① Angled enclosure
② Seal
③ Pinch ring
④ Clamping screw
⑤ Female contact insert

Connector pin assignment for connection to sensor switch
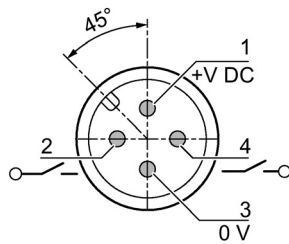
Installation of protective cover

1. Before you install the protective cover(3SU1900-0EC10-0AA0), you must clean the surface on which the cover will be mounted
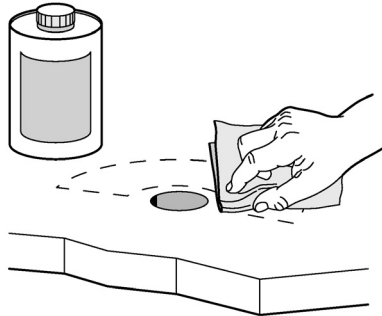
2. Install the sensor switch

3. Remove the protective film from the rear face of the protective cover

4. Mount the protective cover in the space provided (use adhesive to fix cover in position)
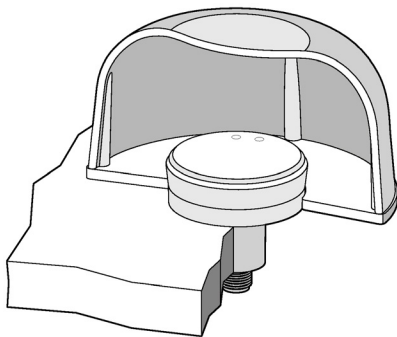
Switching states of the sensor switch

- LED shows a green light ⇒ sensor switch active
- LED shows a yellow light ⇒ sensor switch actuated

Commissioning

Operating state: Green LED steadily illuminated (O.K.)
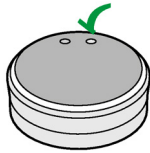
Error: Green LED off -> check the supply voltage

The yellow LED lights up when the switch is actuated.

The contact remains closed while the hand remains in contact with the sensor switch surface. No force needs to be applied in order to actuate the switch.

Removal
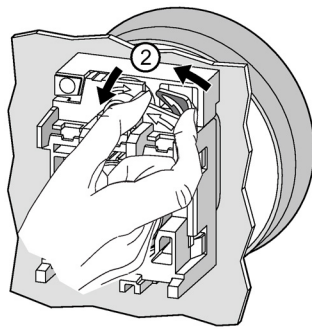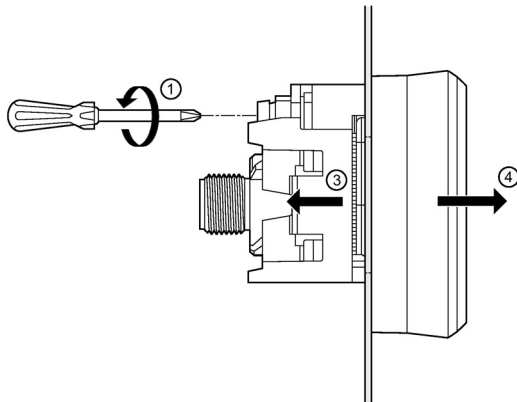
1. Remove the screw from the holder ①

2. Unlock the holder ②

3. Remove the holder from the sensor switch ③

4. Remove the sensor switch ④

3SU14 modules 7

7.1 Overview

Contact modules

Contact modules are used to switch circuits. The mechanical motion of the actuator is converted to electrical signals in interaction with the contact module when contacts are opened or closed.

The following variants of contact module are available:

- Spring-loaded terminals
- Screw terminals
- Front plate mounting
- Base mounting (enclosure mounting)
- 1-pole
- 2-pole
- Different functions (NC contact, NO contact and combinations thereof)

Color coding of the switching variants depends on the colors of the ID keys:

- 1NO → Green
- 1NC → Red
- 1NC1NC → yellow

The contact modules bear terminal designations in accordance with EN 50013.

Note

Stackability

With SIRIUS ACT, the modules are mounted on the holder without any further accessories. The modules can be stacked without needing to use a tool (max. 2 x 1-pole modules behind one other).

Please note that a 2-pole contact module may not be stacked on a 1-pole contact module.
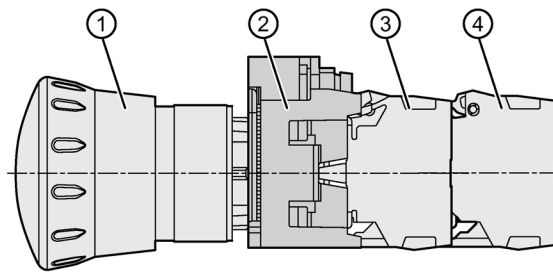
①   Actuating element (here: EMERGENCY STOP mushroom pushbutton)

②   Holder

③   Module 1

④   Module 2

Number of contact modules per holder without EMERGENCY STOP

3-slot holder: 3x 2 single-pole contact modules

Max. 2 single-pole contact modules can be in each holder slot

Equipping holders with contact modules with EMERGENCY STOP

A holder must be equipped with at least one contact system with 1NC switching functionality. A maximum total of 4 circuits may be connected.

Number of contact modules per holder with EMERGENCY STOP without contact modules for installation monitoring

2x1 single-pole and 1 two-pole contact module

2x2 single-pole contact modules in 2 tiers)

Number of contact modules per holder with EMERGENCY STOP with contact modules for installation monitoring

When using the 3SU1400-1AA10-.HA0 contact module (1 NC with installation monitoring) the maximum permissible number of circuits is: 3.

1 contact module for installation monitoring (1NC1NC two-pole) + 1 single-pole contact module (1NC or 1NO)

7.1.1   Contact modules for front plate mounting

Contact modules for front plate mounting are installed on the rear face of a holder.

For further information refer to Chapters "Holders (Page 41)" and "Installation (Page 143)"

Number of NO contacts	Number of NC contacts	Product function positive opening	Article number
3SU1400-1AA10 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221526)			
1	0	No	3SU1400-1AA10-xBA0
0	1	Yes	3SU1400-1AA10-xCA0
0	2 (1 contact for installation monitoring)	Yes	3SU1400-1AA10-xHA0

x :1 = Screw terminal; 3 = Spring-loaded terminal

Operating principle of the 3SU1400-1AA10-.HA0 contact module with installation monitoring

The 3SU1400-1AA10-.HA0 contact module monitors proper installation. If it is incorrectly installed or is disconnected from the holder (3SU15.0-0AA10-0AA0), the contact module initiates an automatic shutdown of the machine or system. As long as operation continues, it is assured that all necessary contacts are functioning properly.

In the case of all actuators except the EMERGENCY STOP actuator, the contact module with installation monitoring must be mounted at holder position 1 or 2, and in the case of the EMERGENCY STOP actuator, the module can also be mounted at holder position 3.

Proper mounting (flush with holder) at holder position 1 and 2 causes the first contact to close, and if the module with installation monitoring is mounted at holder position 3, this contact does not close until the EMERGENCY STOP actuator is mounted with the holder.

Machinery Directive

In addition to increased safety, the 3SU1400-1AA10-.HA0 contact module also supports compliance with the Machinery Directive.

During first commissioning: The circuits are closed and the contact module is ready for use only after completion of the function test prescribed by the directive, i.e. when activated for the first time.

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

7.1.2 Contact modules for enclosure (base) mounting

The contact modules for enclosure mounting are installed in 3SU18 enclosures.

For further information refer to Chapter "3SU18 enclosures (Page 147)"

Number of NO contacts	Number of NC contacts	Product function positive opening	Article number
3SU1400-2AA10 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10227974)			
1	0	No	3SU1400-2AA10-xBA0
0	1	Yes	3SU1400-2AA10-xCA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

7.1.3 LED modules

Only LED modules with permanently integrated LEDs are available for illuminating the 3SU1 pushbuttons and signaling devices.

These devices are available in different variants according to the following features:

- Spring-loaded terminals
- Screw terminals
- PCB installation
- Front plate mounting
- Base mounting (enclosure mounting)
- Colors
- Voltages

LED modules bear terminal designations in accordance with EN 50013.

7.1.4　LED modules for front plate mounting

LED modules for front plate mounting are installed on the rear face of a holder.

For further information refer to Chapters "Holders (Page 41)", "Mounting (Page 143)"

Operating voltage	Color of the LED	Article number
3SU1401-1B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221527)		
24 V AC/DC	Amber	3SU1401-1BB00-xAA0
	Red	3SU1401-1BB20-xAA0
	Yellow	3SU1401-1BB30-xAA0
	Green	3SU1401-1BB40-xAA0
	Blue	3SU1401-1BB50-xAA0
	White	3SU1401-1BB60-xAA0
110 V AC	Amber	3SU1401-1BC00-xAA0
	Red	3SU1401-1BC20-xAA0
	Yellow	3SU1401-1BC30-xAA0
	Green	3SU1401-1BC40-xAA0
	Blue	3SU1401-1BC50-xAA0
	White	3SU1401-1BC60-xAA0
230 V AC	Amber	3SU1401-1BF00-xAA0
	Red	3SU1401-1BF20-xAA0
	Yellow	3SU1401-1BF30-xAA0
	Green	3SU1401-1BF40-xAA0
	Blue	3SU1401-1BF50-xAA0
	White	3SU1401-1BF60-xAA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

Operating voltage	Color of the LED	Article number
3SU1401-1B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221527)		
6 ... 24 V AC/DC	Amber	3SU1401-1BG00-xAA0
	Red	3SU1401-1BG20-xAA0
	Yellow	3SU1401-1BG30-xAA0
	Green	3SU1401-1BG40-xAA0
	Blue	3SU1401-1BG50-xAA0
	White	3SU1401-1BG60-xAA0
24 ... 240 V AC/DC	Amber	3SU1401-1BH00-xAA0
	Red	3SU1401-1BH20-xAA0
	Yellow	3SU1401-1BH30-xAA0
	Green	3SU1401-1BH40-xAA0
	Blue	3SU1401-1BH50-xAA0
	White	3SU1401-1BH60-xAA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

7.1.5   LED modules for enclosure (base) mounting

The LED modules for enclosure mounting are installed in 3SU18 enclosures.

For further information refer to Chapter "3SU18 enclosures (Page 147)"

Operating voltage	Color of the LED	Article number
3SU1401-2B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10251008)		
24 V AC/DC	Amber	3SU1401-2BB00-xAA0
	Red	3SU1401-2BB20-xAA0
	Yellow	3SU1401-2BB30-xAA0
	Green	3SU1401-2BB40-xAA0
	Blue	3SU1401-2BB50-xAA0
	White	3SU1401-2BB60-xAA0
110 V AC	Amber	3SU1401-2BC00-xAA0
	Red	3SU1401-2BC20-xAA0
	Yellow	3SU1401-2BC30-xAA0
	Green	3SU1401-2BC40-xAA0
	Blue	3SU1401-2BC50-xAA0
	White	3SU1401-2BC60-xAA0
230 V AC	Amber	3SU1401-2BF00-xAA0
	Red	3SU1401-2BF20-xAA0
	Yellow	3SU1401-2BF30-xAA0
	Green	3SU1401-2BF40-xAA0
	Blue	3SU1401-2BF50-xAA0
	White	3SU1401-2BF60-xAA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

Operating voltage	Color of the LED	Article number
3SU1401-2B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10251008)		
6 ... 24 V AC/DC	Amber	3SU1401-2BG00-xAA0
	Red	3SU1401-2BG20-xAA0
	Yellow	3SU1401-2BG30-xAA0
	Green	3SU1401-2BG40-xAA0
	Blue	3SU1401-2BG50-xAA0
	White	3SU1401-2BG60-xAA0
24 ... 240 V AC/DC	Amber	3SU1401-2BH00-xAA0
	Red	3SU1401-2BH20-xAA0
	Yellow	3SU1401-2BH30-xAA0
	Green	3SU1401-2BH40-xAA0
	Blue	3SU1401-2BH50-xAA0
	White	3SU1401-2BH60-xAA0

x: 1 = screw terminals

x: 3 = spring-loaded terminals

7.1.6 LED modules for mounting on printed-circuit boards

Operating voltage	Color of the LED	Article number
3SU1401-3BA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221527)		
5 V DC	Amber	3SU1401-3BA00-5AA0
	Red	3SU1401-3BA20-5AA0
	Yellow	3SU1401-3BA30-5AA0
	Green	3SU1401-3BA40-5AA0
	Blue	3SU1401-3BA50-5AA0
	White	3SU1401-3BA60-5AA0

Socket terminal (THT)

7.1.7 AS-Interface modules for front plate mounting

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. AS-Interface modules for front plate mounting are installed on the rear face of a holder.

For further information refer to Chapters "Holders (Page 41)" and "Installation (Page 89)"

AS-Interface EMERGENCY STOP according to ISO 13850

Via the standard AS-Interface with safety-related communication, EMERGENCY-STOP devices according to ISO 13850 can be directly connected using the AS-Interface modules.

AS-Interface modules, screw terminals + spring-loaded terminals

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI	—	2	—	3SU1400-1EA10-2AA0
2 F-DI + 1 LED	—	2	1 For controlling the LEDs	3SU1401-1EE20-2AA0
2 F-DI + 1 DO	—	2	1 Freely usable	3SU1400-1EC10-2AA0

AS-Interface modules, insulation piercing method

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI	—	2	—	3SU1400-1EA10-4AA0
2 F-DI + 1 LED	—	2	1 For controlling the LEDs	3SU1401-1EE20-4AA0

AS-Interface modules, spring-loaded terminals + insulation piercing method

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI + 1 DO	—	2	1 Freely usable	3SU1400-1EC10-4AA0

7.1.8 AS-Interface modules for base mounting

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. The AS-Interface modules for base mounting are installed in 3SU18 enclosures.

AS-Interface modules, spring-loaded terminals
3SU1400-2E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10251009)

	Slave type	Number of digital inputs		Number of digital outputs	Article number
		Standard inputs	Fail-safe inputs		
	4 DI / 4 DQ	4	—	4	3SU1400-2EK10-6AA0
	4 DI / 3 DQ AB	4	—	3	3SU1400-2EJ10-6AA0
	2F-DI	—	2	—	3SU1400-2EA10-6AA0
	2F-DI/1LED	—	2	1 For controlling the LEDs	3SU1401-2EE20-6AA0

The electronic modules for ID key-operated switches are designed for use with the ID key-operated switch. The electronic modules for ID key-operated switches can be installed in a 3SU18.1-1AA00-1AA1 enclosure for one command point, or in a front plate using 3-slot holders. The 3SU1400-1GD10-1AA0 electronics modules for ID key-operated switches can be parameterized via IO-Link.

For further information refer to Chapters "ID key-operated switches (Page 78)", "ID keys (Page 260)" and "Technical data (Page 263)".

You can find information on using the electronic modules for ID key-operated switches for IO-Link in Chapter "IO-Link (Page 205)".

Article numbers

3SU1400-1G (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221530)

	Power supply via IO-Link master	IO-Link protocol supported	IO-Link transfer rate	Article number
	---	No	---	3SU1400-1GC10-1AA0
	Yes	Yes	COM2 (38.4 kBaud)	3SU1400-1GD10-1AA0

7.2 Mounting

7.2.1 Front plate mounting of the modules

Procedure

1. Insert the actuating or signaling element from the front through the mounting opening of the front plate.

2. Fit the holder from behind (wiring side) onto the actuating or signaling element and lock it into place.

3. The unit must be aligned before finally tightening and securing against twisting.

4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).

5. Snap the contact module(s) from behind onto the holder.
   To do this, hold the modules so that they are tilted downward slightly and place them onto the holder from behind and then press them upwards until you feel the module latch in the holder.
   Single- or two-pole contact modules can be mounted on the holder.

6. Ensure secure latching.

7. Connect the cables to the modules. You can find the relevant information in Chapter "Wiring (Page 144)".

7.2.2 Mounting on printed-circuit boards

Procedure

1. Insert the actuating or signaling element (A) from the front through the mounting opening of the front plate (B).

2. Fit the holder (C) from behind onto the actuating or signaling element and lock it into place.

3. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist.

4. Equip the printed-circuit board (F) with the components.

Note
Number of PCB carriers

One or more PCB carriers must be used, depending on the application.

If the printed-circuit board is attached, one PCB carrier is sufficient. For an unattached printed-circuit board, at least two PCB carriers must be used.

7.3 Connecting

Procedure for wiring a screw terminal
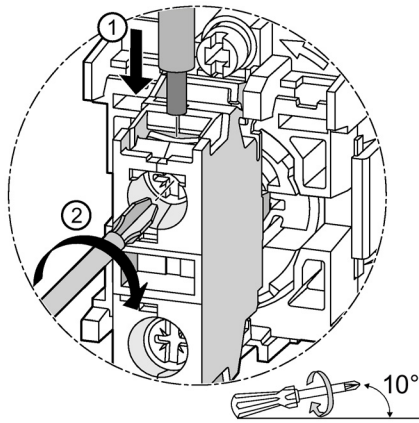
①   Insert the relevant cable into the opening of the screw terminal of the module until it engages.

②   Insert the screwdriver (DIN ISO 8764-1-PZD1) at an angle of 10° into the opening for the screw.

        Tighten the screw.

- Tightening torque for contact modules: 0.8 … 0.9 Nm
- Tightening torque for LED modules: 0.8 … 1.0 Nm

        Pull on the cable to ensure it is screwed tight.

Procedure for wiring a spring-loaded terminal
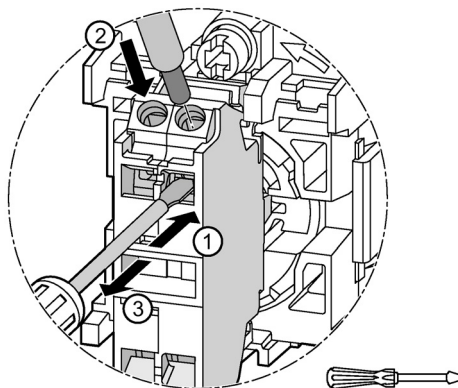
①   Insert the screwdriver (3RA2908-1A: 3.0 mm x 0.5 mm) into the rectangular opening to open the terminal (round opening).

②   Insert the cable as far as it will go into the round opening

③   Remove the screwdriver.

        Pull on the cable to ensure it is tight.

7.3.1 Electronic modules for ID key-operated switches
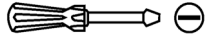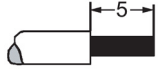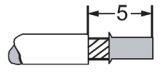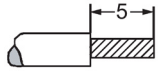
3SU1400-1GC10-1AA0 electronic module for ID key-operated switches
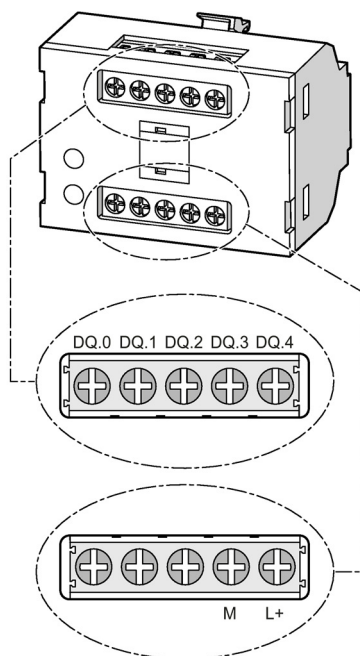
Terminal labeling

Terminal labeling					
Pin	X1		Pin	X2	
1	DQ.0	Digital output	6	—	—
2	DQ.1	Digital output	7	—	—
3	DQ.2	Digital output	8	—	—
4	DQ.3	Digital output	9	M	Ground
5	DO.4	Digital output	10	L+	24 V DC

Conductor cross-sections

SZM (⌀ 3.5 mm x 0.6 mm)	0.4 Nm 3.5 lb in
←5→	1 x 0.2 ... 2.5 mm²
←5→	1 x 0.25 ... 1.5 mm² 2 x 0.25 ... 0.75 mm²
←5→	1 x 0.2 ... 2.5 mm² 2 x 0.2 ... 0.75 mm²
AWG	26 to 14

See also

Technical specifications (Page 263)

7.3.2 AS-Interface modules and electronic module for IO-Link

You can find information on connecting the ASi modules in the section AS-Interface in Chapter "Connecting (Page 180)".

You can find information on connecting the electronic modules for IO-Link in the section IO-Link of Chapter "Connecting (Page 229)".

3SU18 enclosures

<div style="text-align: right; font-size: 3em;">8</div>

The enclosed pushbuttons and indicator lights are available with conventional controls as well as for connection to AS-Interface.

The following versions of the 3SU18 enclosure are available:

- Empty enclosures with 1 to 6 command points (the installed components must be ordered separately)
- Enclosures with standard fittings with 1 to 3 command points
- Enclosures with customized fittings with 1 to 6 command points
- Two-hand operation consoles

8.1 Enclosures for actuating and signaling elements

Enclosures

For the 3SU1 actuating elements and signaling elements, plastic enclosures and metal enclosures with 1, 2, 3, 4 or 6 command points are available.

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

The enclosures are available in the following colors:

- Top:
  - Gray
  - Yellow
- Lower part:
  - Black

The enclosures are available for devices with diameter 22.5 mm

Enclosures are available in different variants according to the following features:

- Empty enclosure and enclosure with standard fittings
- With and without labeling fields
- With protective collar

8.1.1 Overview of empty enclosures

No. of com-mand points	Article number Enclosure material plastic 3SU1801 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221522)			
	Enclosures with raised cover	Center command point	With protective collar, center	With recess for labeling plate
1	3SU1801-1AA00-0AA1	3SU1801-0AA00-0AAy	3SU1801-0AA00-0ACy	3SU1801-0AA00-0AB2
2	---	---	---	3SU1802-0AA00-0AB2
3	---	---	---	3SU1803-0AA00-0AB2
4	---	---	---	3SU1804-0AA00-0AB2
6	---	---	---	3SU1806-0AA00-0AB2

No. of com-mand points	Article number Enclosure material metal 3SU1851 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221522)			
	Enclosures with raised cover	Center command point	With protective collar, center	With recess for labeling plate
1	3SU1851-1AA00-0AA1	3SU1851-0AA00-0AAy	3SU1851-0AA0x-0ACy	3SU1851-0AA00-0ABy
2	---	---	---	3SU1852-0AA00-0ABy
3	---	---	---	3SU1853-0AA00-0ABy
4	---	---	---	3SU1854-0AA00-0ABy
6	---	---	---	3SU1856-0AA00-0ABy

y: 1 = color gray

y: 2 = color yellow

Actuating and signaling elements with nominal diameter 22.5 mm can be used.

For mounting, the actuating element is inserted through the hole in the enclosure top. The actuating element is fastened and secured in position with the holder.

Plastic enclosures are normally equipped with actuating or signaling elements made of plastic. Metal enclosures are equipped as standard with actuating or signaling elements made of metal. If otherwise equipped, please note the grounding information below.

EMERGENCY STOP according to ISO 13850

For control systems according to IEC 60204-1 or DIN EN 60204-1 (VDE 0113 Part 1), the mushroom pushbuttons of the 3SU10 series can be used as EMERGENCY STOP devices.

Grounding

The enclosure must be grounded if it contains metal actuating elements. The lower part of metal enclosures has a grounding stud.

Plastic enclosures containing metal actuating elements can be grounded via metal holders.

For further information refer to Chapter "Holders (Page 41)".

Contact modules and LED modules

Contact modules and LED modules for base mounting are snapped into the enclosure lower part. Base mounting is not provided for on the enclosures with raised cover.
The following elements can be attached for each command point:

- 3 contact modules or
- 2 contact modules and 1 LED module or
- 2 contact modules and 1 ASIM 2F-DI / LED

Due to the high contact stability, the contact modules are also suitable for use in electronic controllers. The function numbers are located on the contact modules.

As well as base mounting, it is also possible to use 1-pole contact and LED modules for front plate mounting.
You can find information on the modules in Chapter "3SU14 modules (Page 133)".

8.1.2 Mounting positions

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

The lowest mounting position of an actuating or signaling element 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:

● Enclosures with 2 actuating or signaling elements ⇒ B

● Enclosures with 3 actuating or signaling elements ⇒ C

● Enclosures with 4 actuating or signaling elements ⇒ D

● Enclosures with 6 actuating or signaling elements ⇒ F

Contact modules can be mounted at the mounting positions 1 and/or 2 and/or 3, but LED modules only at mounting position 3.

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

8.1.3 Mounting

Enclosures with standard fittings
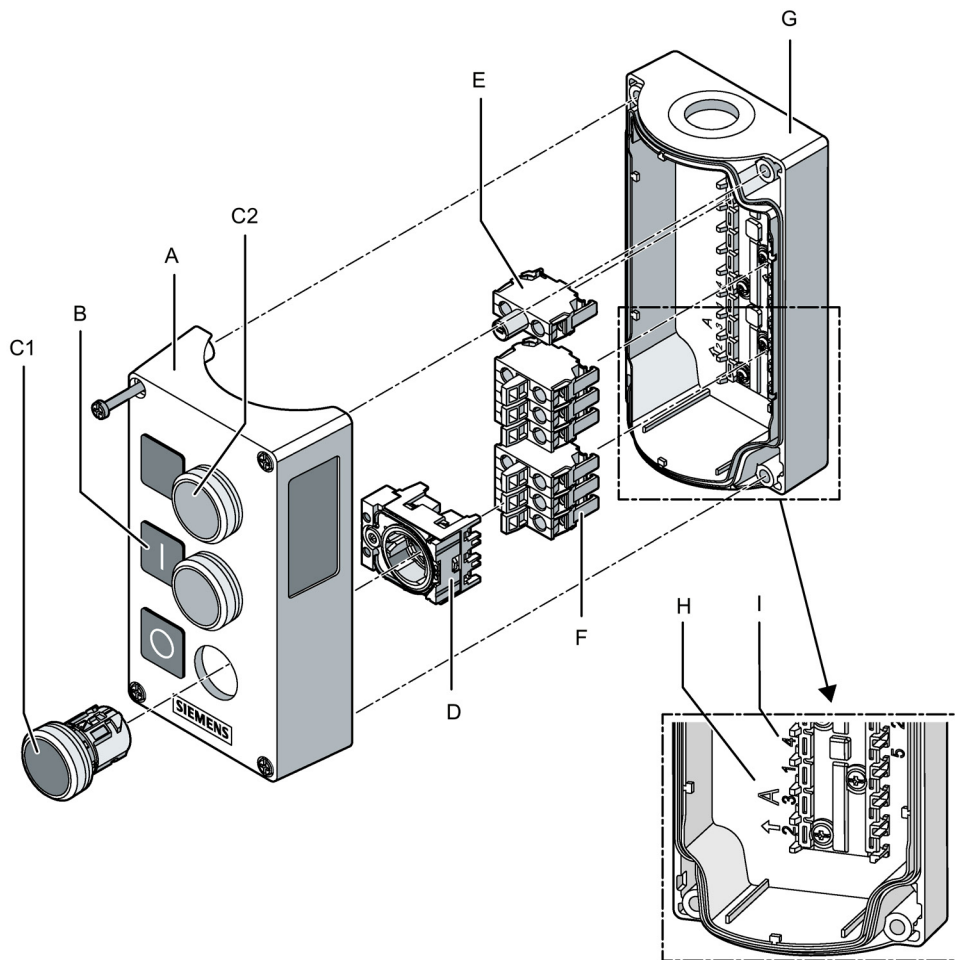
A	Enclosure top
B	Labeling plates
C1	Actuating or signaling element (in this case: pushbutton)
C2	Actuating or signaling element (in this case: indicator light)
D	Holder
E	LED module
F	Contact modules
G	Enclosure lower part
H	Identification letters for the command points
I	Module position (identical to holder labeling)

Procedure

1. Undo the screws and remove the enclosure top

2. Insert the actuating or signaling element (C1) from the front through the opening of the enclosure top (A).

3. Fit the holder (D) from behind onto the actuating or signaling element and lock it into place.

4. Turn the screw at the holder until the actuating or signaling element is fixed securely and cannot vibrate or twist (tightening torque 1.0 to 1.2 Nm).

5. Mount an LED module, if necessary. An LED module can only be installed in slot number 3 (e.g. A3, B3, C3 etc.).

6. Mount the contact module(s) into the enclosure lower part (see also Chapter Fitting with contact modules and LED modules (Page 153)).

7. Mount the enclosure top (see Chapter Mounting of the enclosure upper part (Page 154) for this).

8.1.3.1   Fitting with contact modules and LED modules
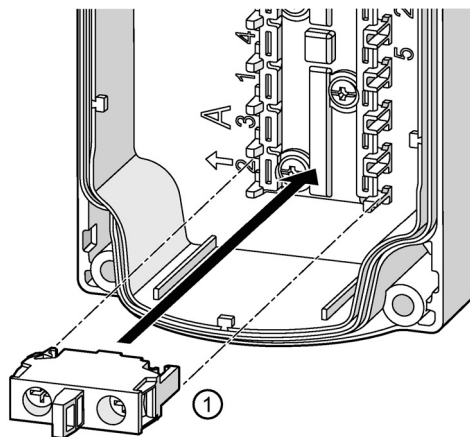
The contact modules and LED modules are mounted in the enclosure lower part.

To equip an enclosure, follow these steps:

1. Snap the module ① onto a slot in the enclosure. The narrow snap hook must point in direction "A" here.

Refer also to the information on fitting in Chapter "Mounting positions (Page 151)".

8.1.3.2 Mounting of the enclosure upper part
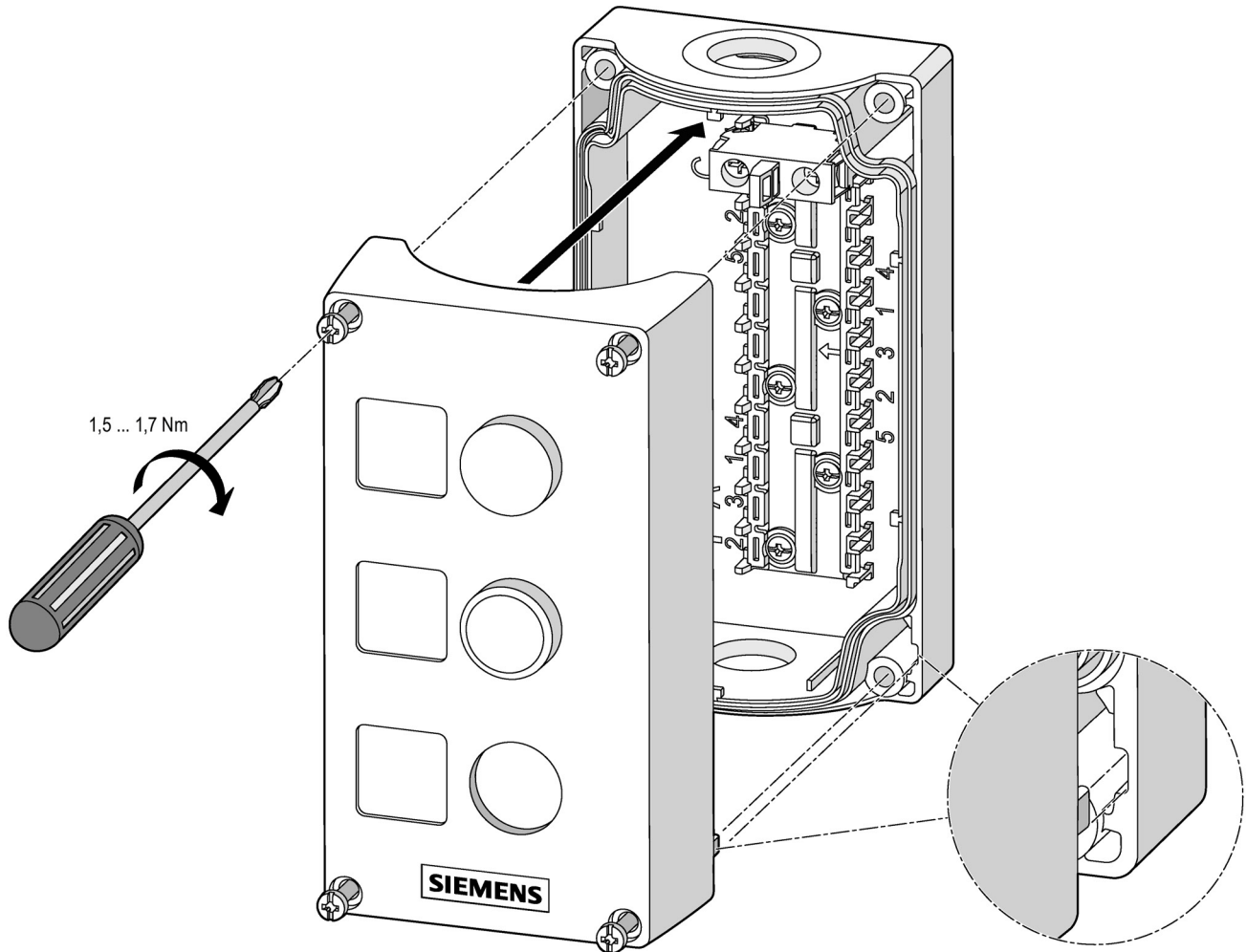
Note

Pay attention to the proper position when mounting the enclosure top. Only one correct position is possible, recognizable by the coding lugs at the bottom left and right in the enclosure.

8.2 Enclosures with EMERGENCY STOP devices

EMERGENCY STOP according to ISO 13850

For control systems according to IEC 60204-1 or DIN EN 60204-1 (VDE 0113 Part 1), the EMERGENCY STOP mushroom pushbuttons of the 3SU1 series can be used as EMERGENCY STOP devices.

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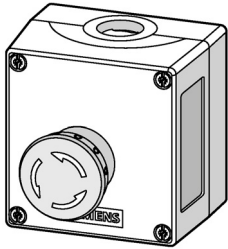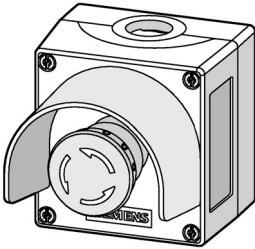
Standards IEC 60947-5-1 and EN 60947-5-5 require positive opening. With regard to personal protection, positive opening of normally closed contact elements in all safety circuits is expressly prescribed for the electrical equipment of machines and is designated according to IEC 60947-5-1 with the positive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

With the EMERGENCY STOP mushroom pushbuttons, PL e according to ISO 13849-1 or SIL 3 according to IEC 62061 can be achieved if the corresponding fail-safe evaluation devices are selected and correctly connected. The 3SK safety relays, the 3RK3 Modular Safety System, or the corresponding devices from the ASIsafe, SIMATIC and SINUMERIK programs can be used as fail-safe evaluation devices.

8.2.1 Overview of enclosures with EMERGENCY STOP mushroom pushbuttons

EMERGENCY STOP mushroom pushbuttons are certified according to ISO 13850/EN 418. The EMERGENCY STOP mushroom pushbutton enables fast and safe stopping of systems in dangerous situations. The metal version is suitable for use even in the harshest conditions.

EMERGENCY STOP devices can be connected directly via the standard AS-Interface with safety-related communication.

	Enclosure	Enclosure with collar
Material	Article number	
Plastic	3SU1801-0NA00 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221523)	
	3SU1801-0NA00-2AA2	3SU1801-0NA00-2AC2
Metal	3SU1851-0NA00 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221523)	
	3SU1851-0NA00-2AA2	3SU1851-0NA00-2AC2

8.3 Enclosures with standard fittings

Enclosures (standard fittings) with pushbuttons and indicator lights are available in the following versions:

- 1 to 3 command points

- Operating voltage up to 500 V

- Vertical mounting type

- Plastic enclosures with plastic actuators and indicators. Metal enclosures with metal actuators and indicators

- Contact modules and LED modules for base mounting (are snapped into the enclosure lower part); screw terminals as standard; some versions also with spring-loaded terminals

The enclosures have a recess for labeling plate(s). The color of the enclosure top is gray, and the enclosure lower part is black.

Plastic version 3SU180 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221523)				
No. of command points	Fittings	Color of the actuating or signaling element	Label	Article number
1	Pushbuttons	Green	"I"	3SU1801-0AB00-2AB1
		Red	"O"	3SU1801-0AC00-2AB1
		White	"I"	3SU1801-0AD00-2AB1
		Black	"O"	3SU1801-0EB00-2AB1
2	Pushbuttons	Red	"O"	3SU1802-0AB00-2AB1
	Pushbuttons	Green	"I"	
	Pushbuttons	Black	"O"	3SU1802-0AC00-2AB1
	Pushbuttons	Black	"I"	
3	Pushbuttons	Red	"O"	3SU1803-0AB00-2AB1
	Pushbuttons	Green	"I"	
	Indicator lights	Clear	"Without inscription"	
	Pushbuttons	Black	"O"	3SU1803-0AC00-2AB1
	Pushbuttons	White	"I"	
	Indicator lights	Clear	"Without inscription"	
	Pushbuttons	Red	"O"	3SU1803-0AD00-2AB1
	Pushbuttons	Black	"I"	
	Pushbuttons	Black	"II"	

Metal version 3SU185 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221523)				
No. of com-mand points	Fittings	Color of the actuating or signaling element	Label	Article number
1	Pushbuttons	Green	"I"	3SU1851-0AB00-2AB1
		Red	"O"	3SU1851-0AC00-2AB1
		White	"I"	3SU1851-0AD00-2AB1
		Black	"O"	3SU1851-0EB00-2AB1
2	Pushbuttons	Red	"O"	3SU1852-0AB00-2AB1
	Pushbuttons	Green	"I"	
	Pushbuttons	Black	"O"	3SU1852-0AC00-2AB1
	Pushbuttons	Black	"I"	
3	Pushbuttons	Red	"O"	3SU1853-0AB00-2AB1
	Pushbuttons	Green	"I"	
	Indicator lights	Clear	"Without inscription"	
	Pushbuttons	Black	"O"	3SU1853-0AC00-2AB1
	Pushbuttons	White	"I"	
	Indicator lights	Clear	"Without inscription"	
	Pushbuttons	Red	"O"	3SU1853-0AD00-2AB1
	Pushbuttons	Black	"I"	
	Pushbuttons	Black	"II"	

8.4   3SU18..-3 two-hand operation console

8.4.1   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

8.4.2   Function

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 side enables ergonomic operation and working position. Expansion to include additional operator controls is possible.

The two-hand control device must be located outside the hazard zone in order to prevent the operator from entering the zone before the machine has reached a complete standstill.

The following properties must be provided for mobile two-hand control devices:

- Stability
- The safety distance must be maintained between the control actuating devices and the hazard zone
- In the case of adjustable control actuating devices, a latch must be available
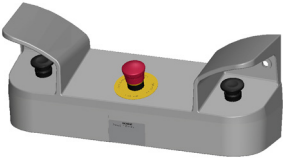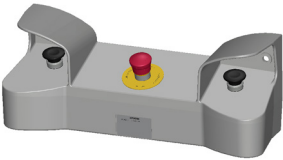
The control command is given by pressing the two pushbuttons on the sides simultaneously (within 0.5 s of each other) and must be maintained for as long as a hazard exists.

Appropriate two-hand control devices from the 3SK1 Advanced device range are available for evaluating control commands.

A function test must be carried out before commissioning. The following properties must be checked in the function test:

- Simultaneous actuation (use of both hands)
- Synchronous actuation (synchronism ≤ 500 ms)
- Relationship between input signals and output signals
- Renewed generation of the output signal

8.4.3 Overview of two-hand operation consoles

Two-hand operation consoles		Article number
	Two-hand operation console, plastic enclosure	3SU1803 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221525)
	With standard fittings and preset breaking points for 8 additional 22.5 mm pushbuttons, with knock-outs for metric cable glands	3SU1803-3NB00-1AE1
	Empty enclosure, unequipped	3SU1803-0AA00-0AB1
	Two-hand operation console, metal enclosure	3SU1853 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221525)
	With standard fittings	3SU1853-3NB00-1AA1
	With standard fittings and 4 additional holes for 22.5 mm pushbuttons	3SU1853-3NB00-1AD1
	Empty enclosure, unequipped	3SU1853-3AA00-0AA1
Accessories for two-hand operation consoles		
	Stands for two-hand operation console	
	With knock-outs for metric cable glands	3SU1950-0HN10-0AA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221536)

8.4.4　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.

8.4.4.1　Installation and wiring of two-hand operation console

1. Unscrew the cover on the bottom of the two-hand operation console.
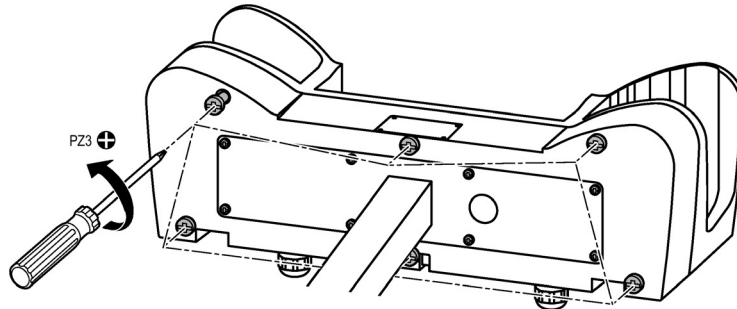
2. Wire and ground the two-hand operation console. You can find information on fitting and wiring with modules in Chapter "3SU14 modules (Page 133)"
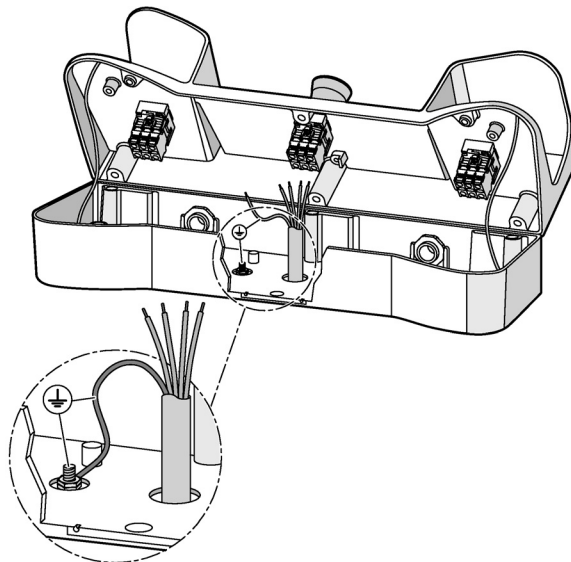
3. Screw on the cover.

PZ3
2,5 Nm
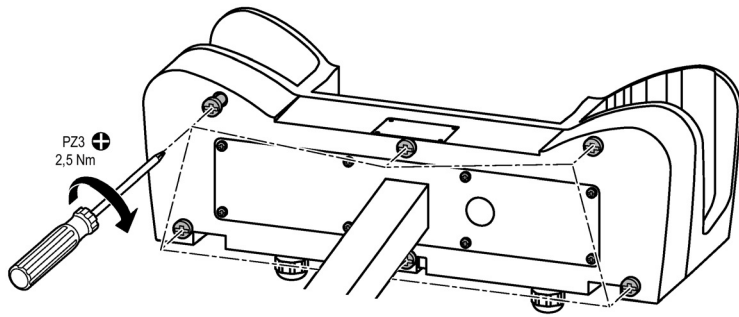
Fit the cable gland if applicable

2 Nm
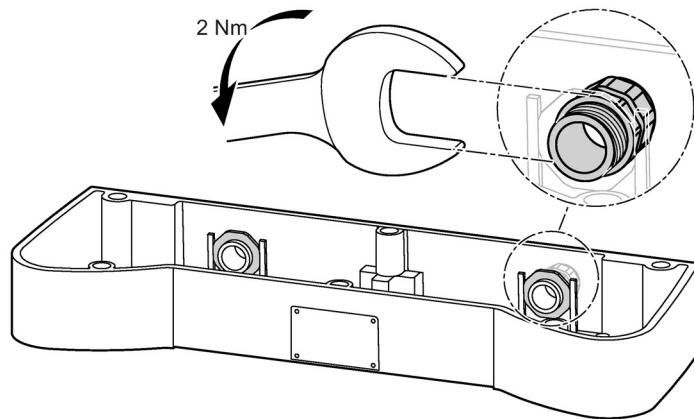
8.4.4.2 Mounting on stand
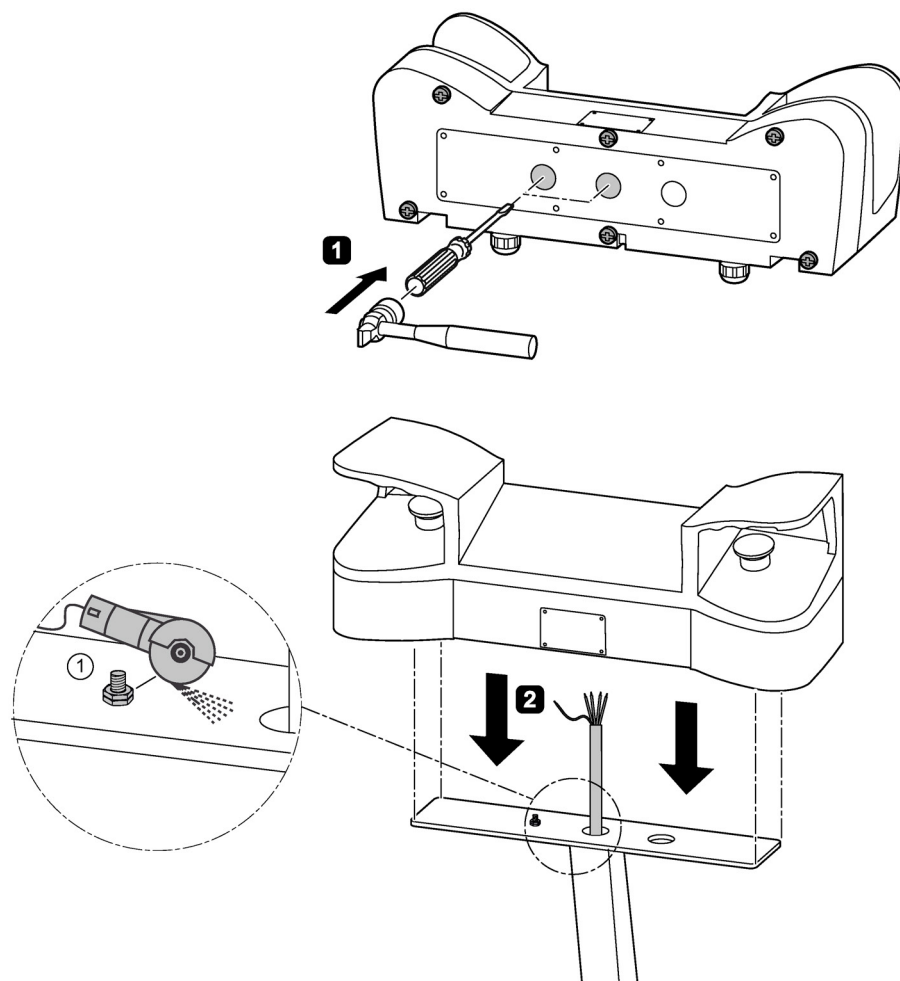
① When mounting the 3SU1803-3NB00-1AE1 plastic enclosure on the stand, the grounding stud on the stand must be removed.
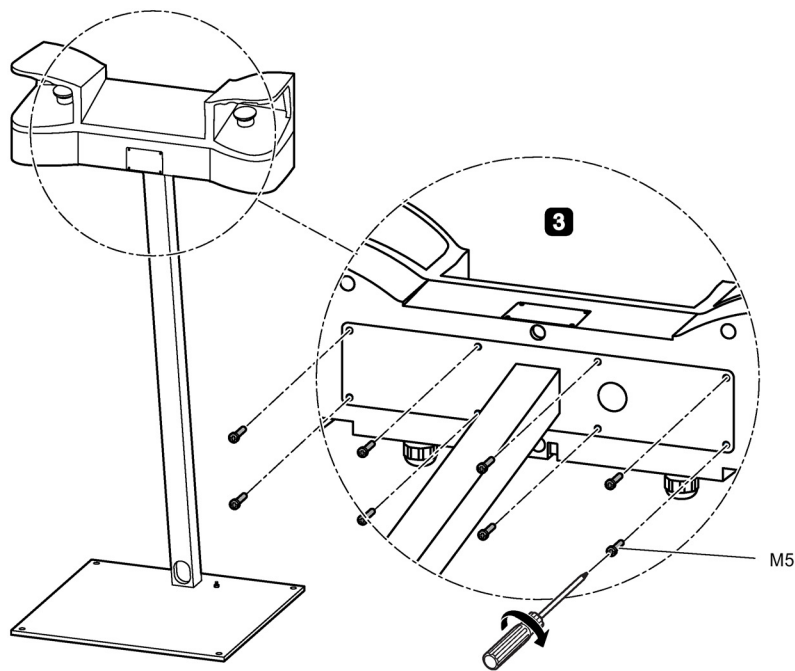
8.4.5 Equipment

The two-hand operation consoles are pre-equipped with 3SU1 pushbuttons. 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 fittings are:

- Two black mushroom pushbuttons, Ø 40 mm, 1 NO + 1 NC,
  Article No. 3SU1000-1BD10-0AA0 or 3SU1050-1BD10-0AA0

- One red EMERGENCY STOP mushroom pushbutton according to EN ISO 13850,
  Ø 40 mm, with positive latching, 2 NC,
  Article No. 3SU1000-1HB20-0AA0 or 3SU1050-1HB20-0AA0

An unequipped enclosure with 8 additional holes made of plastic is available, as is a metal enclosure with 4 additional holes.

Depending on customer requirements, up to 8 command points can be retrofitted in the plastic enclosure, and up to 4 command points in the metal enclosure. The surface of the console has premachined breaking points for this purpose.

AS-Interface 9

9.1 Application areas

With AS-Interface modules, distributed pushbuttons from the SIRIUS ACT range can be connected to the AS-Interface bus system. With the help of the modular system, you can assemble your own enclosures with integrated AS-Interface or flexibly modify existing enclosures.

AS-Interface modules are used as the basis or 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:

- AS-Interface modules for front plate mounting (Page 167)
- AS-Interface modules for base mounting (Page 168)
- AS-Interface enclosures with 1 to 3 command points (Page 169)

9.1.1 Application area of the AS-Interface modules

AS-Interface safety module (F slave)

Installed in a standard enclosure, the AS-Interface safety module is used for detecting safety-related switching statuses of one- or two-channel EMERGENCY STOP actuators with isolated contact elements. 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.
You can find help and support for calculating at: Safety Evaluation Tool (http://www.industry.siemens.com/topics/global/en/safety-integrated/machine-safety/safety-evaluation-tool/Pages/default.aspx)

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

Mounted in a 3SU1 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.

9.1.2 Application areas for AS-Interface modules for front plate mounting

The AS-Interface modules for front plate mounting are used to connect an EMERGENCY STOP device from the SIRIUS ACT series to the AS-Interface bus system according to ISO 13850. The modules for front plate mounting are suitable for pushbuttons with front plate mounting.

The AS-Interface modules for front plate mounting have a safe AS-Interface slave 2I and are snapped onto the holder from behind.

The expanded version 2I/1O includes an output for controlling a signaling element with LED.

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

With the modules for front plate mounting, applications up to SILCL 3 as per IEC 62061, SIL 3 as per IEC 61508 and PL e (Cat. 4) as per ISO 13849-1 can be implemented depending on the connection of evaluation device and actuators.

9.2 AS-Interface modules for front plate mounting

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. AS-Interface modules for front plate mounting are installed on the rear face of a holder.

For further information refer to Chapters "Holders (Page 41)" and "Installation (Page 89)"

AS-Interface EMERGENCY STOP according to ISO 13850

Via the standard AS-Interface with safety-related communication, EMERGENCY-STOP devices according to ISO 13850 can be directly connected using the AS-Interface modules.

AS-Interface modules, screw terminals + spring-loaded terminals

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI	—	2	—	3SU1400-1EA10-2AA0
2 F-DI + 1 LED	—	2	1 For controlling the LEDs	3SU1401-1EE20-2AA0
2 F-DI + 1 DO	—	2	1 Freely usable	3SU1400-1EC10-2AA0

AS-Interface modules, insulation piercing method

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI	—	2	—	3SU1400-1EA10-4AA0
2 F-DI + 1 LED	—	2	1 For controlling the LEDs	3SU1401-1EE20-4AA0

AS-Interface modules, spring-loaded terminals + insulation piercing method

3SU1400-1E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221528)

Slave type	Number of digital inputs		Number of digital out-puts	Article number
	Standard inputs	Fail-safe inputs		
2 F-DI + 1 DO	—	2	1 Freely usable	3SU1400-1EC10-4AA0

9.3 AS-Interface modules for base mounting

With AS-Interface modules, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communication system. The AS-Interface modules for base mounting are installed in 3SU18 enclosures.

AS-Interface modules, spring-loaded terminals
3SU1400-2E (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10251009)

	Slave type	Number of digital inputs		Number of digital outputs	Article number
		Standard inputs	Fail-safe inputs		
	4 DI / 4 DQ	4	—	4	3SU1400-2EK10-6AA0
	4 DI / 3 DQ AB	4	—	3	3SU1400-2EJ10-6AA0
	2F-DI	—	2	—	3SU1400-2EA10-6AA0
	2F-DI/1LED	—	2	1 For controlling the LEDs	3SU1401-2EE20-6AA0

9.4 Enclosure with standard equipment for AS-Interface

9.4.1 Overview of standard enclosures with AS-Interface

The enclosures with integrated AS-Interface are equipped with contact modules and LED modules with spring-loaded terminals from the SIRIUS ACT series as well as the slave(s) required for connecting the contact modules and LED modules to AS-Interface. Wiring is carried out at the factory. You only need to connect the enclosure to the ASi bus. For information, please refer to Chapter "Connecting (Page 180)".

Enclosures with standard fittings 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 actuating and signaling elements

● Metal enclosure with metal actuating and signaling elements

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

For enclosures with EMERGENCY STOP mushroom pushbuttons, two NC contact modules are mounted inside the enclosure and wired to the safe F slave. The contact or LED modules of the pushbuttons as well as the AS-Interface slaves are secured by base mounting and connected via 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 (round cable connection).

Plastic version 3SU180 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221524)				
No. of com-mand points	Fittings	Color of the actuating or signaling element	Label	Article number
1	EMERGENCY STOP mushroom pushbuttons	Red	---	3SU1801-0NB10-4HB2
2	Pushbuttons	Red	"O"	3SU1802-0AB10-4HB1
	Pushbuttons	Green	"I"	
	Pushbuttons	Black	"O"	3SU1802-0AC10-4HB1
	Pushbuttons	White	"I"	
3	Pushbuttons	Red	"O"	3SU1803-0AB10-4HB1
	Pushbuttons	Green	"I"	
	Indicator lights	Clear	"Without inscription"	

9.4.2 Equipping with AS-Interface slaves by the customer

Self-equipping of enclosures

The following slave types are available for connecting the actuating and signaling elements:

- AS-Interface A/B slave with 4 inputs and 3 outputs
- AS-Interface slave with 4 inputs and 4 outputs
- 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 possible	F slave[1]
2 command points	1 x slave 4I/4O or 4I/3O	1 x slave 4I/4O or 4I/3O
3 command points	2 x slave 4I/4O or 4I/3O	2 x slave 4I/4O or 4I/3O or 1x 4I/4O or 4I/3O + 1 x F slave
4 command points	3 x slave 4I/4O or 4I/3O	2 x slave 4I/4O or 4I/3O or 2 x 4I/4O or 4I/3O + 1 x F slave
6 command points	3 x slave 4I/4O or 4I/3O	3 x slave 4I/4O or 4I/3O or 2 x 4I/4O or 4I/3O + 1 x F slave

[1] With cutout only

9.5 Mounting

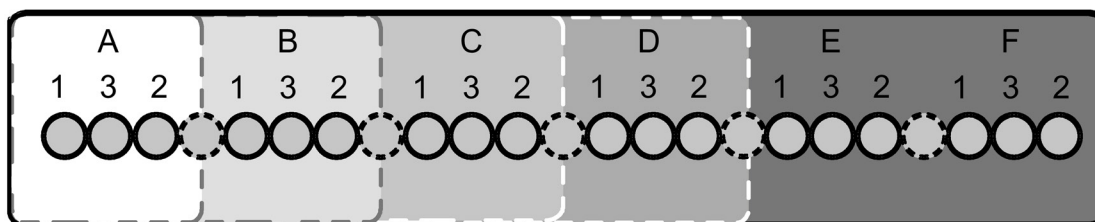## 9.5.1 Mounting ASIsafe modules and AS-Interface modules for base mounting

9.5.1.1 Mounting / installation positions

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

The lowest mounting position of an actuating or signaling element 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:

- Enclosures with 2 actuating or signaling elements ⇒ B
- Enclosures with 3 actuating or signaling elements ⇒ C
- Enclosures with 4 actuating or signaling elements ⇒ D
- Enclosures with 6 actuating or signaling elements ⇒ F

Contact modules can be mounted at the mounting positions 1 and/or 2 and/or 3, but LED modules only at mounting position 3.

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 1 command point $\Rightarrow$ A3
- 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 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.

> **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	A and B
	B and C
4	Always A and B except when an EMERGENCY STOP is mounted at A
6	A and B
	B and C
	D and E
	E and F

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
6	D and E

Example

An enclosure with 6 command points is to be equipped with 2 AS-i standard slaves and one 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 or F3.

You will find more examples in Chapter "Wiring examples (Page 197)".

9.5.1.2 Mounting position of AS-Interface modules

The following mounting positions are available for the AS-Interface slaves:
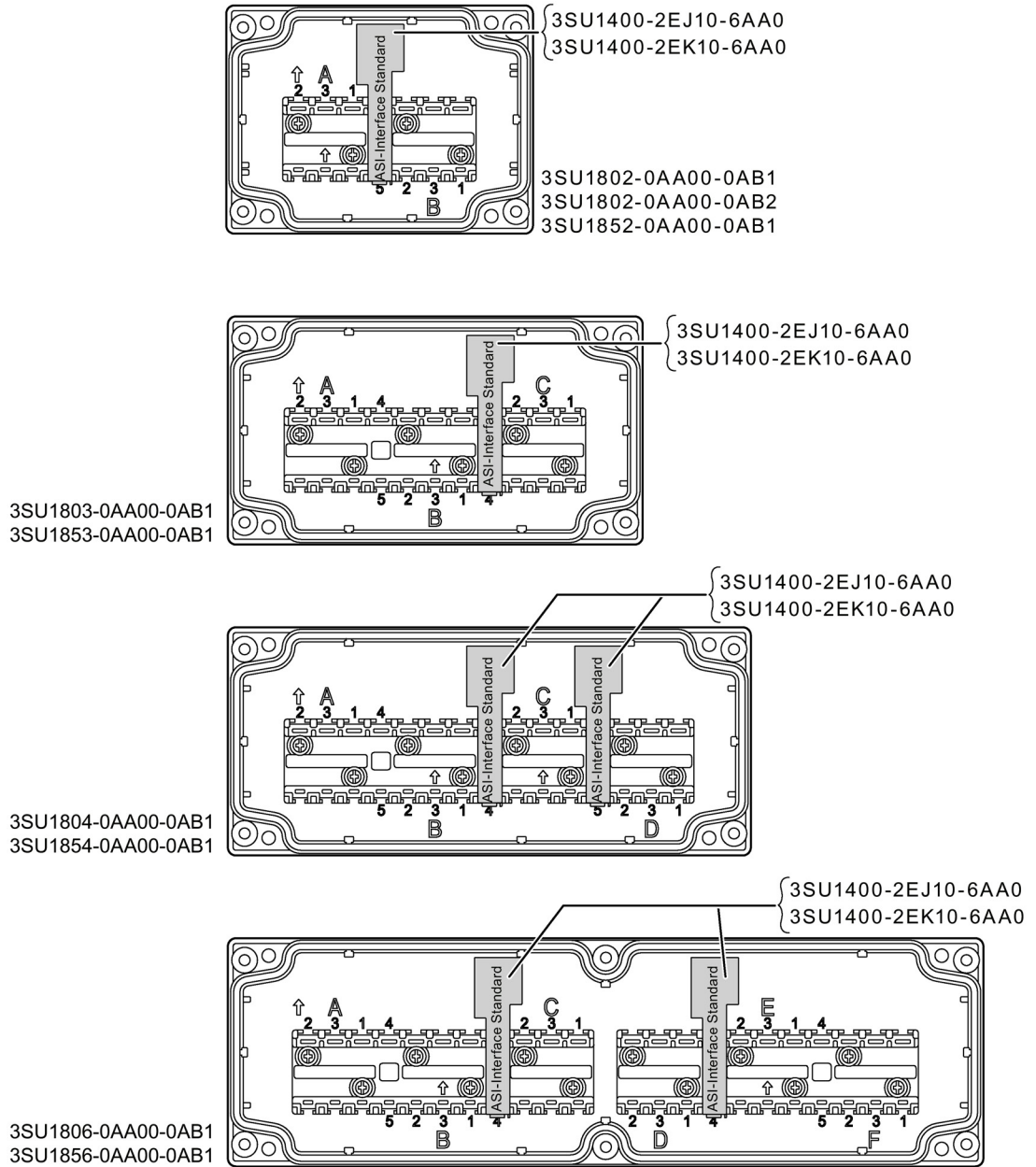
9.5.1.3 Mounting position of ASIsafe modules

The following mounting positions are available for the ASIsafe modules:

3SU1400-2EA10-6AA0
3SU1401-2EE20-6AA0

3SU1801-0AA00-0AB1
3SU1801-0AA00-0AB2
3SU1851-0AA00-0AB2

3SU1400-2EA10-6AA0
3SU1401-2EE20-6AA0

3SU1803-0AA00-0AB1
3SU1853-0AA00-0AB1

3SU1400-2EA10-6AA0
3SU1401-2EE20-6AA0

3SU1804-0AA00-0AB1
3SU1854-0AA00-0AB1

3SU1400-2EA10-6AA0
3SU1401-2EE20-6AA0

3SU1806-0AA00-0AB1
3SU1856-0AA00-0AB1

3SU1400-2EA10-6AA0
3SU1401-2EE20-6AA0

9.5.1.4 Mounting of the contact modules and ASIsafe modules

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

1. Snap the contact module onto the slot in the enclosure marked "1", "2" or "3".
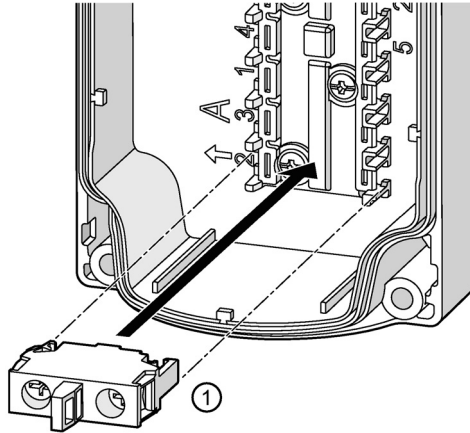
2. Insert the AS-i F slave (3SU1400-2EA10-6AA0) onto the slot marked with "3".
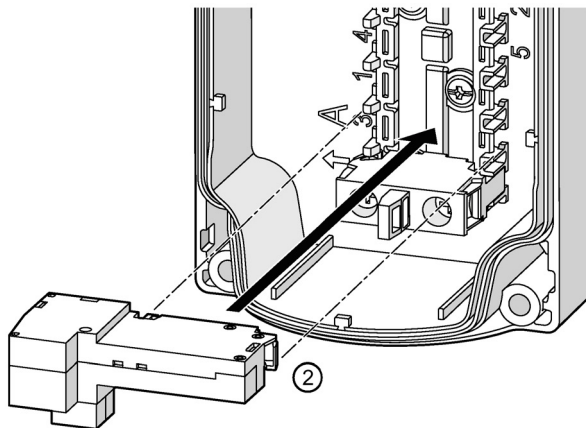
Note

Mounting position of the AS-Interface F slave

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

You can find information on the accessories in Chapter "Accessories (Page 231)".

9.5.2 Mounting and disassembly of the AS-Interface modules for front plate mounting

9.5.2.1 Mounting

Ø 22,4 mm
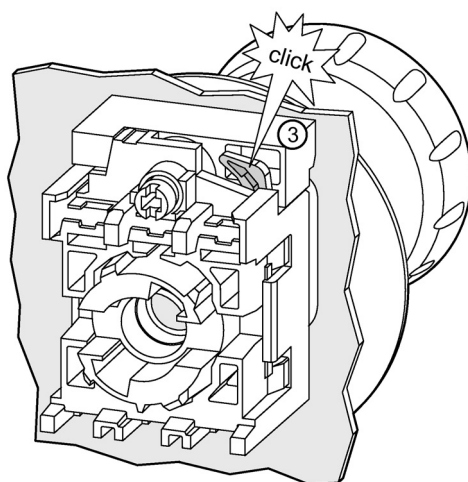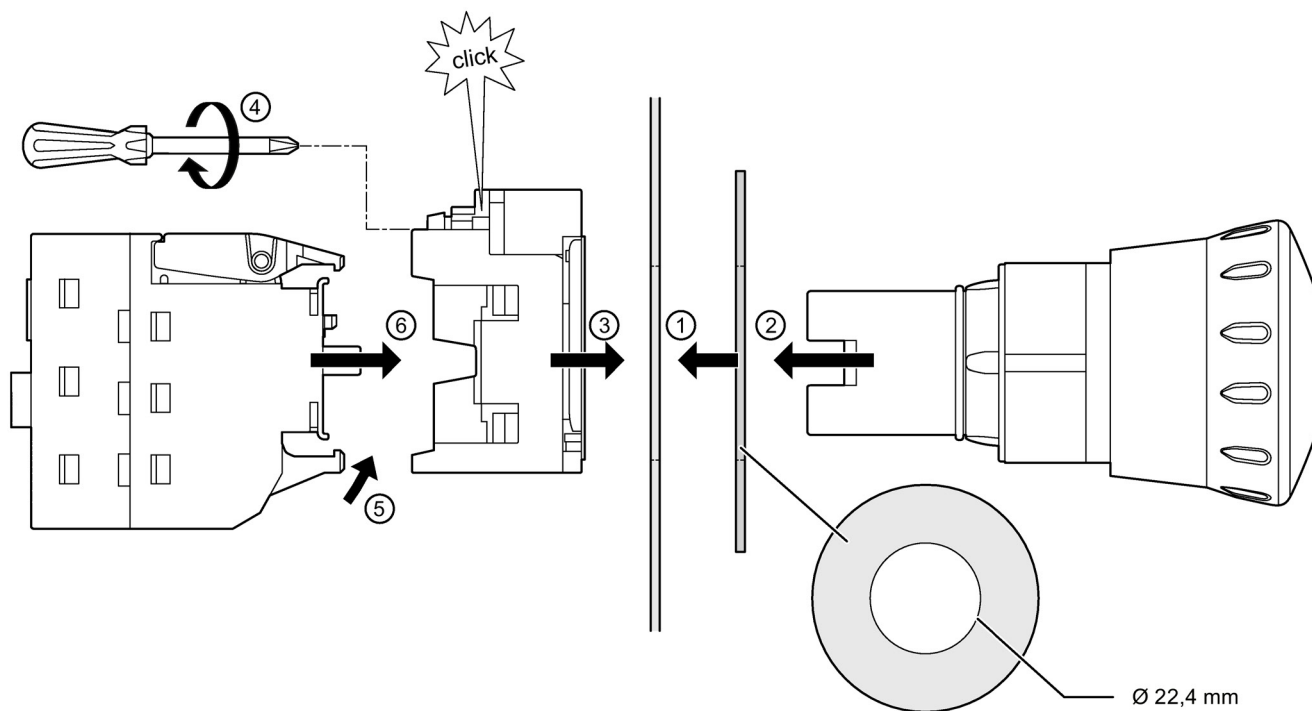
Procedure

①   Hold the EMERGENCY STOP backing plate onto the front plate.

②   Insert the EMERGENCY STOP mushroom pushbutton from the front through the opening of the EMERGENCY STOP backing plate and the front plate.

③   Fit the holder from behind. Ensure secure latching here.

④   Tighten the screw on the holder (tightening torque 1.0 to 1.2 Nm).

⑤ / ⑥ Snap the AS-i module for front plate mounting onto the back of the actuating element.
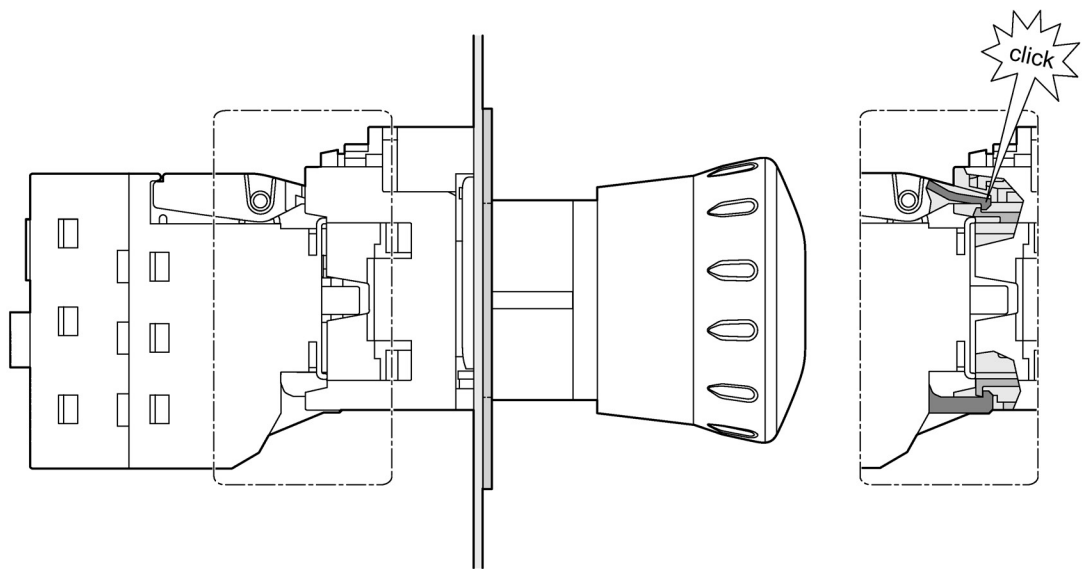
Ensure the AS-i module for front plate mounting is securely snapped into place.

9.5.2.2 Removal
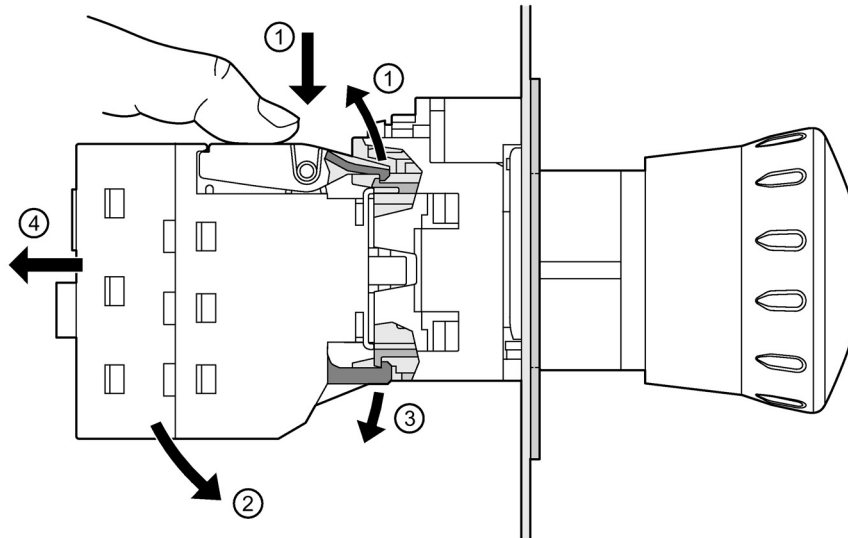
Procedure

①	Press the lever of the AS-i module for front plate mounting down. The AS-i module is unlatched.
②	Move the AS-i module down.
③	Unlatch the AS-i module.
④	Remove the AS-i module backwards from the holder.

9.6 Connecting

9.6.1 Connection with AS-Interface modules

Connection options

- Conventional connection with AS-Interface
- Safe connection using ASIsafe
- With 3SK1, 3RK3 safety relays
- Connection to distributed I/O ET 200SP, SIMATIC S7-1500

Safe communication via ASIsafe

Safety-related components can be integrated in AS-Interface by means of ASIsafe – up to PL e as per ISO 13849-1 or SIL 3 as per IEC 62061. Use the yellow AS-Interface cable to make this connection.

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.

9.6.2 Connecting the AS-Interface modules for front plate mounting

When connecting, note that the maximum cable length up to the first mounting support must be ≤ 100 mm.
Maximum current I_{max} = 8 A.
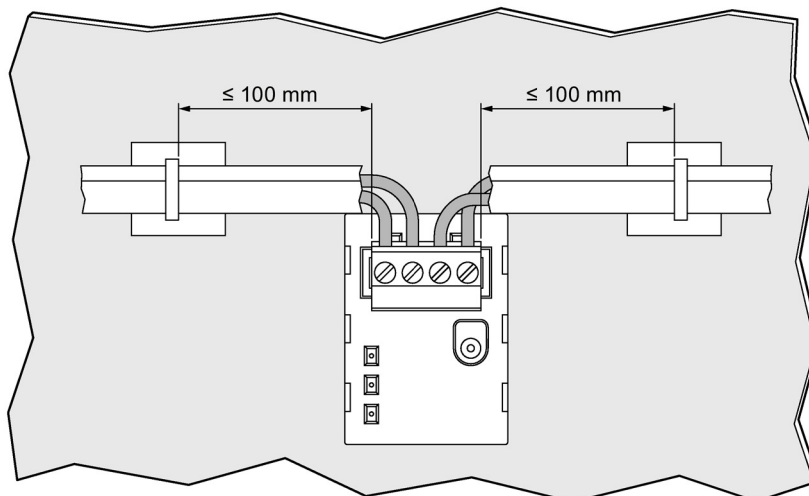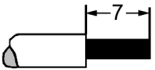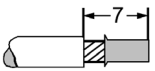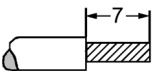
Screw terminal connection
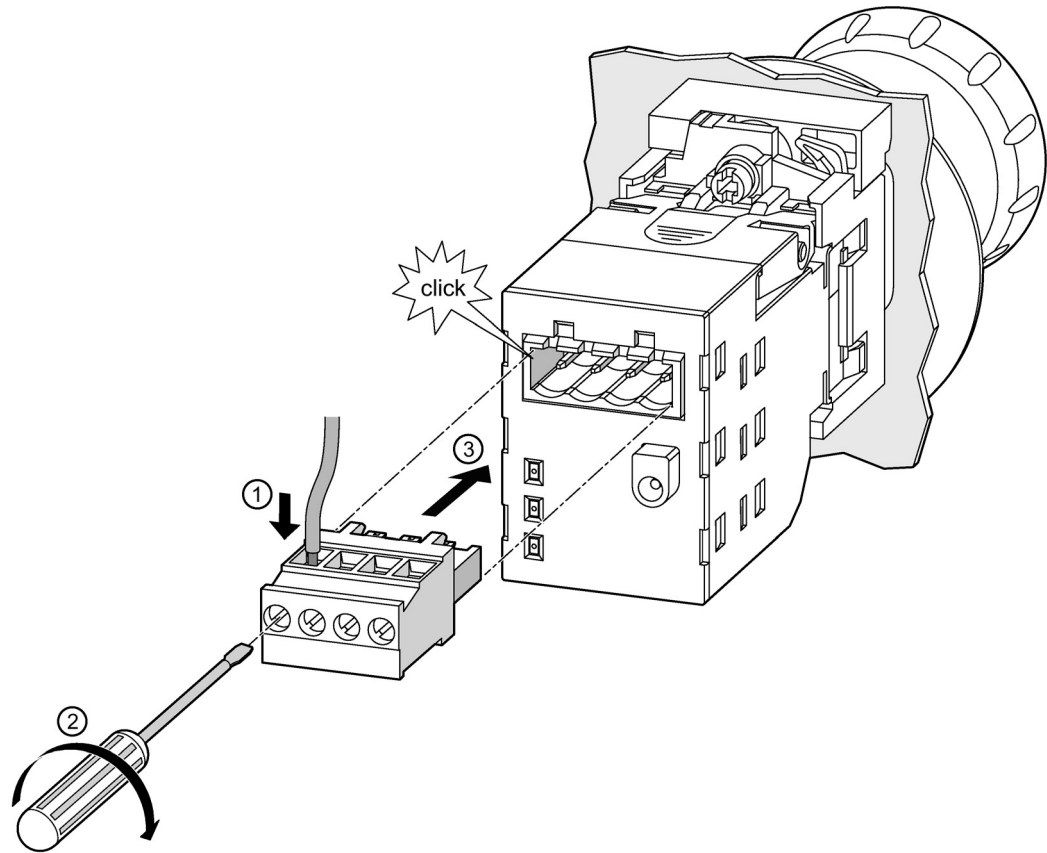
Procedure

①   Insert the connecting lead into the screw terminal

②   Tighten the screws (tightening torque 0.5 - 0.6 Nm)

③   Insert the screw terminal into the AS-i module for front plate mounting

Conductor cross-sections

Flat-blade screwdriver (∅ 3.5 mm x 0.6 mm)	0.5 ... 0.6 Nm 4.4 to 5.3 lb in
←7→	1 x 0.2 ... 2.5 mm² 2 x 0.2 ... 1.0 mm²
←7→	1 x 0.25 ... 2.5 mm² 2 x 0.25 ... 1.0 mm²
←7→	1 x 0.2 ... 2.5 mm² 2 x 0.2 ... 1.5 mm²
AWG	30 to 12
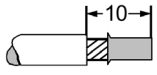
Spring-loaded terminal connection

Procedure

①	Insert a flat-blade screwdriver into the unlocking groove of the spring-loaded terminal
②	Insert the connecting lead into the spring-loaded terminal
③	Insert the spring-loaded terminal into the AS-i module for front plate mounting

Conductor cross-sections

Flat-blade screwdriver (⌀ 3.5 mm x 0.6 mm)	—
←10→	1 x 0.2 ... 2.5 mm²
←10→	1 x 0.25 ... 2.5 mm²
←10→	1 x 0.2 ... 2.5 mm²
AWG	26 to 12

AS-Interface connection using insulation piercing method
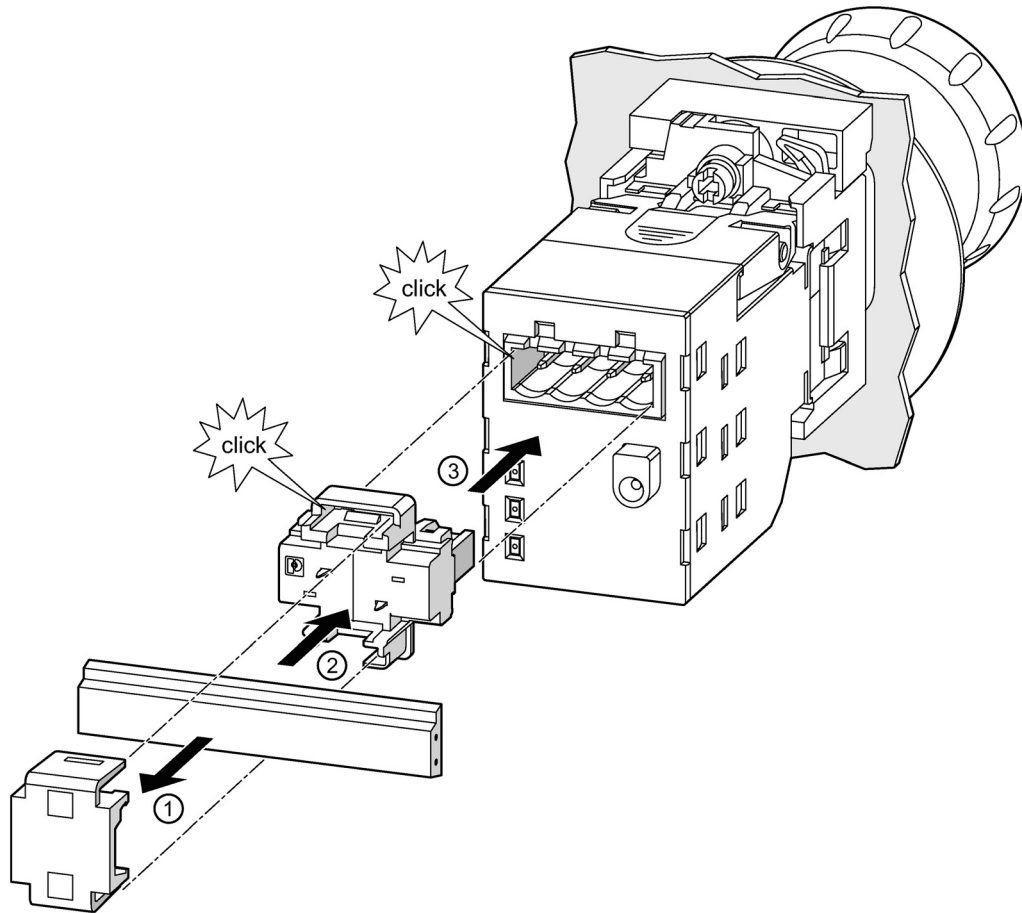
Procedure

①	Connect the AS-i shaped cable to the upper part of the adapter for AS-i shaped cable
②	Insert the upper part with the AS-i shaped cable into the adapter
③	Snap the adapter onto the male connector of the AS-i module for front plate mounting
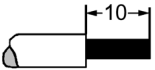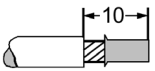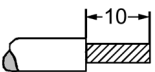
Plug connection

Procedure

①	Insert a flat-blade screwdriver into the unlocking groove of the spring-loaded terminal
②	Insert the connecting lead into the spring-loaded terminal
③	Insert the spring-loaded terminal into the AS-i module for front plate mounting

Conductor cross-sections

Flat-blade screwdriver (∅ 3.5 mm x 0.6 mm)	—
←10→	1 x 0.2 ... 1.5 mm²
←10→	1 x 0.25 ... 1.5 mm²
←10→	1 x 0.2 ... 1.5 mm²
AWG	24 to 16

$I_{out\ max}$	20 mA
U_{out}	18 V ... 24 V
L_{max}	≤ 100 mm

9.6.3   Connection option AS-Interface bus (AS-Interface modules for base mounting)

0,25 ... 1,5 mm²

1: AS-Interface +
2: –
3: AS-Interface -
4: –

3SU19.0-0HA10-0AA0
3SU19.0-0HB10-0AA0
3SU19.0-0HC10-0AA0
3SU19.0-0HD10-0AA0
3SU19.0-0HR10-0AA0
3SU19.0-0HV10-0AA0
3SU19.0-0HS10-0AA0
3SU19.0-0HW10-0AA0
3SU19.0-0HP10-0AA0
3SU19.0-0HT10-0AA0
3SU19.0-0HQ10-0AA0
3SU19.0-0HU10-0AA0

3SU1900-0HG10-0AA1
3SU1900-0HH10-0AA1
3SU1900-0HE10-0AA0
3SU1900-0HF10-0AA0
3SU1900-0HG10-0AA0
3SU1900-0HH10-0AA0

3SU1900-0HX10-0AA0
3SU1900-0HY10-0AA0

click

2 Nm

2 Nm

5 Nm

5 Nm

5 Nm

DIN ISO 2380-1 A/B 1,0 x 4,5 mm

Connection to AS-Interface bus connection element

3SU1900-0KD10-0AA0
3SU1900-0KE10-0AA0
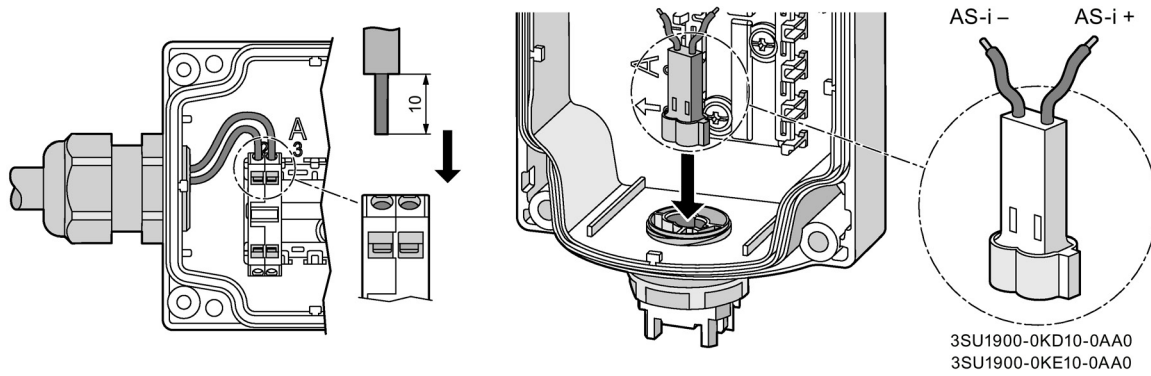
9.6.4 Terminal labeling and conductor cross sections (AS-Interface modules for base mounting)
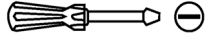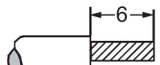
AS-Interface modules
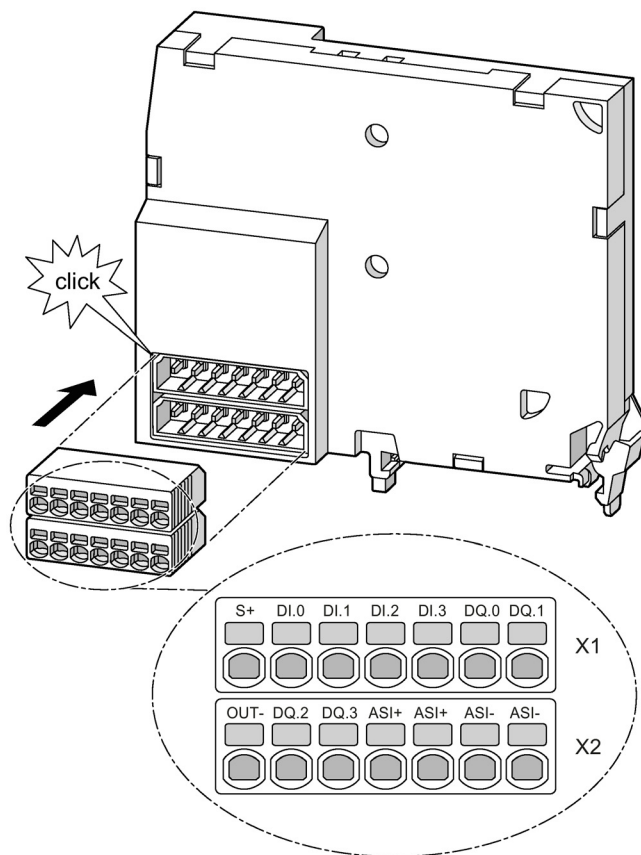
Terminal labeling 3SU1400-2EK10-6AA0				
Pin	X1		X2	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	DQ.3	Digital output
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

Terminal labeling 3SU1400-2EJ10-6AA0				
Pin	X1		X2	
1	S+	Sensor supply	OUT-	Ground
2	DI.0	Digital input	DQ.2	Digital output
3	DI.1	Digital input	—	—
4	DI.2	Digital input	ASI+	AS-i connection – positive polarity
5	DI.3	Digital input	ASI+	AS-i connection – positive polarity
6	DQ.0	Digital output	ASI-	AS-i connection – negative polarity
7	DQ.1	Digital output	ASI-	AS-i connection – negative polarity

Conductor cross-sections (3SU1400-2EK10-6AA0 and 3SU1400-2EJ10-6AA0)

SZM (∅ 2.0 mm x 0.4 mm)	—
←6→	1 x 0.14 ... 0.5 mm²
←6→	1 x 0.2 ... 0.5 mm²
AWG	26 to 20
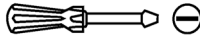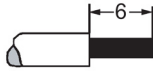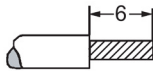
AS-Interface modules with fail-safe digital inputs
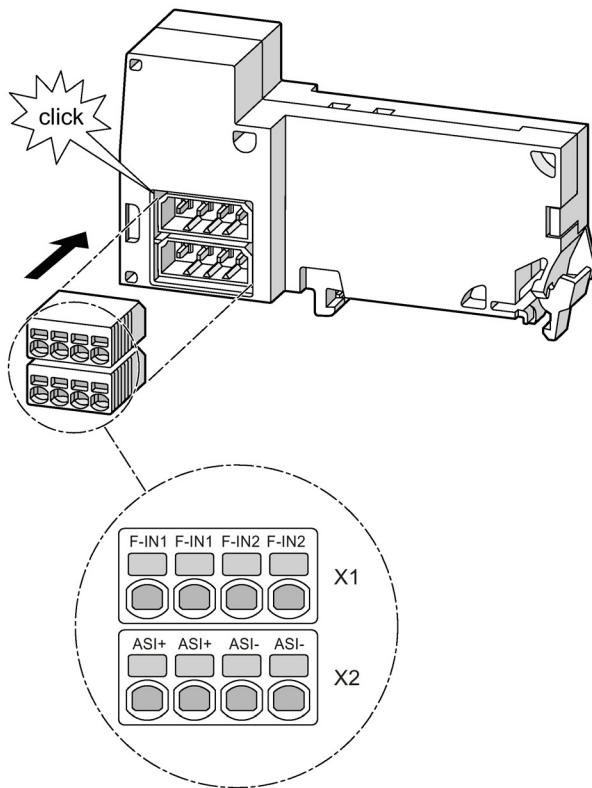
Terminal labeling 3SU1400-2EA10-6AA0				
Pin	X1		X2	
1	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
2	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
3	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity
4	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity

Terminal labeling 3SU1401-2EE20-6AA0				
Pin	X1		X2	
1	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
2	F-IN1	Fail-safe digital input	ASI+	AS-i connection – positive polarity
3	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity
4	F-IN2	Fail-safe digital input	ASI-	AS-i connection – negative polarity

Conductor cross-sections (3SU1400-2EA10-6AA0 and 3SU1401-2EE20-6AA0)

SZM ($\varnothing$ 2.0 mm x 0.4 mm)	—
←6→	1 x 0.14 ... 0.5 mm²
←6→	1 x 0.2 ... 0.5 mm²
AWG	26 to 20

9.7 Configuring the AS-Interface

9.7.1 Setting the AS-i address

Operation of the addressing unit is described in the operating instructions of the AS-Interface addressing unit (article number of the operating instructions: 3ZX1012-0RK10-4AB1).

Unique addressing

In the factory setting, a module for AS-Interface has the address 0. It is detected by the master as a new slave that has not yet been addressed and, in this state, has not yet been integrated into standard communication/data exchange. The modules for AS-Interface are A/B slaves in accordance with AS-i spec. 2.1.

To enable data to be exchanged between the master and slaves, you have to assign a **unique** address for each slave (i.e. each slave address must be different) when commissioning the AS-Interface network.

You can select any address in the address range 1A to 31A and 1B to 31B.

Addresses can also be assigned once the devices have been installed.

Addressing the slaves

You can set the slave address in different ways:

- Offline with the addressing unit via the addressing socket or at the AS-i connection. Recommended when assigning addresses for the entire system. The direct connection between the slave and addressing unit ensures that the slave modules are not mixed up.

- Online by the AS-i master and in the PLC configuration software. Recommended for assigning addresses to individual slaves if an addressing unit is not available. Before assigning addresses, you must ensure that each address exists only once in the AS-i network, that is, several new, additional modules (with address 0 in as-delivered condition) must not be connected to the AS-i cable.

You can also find further information in the AS-Interface system manual (http://support.automation.siemens.com/WW/view/en/26250840).

> ⚠ **CAUTION**
>
> **Follow-on switching operations after addressing**
>
> As soon as you have assigned a valid address, the master can start cyclic data communication, that is, outputs can be set or inputs read that result in follow-up switching operations.
>
> Make sure that you take appropriate measures to exclude the risk of hazardous conditions. Disconnect the AS-i voltage, for example.

Offlline addressing with the addressing unit

Procedure

1. Connect the module to the addressing unit 3RK1904-2AB02.

2. Assign an address to the module:

   – Switch the selector switch to **ADDR.**

   – Press ↵. The address of the connected module is read and displayed.

   – Select the address with ⬇ ⬆.

   Transfer the address to the module with ↵.

3. Remove the addressing cable.

9.7.2   Addressing the AS-Interface modules for front plate mounting
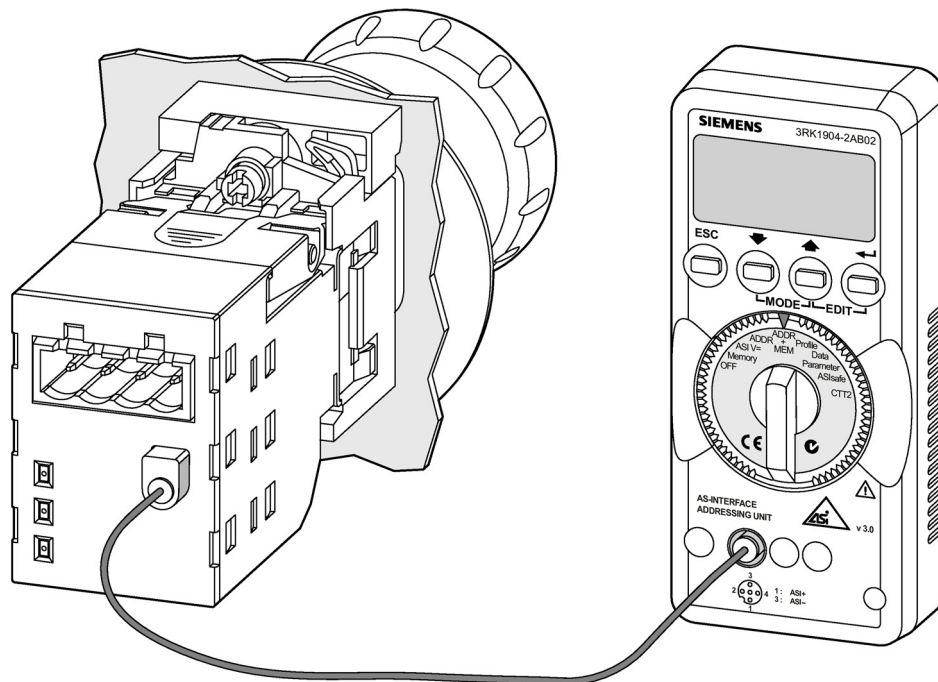
To address the AS-Interface modules for front plate mounting, connect the 3RK1904-2AB02 AS-Interface addressing unit.

3SU1400-1EC10-.AA0 / 3SU1400-1EE20-.AA0 and 3SU1400-1EA10-.AA0 AS-Interface modules with fail-safe digital inputs

Technical data		
	3SU1400-1EC10-.AA0 **3SU1400-1EE20-.AA0**	**3SU1400-1EA10-.AA0**
I_e	< 60 mA	
U_e	26.5 V ... 31.6 V SELV / PELV	
PL	e	
Cat.	4	
SILCL	3	
PFH [1/h]	< 4.5 x 10^{-9} [1/h]	
PFD_{avg}	< 5.0 x 10^{-6}	
SFF	> 99 %	
DC_{avg}	> 99 %	
AS-i slave profile IO / ID / ID2 (HEX)	7 / B / F	0 / B / F
ID1 code (HEX)	1 ... F	1 ... F

9.7.3 Addressing the AS-Interface modules for base mounting
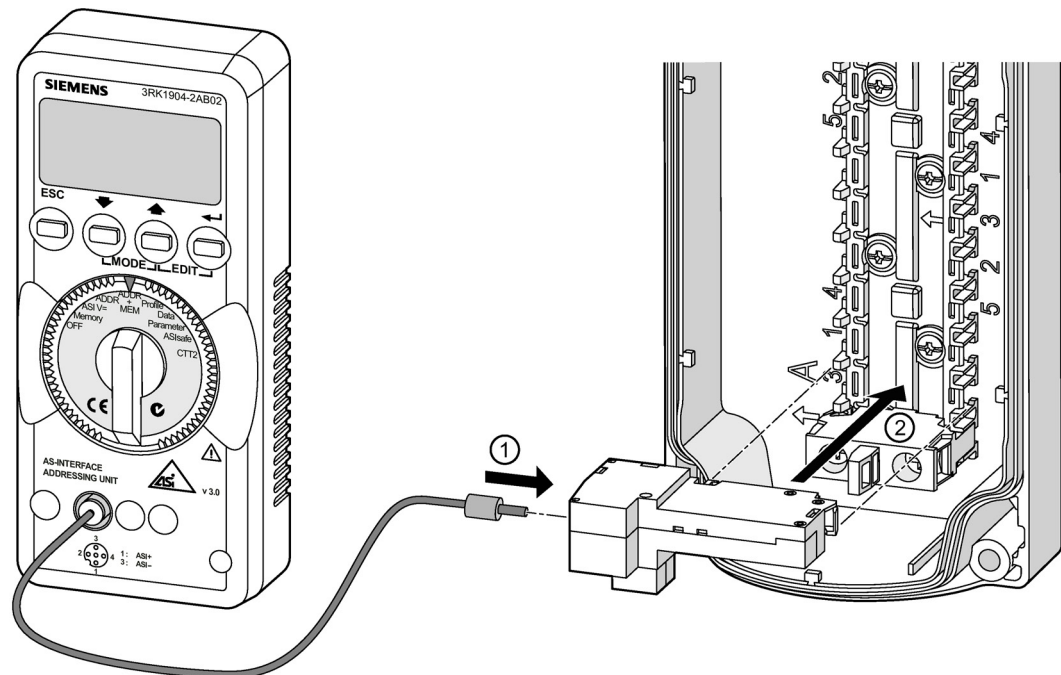
To address the AS-Interface modules for base mounting, connect the 3RK1904-2AB02 AS-Interface addressing unit.

3SU1400-2EK10-6AA0 **and** 3SU1400-2EJ10-6AA0 **AS-Interface modules**

Technical data		
	3SU1400-2EK10-6AA0	3SU1400-2EJ10-6AA0
I_e	< 260 mA	
U_e	18.0 V ... 31.6 V	
AS-i slave profile IO / ID / ID2 (HEX)	7 / 0 / E	7 / A / E
ID1 code (HEX)	1 ... F	1 ... F

3SU1401-2EE20-6AA0 and 3SU1400-2EA10-6AA0 AS-Interface modules with fail-safe digital inputs

Technical data		
	3SU1400-2EA10-6AA0	**3SU1401-2EE20-6AA0**
I_e	< 60 mA	
U_e	18.0 V ... 31.6 V	
PL	e	
Cat.	4	
SILCL	3	
PFH [1/h]	< 4.8 x 10^{-9} [1/h]	
PFD_{avg}	< 5.0 x 10^{-6}	
SFF	> 99 %	
DC_{avg}	> 99 %	
AS-i slave profile IO / ID / ID2 (HEX)	0 / B / F	7 / B / 0
ID1 code (HEX)	1 ... F	1 ... F

9.8 Wiring examples

AS-i enclosure with one command point with one AS-i F slave, wired to left
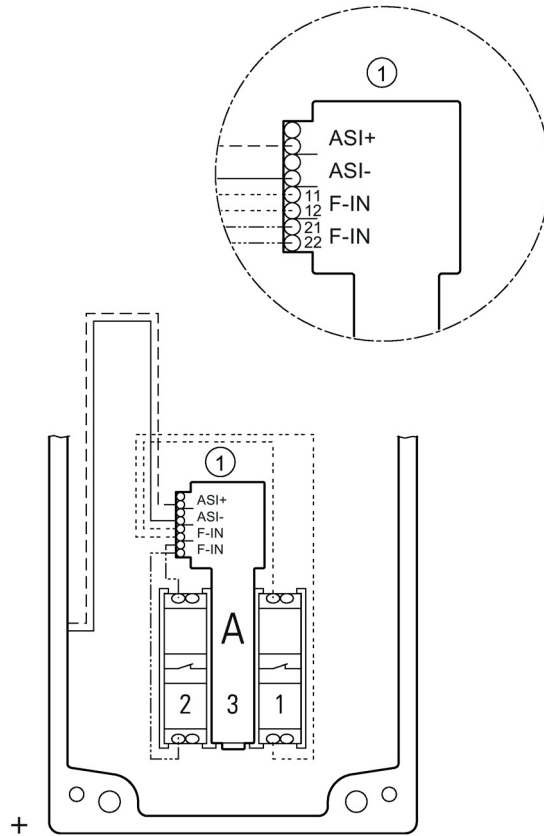
AS-i enclosure with two command points with EMERGENCY STOP, wired to right
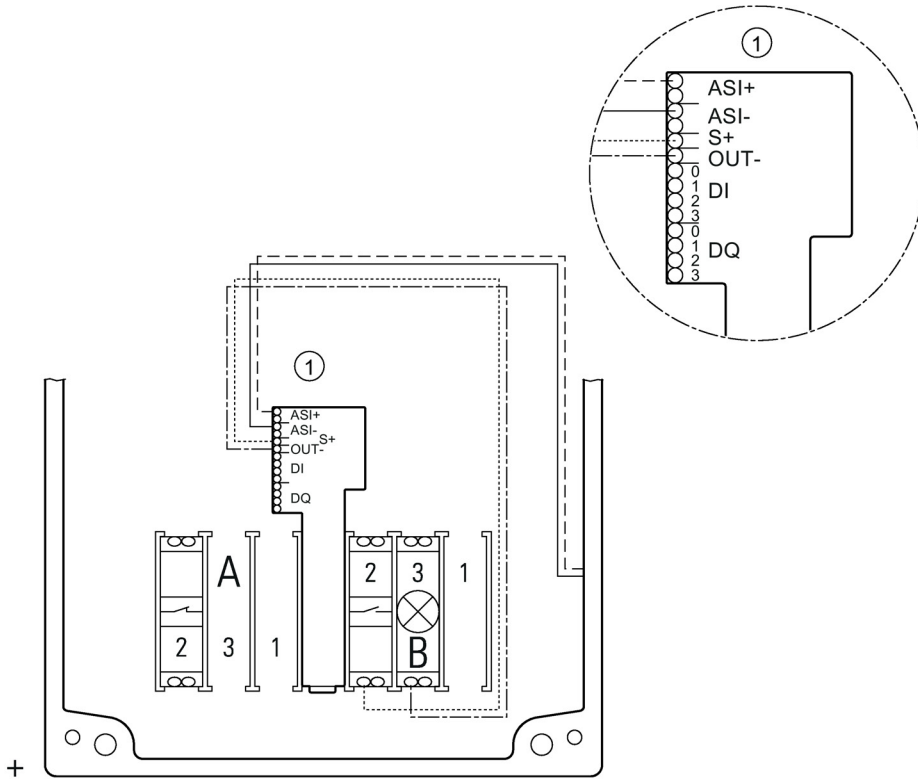
Note

Position of EMERGENCY STOP

If the EMERGENCY STOP is mounted in position B3, the wiring must be to the left.

AS-i enclosure with three command points with one AS-i F slave in C, wired to left
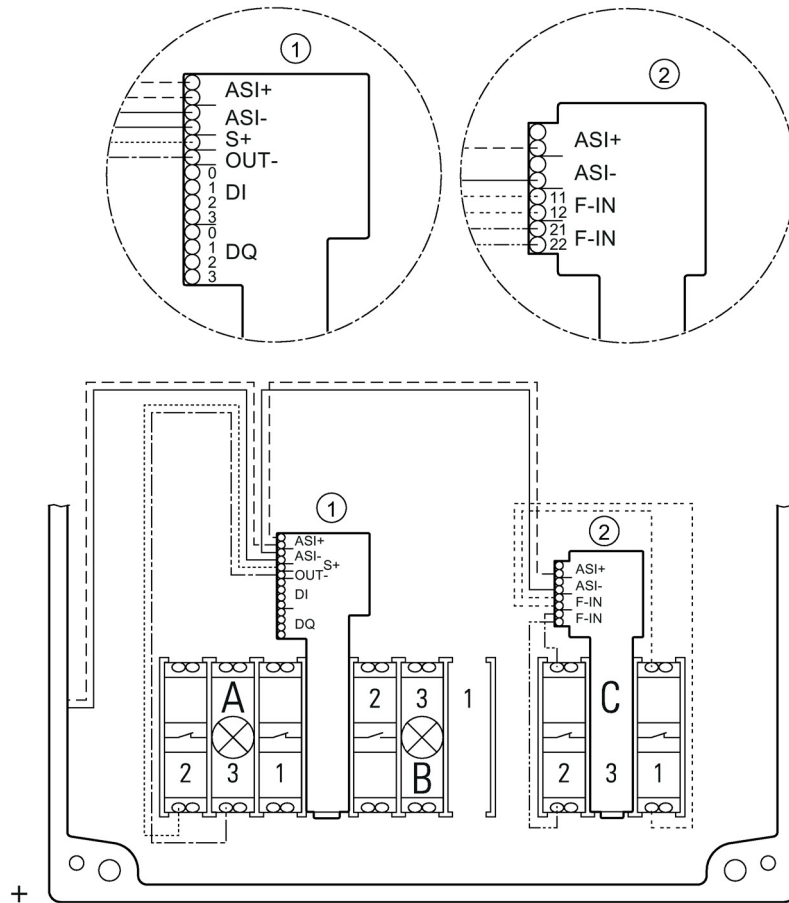
AS-i enclosure with four command points with EMERGENCY STOP in D, wired to right

AS-i enclosure with four command points with one AS-i F slave in C, wired to left
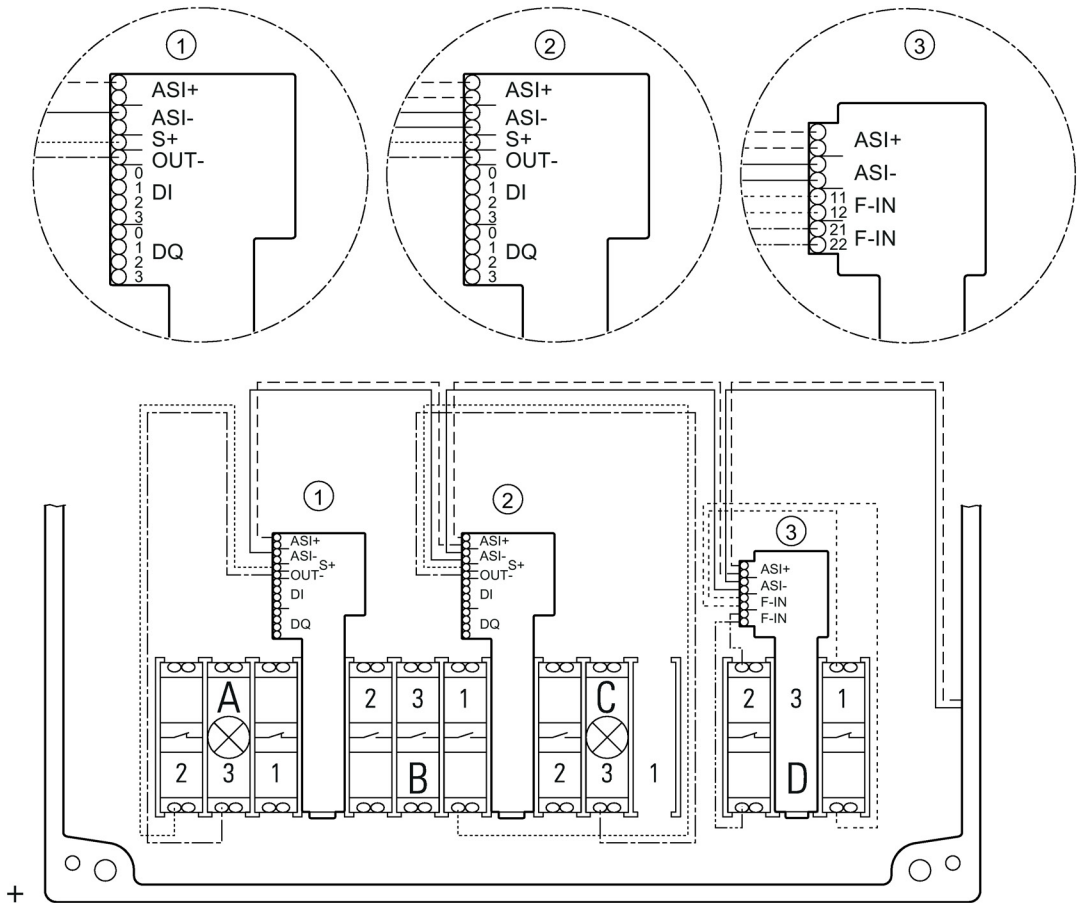
AS-i enclosure with six command points with EMERGENCY STOP in F, wired to right
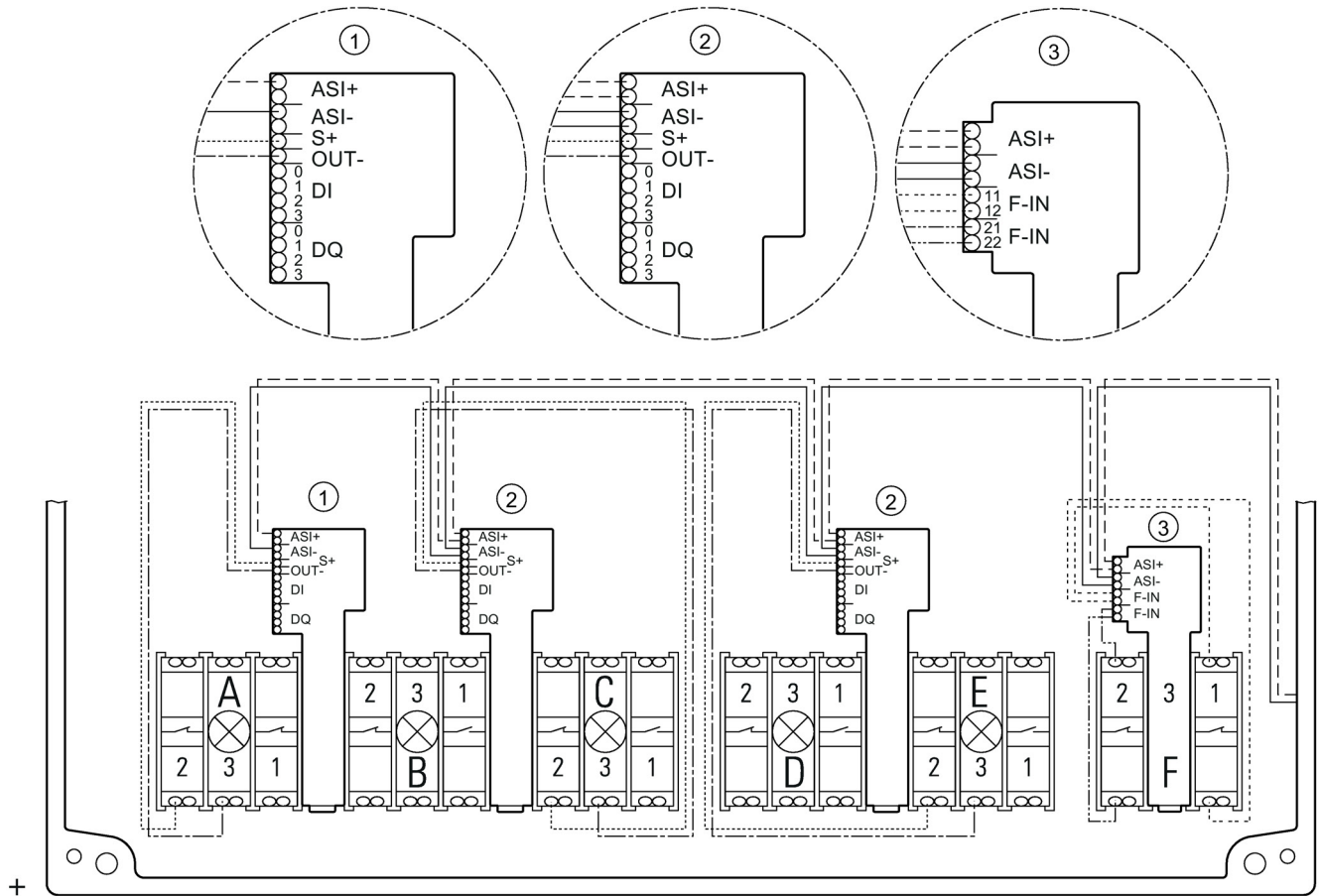
AS-i enclosure with six command points with one AS-i F slave in E, wired to left
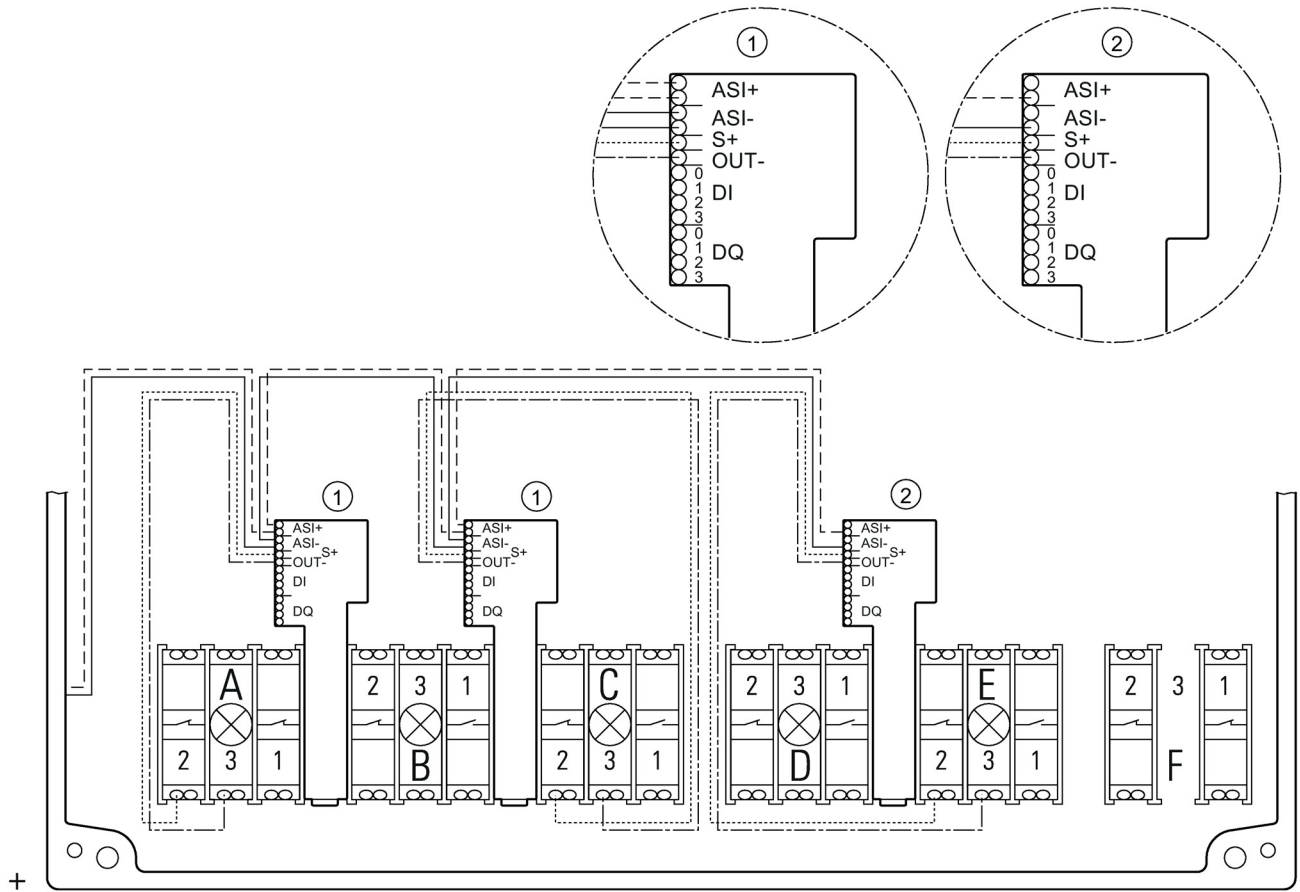
IO-Link 10

10.1 Configuring the IO-Link

10.1.1 Combinations

IO-Link master and IO-Link device combinations are shown in the following table.

	IO-Link device...	
IO-Link master...	**... according to IO-Link communication specification V1.0**	**... according to IO-Link communication specification V1.1**
...according to IO-Link communication specification V1.0	Operation according to specification V1.0	Operation according to specification V1.0
...according to IO-Link communication specification V1.1	Operation according to specification V1.0	**Operation according to specification V1.1[1]**

[1] By selection of IODD V1.0.1, the device can be operated according to IO-Link communication specification V1.0.

Differences between IO-Link communication specifications V1.0 and V1.1

- Usable IO-Link message frame length (not relevant)
- Application-specific name: V1.0: 64 bytes max./V1.1: 32 bytes max.
- IO-Link device LED: V1.0: green/V1.1: Green blinking
- Parameter server functionality: V1.0: not available/V1.1: available

10.1.2 Configuring with STEP 7 and the S7-PCT Port Configuration Tool

10.1.2.1 Basic procedure and prerequisites

Procedure when configuring IO-Link master and IO-Link devices

Configuration takes place in two steps with STEP 7, V5.4 SP5 or STEP 7 TIA Portal, V12.0 or higher:

1. Configuring the IO-Link master in *HW Config*. You will find IO-Link master on the Internet (http://www.siemens.com/industrymall) under "Automation" > "Industrial communication" > "IO-Link" > "Master".

2. With the Port Configuraton Tool *S7-PCT* , you configure the connected IO-Link devices.

Note

An application example facilitates connection of IO-Link devices using a block library, and demonstrates the use of the block library using specific examples. You will find the application example on the Internet (http://support.automation.siemens.com/WW/view/en/90529409).

Requirements

- STEP 7 V5.4 SP5 or higher (you can download Service Pack 5 from the Internet (http://support.automation.siemens.com/WW/view/en/36184684)) or STEP 7 TIA Portal V12.0 or higher.

- The Port Configuration Tool *S7-PCT* is installed on the PG/PC.
  You can either install *S7-PCT* together with or STEP 7 or you can download it from the Internet (http://support.automation.siemens.com/WW/view/en/37936752).

- IO-Link IODD files (IO Device Description) are installed in the *S7-PCT hardware catalog*. You can download all current IODD files for the SIRIUS devices from the Internet (https://support.industry.siemens.com/cs/#products?search=IODD&o=DefaultRankingDesc&lc=en-WW).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the IO-Link communication specification V1.0 when replacing devices in existing installations.

- The GSD files of the IO-Link masters are already installed in *STEP 7 HW Config*. You can download all current GSD files for the Siemens IO-Link masters from the Internet (http://www.siemens.com/comdec).

- Optional: Install the IOL_Call function block for backing up/restoring IO-Link master parameters, IO-Link device parameters, parameterizing IO-Link devices during operation and reading out IO-Link port functions.
  The IOL_Call function block is available on the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

You will find further information on the IOL_Call function block in Section "Acyclic data exchange with the IOL_CALL function block (Page 209)".

10.1.2.2 Configuration

Configuring the IO-Link master in *HW Config*

1. Start the SIMATIC Manager (*STEP 7*) or the TIA Portal and configure the project as described in the *STEP 7* online help.

2. Select the IO-Link master in the hardware catalog of *HW Config*.

3. Drag and drop the IO-Link master from the hardware catalog to the configuration table.

4. Select the IO-Link master in the configuration table (*STEP 7*)/ device view (TIA Portal).

5. Press the right mouse button and select **"Object Properties"** from the shortcut menu.
   Result: The **"Properties"** window of the IO-Link master opens.

6. Check the settings of the addresses.
   Every IO-Link master port needs a corresponding overall address range depending on the IO-Link device used.

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Select the configured IO-Link master.

2. Press the right mouse button and select **"Start device tool"** (*STEP 7* or TIA Portal)/**"Configure IO-Link"** (*STEP 7* or TIA Portal) from the shortcut menu depending on the configuration tool used.

3. Select the IO-Link device in the component catalog of the S7-PCT port configuration tool.

4. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.

5. Start by parameterizing the IO-Link device.
   Additional information is available in the *S7-PCT* online help.

10.1.3 Configuring with the S7-PCT Stand Alone Port Configuration Tool

10.1.3.1 Application

Configuration is always done with the S7-PCT port configuration tool whenever no SIMATIC CPU is available.

10.1.3.2 Basic procedure and prerequisites

Basic procedure when configuring IO-Link master and IO-Link devices with the S7-PCT Port Configuration Tool (stand-alone)

1. You configure the connected IO-Link devices with the *S7-PCT* Port Configuration Tool.

Requirements

- The *S7-PCT* Port Configuration Tool is installed on the PG/PC.

  You can either install *S7-PCT* together with STEP 7 V5.4 SP5 or higher or STEP 7 TIA Portal V12.0 or higher, or you can download it from the Internet (http://support.automation.siemens.com/WW/view/en/37936752).

- IO-Link IODD files (IO Device Description) are installed in the *S7-PCT* hardware catalog. All current IODD files of the SIRIUS devices are available on the Internet (https://support.industry.siemens.com/cs/#products?search=IODD&o=DefaultRankingDesc&lc=en-WW).
  IODD files for V1.0 and V1.1 are available for the combination of an IO-Link master and an IO-Link device according to the IO-Link communication specification V1.1. You may need IODD files according to the communication specification V1.0 when replacing devices in existing installations.

Note

Configuring with S7-PCT stand-alone is not possible for the CPU versions of the ET 200.

10.1.3.3 Configuration

Configuring the IO-Link device with the S7-PCT port configuration tool

1. Start the *S7-PCT* port configuration tool.

2. Create a new project or open an existing project as described in the online help.

3. Select a bus category (PROFIBUS DP/PROFINET IO).

4. Select an IO-Link master.

5. Select the IO-Link device in the component catalog of the *S7-PCT* port configuration tool.

6. Drag the IO-Link device out of the component catalog to the required port of the IO-Link master.

7. Load the configuration into the IO-Link master before parameterizing the IO-Link device.

8. Start by parameterizing the IO-Link device.
   Additional information is available in the *S7-PCT* online help.

Note

To be able to access the IO-Link master or an IO-Link device online, communication between the ET 200 and the higher-level controller must be active (BF LED on ET 200 interface module is off).

10.1.4 Acyclic data exchange with the IOL_CALL function block

For acyclic data exchange, the "IOL_Call" function block is available as a download for controllers of the S7 families.

The block supports you in the following tasks:

- Parameterization of an IO-Link device during operation

- Executing IO-Link port functions

- Backing up/restoring IO-Link device parameters

- Backing up/restoring IO-Link master parameters

Requirements

- Install the "IOL_Call" function block.
  You can download the IOL_Call function block and the description from the Internet (https://support.industry.siemens.com/cs/ww/en/view/82981502).

Procedure when using the IOL_Call function block

1. Copy the IOL_Call function block (including data block DB10) to a *STEP 7* project.

2. Use the IOL_Call function block as described in the documentation.

3. You will find an application example of how to use the IO-Link devices with the IOL_Call function block on the Internet (http://support.automation.siemens.com/WW/view/en/90529409).

10.1.5 Replacing an IO-Link device

10.1.5.1 Introduction

To replace an IO-Link device, the devices must be isolated from communication and disconnected from the power supply. After the connections have been restored and communication has been resumed, the parameterization can be restored according to the respective IO-Link communication specification:

- IO-Link communication specification V1.0: via the IOL_Call function block

- IO-Link communication specification V1.1: via automatic parameterization under the ET 200SP, ET 200AL, S7-1200

10.1.5.2 Replacing an IO-Link device (according to IO-Link specification V1.0)

Procedure

When replacing an IO-Link device, the plug-in connection to the IO-Link port can be removed without isolating the control voltage supply.

Parameter data and configuration data specially optimized by the user for a specific application are stored in an IO-Link device This data deviates in many cases from the default values stored in the IO-Link device.

In the event of replacement of an IO-Link device (referred to below as a "module"), the optimized data must be transferred to the new module because the parameters are stored only in the IO-Link device itself.

Data can be transferred via two channels:

- Module replacement with PG/PC

- Module replacement without PG/PC

Procedure with PG/PC

In the event of a replacement, a PG/PC is available with the SIMATIC project of the plant.

With the data stored in the SIMATIC project, and the *S7-PCT* port configuration tool, you transfer the parameters belonging to the replaced IO-Link-Device to the new IO-Link-Device.

Procedure without PG/PC

Requirements

- Install the "IOL_Call" function block.
  You can download the IOL_Call function block and the description from the Internet
  (https://support.industry.siemens.com/cs/ww/en/view/82981502).

On completion of commissioning, a PG/PC with the project is no longer available. For backing up and restoring the parameter data and configuration data from or to a module, the IOL_Call" function block is available for the SIMATIC controllers belonging to the S7 family.

With this function block, you back up all relevant data records of a module after commissioning, in a data block (DB), for example. In the event of a replacement, you write the relevant data from the data block to the replaced module with the IOL_Call function block.

Refer to the Appendix "Process data and data sets (Page 275)" for data records to be backed up in the case of a module.

Procedure

1. Copy the IOL_Call function block (including data block DB10) to a STEP 7 project.

2. Use the IOL_Call function block as described in the documentation.

3. You will find an application example of how to use the IO-Link devices with the IOL_Call function block on the Internet
   (http://support.automation.siemens.com/WW/view/en/90529409).

Note

An IO-Link device is a module that communicates with the IO-Link master via its communication connection.

10.1.5.3 Replacing an IO-Link Device (according to IO-Link specification V1.1)

Automatic saving of parameter data

If IO-Link masters and IO-Link devices according to the IO-Link Communication Specification V1.1 are available, the "parameter server" function can be used to automatically back up parameter data.
When devices are replaced, this parameter data is written back to the new IO-Link device automatically on system startup.

10.2 Design of a command point with ID key-operated switch

10.2.1 Design of a command point with ID key-operated switch

Command point with ID key-operated switch on front plate

A modular command point with ID key-operated switch on a front plate consists of the following elements:
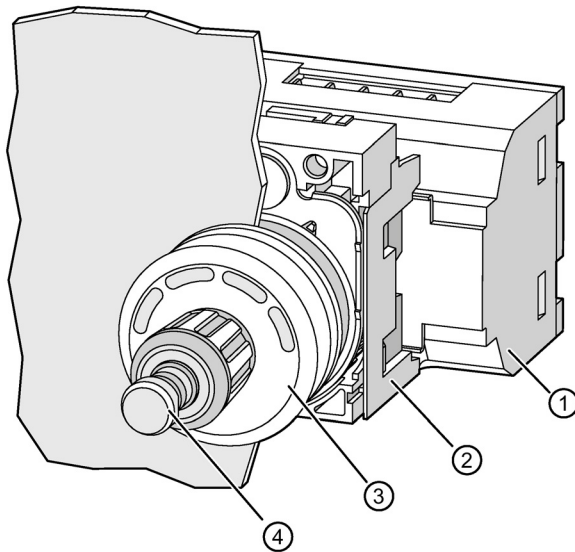
①   Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 142)
②   3-slot holder 3SU1500-0AA10-0AA0 (Page 41) for securing behind the control panel
③   ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 78) in front of the control panel
④   ID key 3SU1900-0Fxy0-0AA0 (Page 260)

Note

The minimum clearance between two command points when mounted on the front plate is 10 cm.

Command point with ID key-operated switch in an enclosure

A modular command point with ID key-operated switch in an enclosure consists of the following elements:
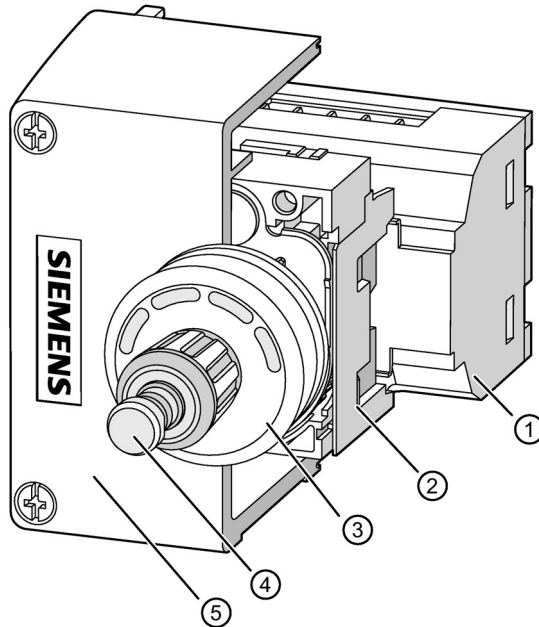
①   Electronic module for ID key-operated switches 3SU1400-1Gx10-1AA0 (Page 142)

②   3-slot holder 3SU1500-0AA10-0AA0 (Page 41) for securing in the enclosure

③   ID key-operated switch 3SU10x0-4WS10-0AA0 (Page 78)

④   ID key 3SU1900-0Fxy0-0AA0 (Page 260)

⑤   Enclosure with raised cover, command point in center 3SU18x1-1AA00-1AA1 (Page 149)

10.2.2 Operating principle of the command point with ID key-operated switch

The ID key-operated switch is used primarily to set the current key position by rotation. To set the current key position, the rotary knob of the ID key-operated switch is turned clockwise or counter-clockwise. There is an opening in the rotary knob into which the ID key is inserted. Actuation is only possible if a valid ID key has been detected, and the authorization level of the relevant ID key corresponds to, or is higher than, the current key position. The rotary knob can be turned clockwise and counter-clockwise through 360° in 45-degree steps.

The switch position delay is started and the temporary key position is incremented by turning clockwise.

The temporary key position is indicated by the illuminated surfaces in the ID key-operated switch flashing green. During the switch position delay, the temporary key position can be changed by turning the knob clockwise or counter-clockwise. The switch position delay is restarted by turning the knob clockwise. During the switch position delay, the outputs are not yet affected by the temporary key position. After the delay has expired, the temporary key position is adopted as the current key position, and the outputs are switched in accordance with this position.

By turning counter-clockwise, the current key position is changed to 0, and the outputs are switched immediately in accordance with this position.

Note

In a configuration with electronic module for ID key-operated switches for IO-Link, the parameters can be set via IO-Link.

Settings on the electronic module for ID key-operated switches

The electronic modules for ID key-operated switches have five digital outputs. Setting of outputs 0 to 3 depends on the current key position and the module settings. If a valid ID key has been detected, output 4 is active; otherwise output 4 is inactive.

Table 10- 1   Adjustment method

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Inactive	Active	Inactive	Inactive
3	Inactive	Inactive	Active	Inactive
4	Inactive	Inactive	Inactive	Active

Table 10- 2   Addition method (incremental method)

Key position	Output			
	0	1	2	3
0	Inactive	Inactive	Inactive	Inactive
1	Active	Inactive	Inactive	Inactive
2	Active	Active	Inactive	Inactive
3	Active	Active	Active	Inactive
4	Active	Active	Active	Active

Note

The addition method (incremental method) can only be set on the electronic modules for ID key-operated switches for IO-Link.

Short-circuit protection

If a short-circuit occurs at one or more outputs, the occurrence of a fault event is sent and the fault flag is set. All outputs are deactivated for one second. Then the relevant outputs are re-activated to monitor whether the short-circuit is still active. This temporary state exists for approximately 0.1 seconds. If no short-circuit is determined during this period, the fault event is revoked, and the fault flag is deleted. However, if a short-circuit is detected during this time, all outputs are deactivated again, and the short-circuit device fault remains.

Function of the LEDs in the ID key-operated switch

In the enclosure of the ID key-operated switch are four illuminated surfaces that can assume the following states:

● Showing a green light: Indication of the current key position and the switched outputs.

● Flashing green: Indication of the temporary key position.

● Showing a yellow light: Indication of the associated authorization level (key position that can be reached by turning the rotary knob).

● Flashing yellow (all 4 illuminated surfaces): Indication for the individually encodable ID key used that has not yet been configured.

● Showing a red light: Indicates that the relevant key position is higher than permissible for the relevant authorization level. (This key position cannot be reached by turning the rotary knob.) The indicator also shows a red light when there is no ID key plugged in.

● Flashing red (all 4 illuminated surfaces): When using a colored ID key with permanently encoded authorization level (ID group 1 to 4), this indicates when the parameter "Individual keys only" is enabled.

● Not illuminated: The electronic module is switched off.

Displayed colors

	Yellow	**Permissible position**
	Red	**Impermissible position**
	Green	**Selected position**
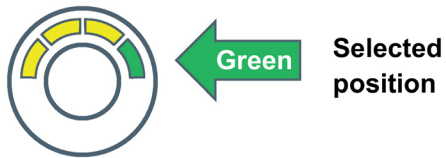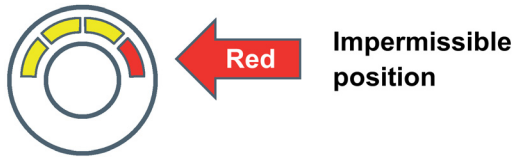
Selectable positions dependent on ID key

Green		
Yellow		
Red		
Blue		

10.2.3 Parameters

10.2.3.1 Parameters

The following parameters can be set:

- Incremental mode
- Switch position memory
- Key memory
- Individual keys only
- Switch position delay
- Select memory range
- Restore factory setting
- Add new individual ID key
- Delete individual ID key
- Parameter (write) Access Lock (parameters for IO-Link devices according to IO-Link communication specification V1.1)
- Data Storage Lock (parameters for IO-Link devices according to IO-Link communication specification V1.1)

The "Parameter (write) Access Lock" and "Data Storage Lock" parameters can be set in the **"Port Configuration Tool S7-PCT"** V3.0 or higher.

Notes on parameter assignment

Transfer of the parameters with the "Parameterserver" function if IO-Link masters and IO-Link devices according to the IO-Link communication specification V1.1 are available:

1. The "Parameter server" function backs up the parameter data from the IO-Link devices.

2. Replace the IO-Link device.

3. The parameter data is automatically written back to the new IO-Link device on system startup.

10.2.3.2 "Incremental mode" parameter

"Incremental mode" parameter

The "Incremental mode" parameter influences the evaluation of the current key position.

1) "Incremental mode" disabled: The adjustment method is used.

- Key position ≥1: The output corresponding to the current key position is switched on; the remaining outputs 0 ... 3 are inactive.

- Key position 0: All outputs 0 ... 3 are inactive.

Example: Key position = 2: Output 0: Off, output 1: On, output 2: Off, output 3: Off

2) "Incremental mode" enabled: The addition method is used.

- Key position ≥1: The outputs with the indices from 0 to the current switch position are switched on; the remaining outputs 0 ... 3 are inactive.

- Key position 0: All outputs 0 ... 3 are inactive.

Example: Key position = 2: Output 0: On, output 1: On, output 2: Off, output 3: Off

Settings	Description	Default setting
0	Incremental mode: disabled	Disabled
1	Incremental mode: enabled	—

10.2.3.3 "Switch position memory" parameter

"Switch position memory" parameter

1) "Switch position memory" disabled:

- No ID key detected. The current switch position is changed to 0 immediately after removing the ID key, and all active outputs are deactivated.

2) "Switch position memory" enabled:

- No ID key detected. The last current switch position is retained after the ID key has been removed, and all active outputs remain in the switched-on state. The authorization level of the currently used ID key must correspond to the authorization level of the current switch position or higher.

This value can be changed by:

- Using an ID key with suitable authorization level and turning the rotary knob on the ID key-operated switch.

- Switching off the power supply (if the parameter "Key memory" is disabled).

Settings	Description	Default setting
0	Switch position memory: disabled	Disabled
1	Switch position memory: enabled	—

10.2.3.4 "Key memory" parameter

"Key memory" parameter

Prerequisite:

The "Key memory" parameter only functions in combination with the "Switch position memory" parameter. The "Switch position memory" parameter must be enabled.

1) "Key memory" disabled:

- After shutting down the power supply of the electronic module, the last current switch position is lost, and the module is set to 0 after switching on again

2) "Key memory" enabled:

- After shutting down the power supply of the electronic module, the last current switch position is saved to the permanent memory and renewed after the electronic module is switched on again.

Settings	Description	Default setting
0	Key memory: disabled	Disabled
1	Key memory: enabled	—

10.2.3.5 "Individual keys only" parameter

"Individual keys only" parameter

1) "Individual keys only" disabled:

- All authorization levels are activated.

2) "Individual keys only" enabled:

- Only individually encodable ID keys are permitted. In this case, only individually encodable ID keys are detected, regardless of whether they are listed in the key list in the electronic module or not. The ID groups 1 ... 4 are ignored.

Settings	Description	Default setting
0	Individual keys only: disabled	Disabled
1	Individual keys only: enabled	—

10.2.3.6 "Switch position delay" parameter

Switch position delay

The switch position delay specifies how long a temporary key position is displayed at the ID key-operated switch (by green flashing of the LED on the electronic module for ID key-operated switches). During this time, it is still possible to change the temporary key position by turning the knob. The switch position delay restarts when turning of the rotary knob is detected. During the switch position delay, the values at the outputs are not changed. When the switch position delay has expired, the temporary key position is accepted as the current key position. The status of the outputs is changed in accordance with this position.

Settings	Description	Default setting
0	Switch position delay: disabled	—
1	Switch position delay: Minimum value	20 (2 seconds)
100	Switch position delay: Maximum value	—

Increment: 0.1 seconds

10.2.3.7 "Select memory range" parameter

"Select memory range" parameter

The Port Configuration Tool *S7-PCT* includes a dropdown menu with which you can select the part of the data set to be displayed. The memory range in which the individually encodable ID keys are saved can be selected and displayed.

Settings	Description	Default setting
1	Select memory range: Minimum value	1 (individually encodable key 1 ... 10)
5	Select memory range: Maximum value	—

Increment: 10 keys

10.2.3.8   "Restore factory setting" parameter

"Restore factory setting" parameter

In some situations, the electronic module for ID key-operated switches for IO-Link has to be changed to the standard state quickly and simply. For this purpose, the standardized system command "Restore factory setting" (value 0x82 in the data set (Index) 2 - system commands or the button in the Port Configuration Tool *S7-PCT*) is used.

This command triggers the following:

- Standard settings for parameters - data set (index) 131

- Deleting the list of keys

- Data set (index) 24 (Application Specific Name) is deleted

Settings	Description
130	Restore factory setting

Standard values for parameters - data set (index) 131

Parameters	Setting
Incremental mode	Disabled
Switch position memory	Disabled
Key memory	Disabled
Individual keys only	Disabled
Switch position delay	20 (2 seconds)
Select memory range	1 (individually encodable key 1 ... 10)

10.2.3.9   Manage authorization level (individually encodable ID keys)

"Add new individual ID key" parameter

The electronic module can store up to 50 individually encodable ID keys in its permanent memory, and it can assign each of these individually encodable ID keys to group 1 ... 4 respectively. When an individually encodable ID key from the list is used, it behaves like an ID key from the relevant authorization level.

A list of the individually encodable ID keys can be displayed in the Port Configuration Tool *S7-PCT* .

If an individually encodable ID key is used in the ID key-operated switch, the electronic module detects that it belongs to the group of individually encodable ID keys.
A check is then made to see whether this key is included in the individual key list stored in the electronics module. If the identification number of the key used is in the list, the corresponding authorization level is determined using this list and assigned to the key used. This key behaves like a key belonging to the relevant authorization level.

One of the authorization levels 1 ... 4 can be assigned to each individually encodable ID key. If the identification number of the key used is not found in the individual key list, it is assigned to the authorization level "Individual ID key".
In this case, only output 4 is activated, and the illuminated surfaces on the ID key-operated switch flash yellow.

The authorization level is assigned via the Port Configuration Tool *S7-PCT*.

Procedure:

To add a new individually encodable ID key to the list of individually encodable ID keys, or to change the authorization level of an already added individually encodable ID key, the following steps are required:

- Use individually encodable ID key in the ID key-operated switches.

- Wait for detection of the ID key

- Write the system command "Set authorization level x"; "x" represents the authorization level assigned to the ID key used (value 0xAx in the data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*)

- Check: Status of the individually encodable ID key (data set (index) 92 - diagnostics)

- Remove the ID key from the ID key-operated switch

Settings	Description
161	Define authorization level 1 for the individually encodable ID key.
162	Define authorization level 2 for the individually encodable ID key.
163	Define authorization level 3 for the individually encodable ID key.
164	Define authorization level 4 for the individually encodable ID key.

Status of the individually encodable ID key (data set (index) 92 - diagnostics, byte 19.0 ... 19.7)

You will find additional information in Chapter "Data set (Index) 92 - diagnostics (Page 282)".

Value	Description
0	Individually encodable ID key detected.
1	Electronic module memory is full.
2	No valid individually encodable ID key used.

"Delete individual ID key" parameter

To delete an individually encodable ID key from the key list, the following steps are required.

Procedure:

- Use individually encodable ID key in the ID key-operated switches

- Wait for detection of the ID key

- Write the system command "Delete individual ID key" (value 0xA5 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*)

- Check: Status of the individually encodable ID key (data set (index) 92 - diagnostics)

- Remove the ID key from the ID key-operated switch

Settings	Description
165	Delete individual ID key used in the ID key-operated switch.

Status of the individually encodable ID key (data set (index) 92 - diagnostics, byte 19.0 ... 19.7)

You will find additional information in Chapter "Data set (Index) 92 - diagnostics (Page 282)".

Value	Description
0	Individually encodable ID key detected.
2	No valid individually encodable ID key used.
3	Deleted ID key not in the memory of the electronic module.

Delete individually encodable ID key using data set 80

If the individually encodable ID key is lost or stolen, it is possible to remove the individually encodable ID key from the key list without the individually encodable ID key being physically available.

In this case, the electronics module offers the option of deleting the key from the key list using data set 80.

Procedure:

To delete an individually encodable key from the list using data set 80, the following steps are required:

- Write the identification number of the ID key to be deleted to data set (index) 80, or enter it in a form field in the Port Configuration Tool *S7-PCT*

- Load the entered identification number into the electronic module in the Port Configuration Tool *S7-PCT*

- Write the system command "Delete individually encodable ID key using data set 80" (value 0xA6 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*)

- Check: Status of the individually encodable ID key (data set (index) 92 - diagnostics)

Settings	Description
166	Delete individually encodable ID key using data set 80.

Delete all individual ID keys

With the system command "Delete all individual ID keys" (value 0xA7 in data set (index) 2 - system commands or button in the Port Configuration Tool *S7-PCT*), all ID keys of the key list can be deleted.

The complete list of the set authorization levels for the individually encodable ID keys in the electronic module for ID key-operated switch for IO-Link is deleted (memory of the individually encodable ID keys (1-30) - data set (index) 81 and memory of the individually encodable ID keys (31-50) - data set (index) 82).

Settings	Description
167	All individually encodable keys stored in the electronic module for ID key-operated switches for IO-Link, and the set authorization levels, are deleted.

10.2.3.10 Parameters for IO-Link devices (according to IO-Link communication specification V1.1)

"Parameter (write) access inhibition" parameter

"Parameter (write) Access Lock" parameter

With the "Parameter (write) Access Lock" parameter, you define whether or not all write and read access parameters can be accessed.

The table below shows the parameter values.

Table 10- 3   "Parameter (write) Access Lock" parameter

Value	Description	Default setting
0	"Parameter (write) Access Lock" parameter: enabled	Enabled
1	"Parameter (write) Access Lock" parameter: disabled	—

"Data storage inhibition" parameter

"Data Storage Lock" parameter

With the "Data Storage Lock" parameter, you define whether or not the mechanism for data storage is disabled.

The table below shows the parameter values.

Table 10- 4   "Data Storage Lock" parameter

Value	Description	Default setting
0	Data Storage Lock: enabled	Enabled
1	Data Storage Lock: disabled	—

10.2.4   Process image

Process image input (PII)

The process image input contains the most important status information of the electronic modules for the ID key-operated switch for IO-Link.

Table 10- 5   PII - status information

DI (2 bytes)	PII
DI0.0	1: Ready
DI0.1	1: Group error
DI0.2	Reserved
DI0.3	Reserved
DI0.4	Reserved
DI0.5	Reserved
DI0.6	Reserved
DI0.7	Reserved
DI1.0	1: ID key detected
DI1.1	1: Authorization level
DI1.2	1: Switch position

10.2.5   Diagnostics

10.2.5.1   IO-Link diagnostics

IO-Link diagnostics

On the electronic modules for ID key-operated switches for IO-Link, it is possible to carry out diagnostics via IO-Link. Short-circuit is signaled via the diagnostics mechanism of IO-Link. With all further diagnostics messages, the corresponding bit is set in data set (index) 92 - diagnostics.

The table below provides information on possible causes and remedial measures:

Table 10- 6   Possible causes and remedial measures

Diagnostics and messages	Possible cause	Possible remedial measures
Short-circuit	• The electrical cable connection on at least one of the digital outputs has been short-circuited. • The connected actuator is defective. The current consumption of the connected actuator is too high.	• Check the electrical cable connection of the digital outputs. • Check the current consumption of the connected actuator. • Use a new actuator.
Self-test error / internal error	• Fault in internal test. • The data saved in the device are invalid.	• Reset the electronic module to the delivery state and reconfigure the electronic module. • Return the device to the manufacturer.
Individually encodable ID key cannot be saved: Key list is full	50 individually encodable keys have already been saved, and the available memory range is full.	• Check the data in data sets 81 and 82 (memory of the individually encodable ID keys (1-30) - data set (index) 81, and memory of the individually encodable ID keys (31-50) - data set (index) 82) • Delete the no longer used individually encodable ID keys from the memory.
Individually encodable ID key cannot be saved: invalid key	• No valid individually encodable ID key inserted. • The inserted individually encodable ID key is defective.	• Use an individually encodable ID key if, for example, a colored ID key has been inserted. • Use another individually encodable ID key since the inserted ID key could be defective. • Check that the ID key has been inserted as far as it will go.

Diagnostics and messages	Possible cause	Possible remedial measures
Individually encodable ID key cannot be deleted: invalid key	• No valid individually encodable ID key inserted. • The inserted individually encodable ID key is defective.	• Use an individually encodable ID key (white). • Check that the ID key has been inserted as far as it will go. • Delete the corresponding ID key by manually entering the identification number in data set 80.
Individually encodable ID key cannot be deleted: Key to be deleted is not in the key list	• The inserted individually encodable ID key was not previously assigned an authorization level. • The manually entered identification number in data set 80 has not been assigned an authorization level	• Assign an authorization level to the ID key. • Check the manually entered identification number of the ID key in data set 80.

The table below indicates how the manufacturer-specific diagnostics are reported:

Table 10- 7   Diagnostics and messages

Diagnostics and messages	IO-Link for event code [1]	PII [2]	Data set 92	LED
		SF[3]		DEVICE
Short-circuit	0x7710	X	X	Red
Self-test error / internal error	—	X	X	Red
Individually encodable ID key cannot be saved: Key list is full	—	—	X	Green
Individually encodable ID key cannot be saved: invalid key	—	—	X	Green
Individually encodable ID key cannot be deleted: invalid key	—	—	X	Green
Individually encodable ID key cannot be deleted: Key to be deleted is not in the key list	—	—	X	Green

[1] The manufacturer-specific diagnostic events listed in the table are reported to the IO-Link master via the diagnostics mechanism of IO-Link.

[2] With the "process image input" (see Chapter "Process image (Page 225)"), you can determine via the group error (GE) bit or general warning (GW) bit in the user program whether detailed information on diagnostics or messages is available in diagnostic data set 92. If bit (= 1) is set, you can obtain detailed information on what caused a "group error" by reading data set 92.

[3] GE = Group error: You can find detailed information in diagnostics data set 92 (see Chapter "Data set (index) 92 - diagnostics (Page 282)").

x: Bit set

—: Status does not change

Device LED
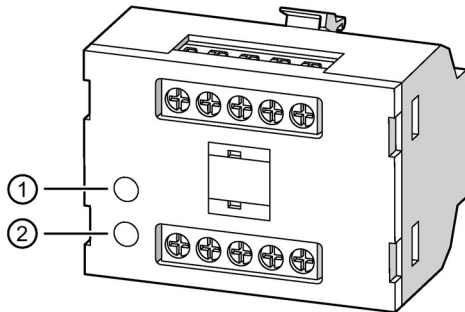
①   DEVICE (device LED)
②   IO-Link

The device LEDs are used to indicate the correct functioning of the electronic module for ID key-operated switches. If a short-circuit or internal fault occurs, this is indicated by these LEDs.

- Green device LED (DEVICE) lights up: Normal operation

- Red device LED (DEVICE) lights up: Fault display

IO-Link LED

The IO-Link LED is only used with the electronic module for ID key-operated switches for IO-Link, and is inactive with the electronic module for ID key-operated switches.

- Normal operation:
  When IO-Link communication functions properly, the green IO-Link LED flashes in accordance with the IO-Link communication specification V1.1 (time duration approximately 1 second, ON time approximately 0.9 seconds).

- Fault display:
  The IO-Link LED shows a red light in the event of IO-Link communication faults.

10.2.6   Connecting

10.2.6.1   Electronic modules for the ID key-operated switches for IO-Link

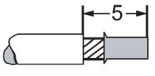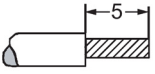3SU1400-1GD10-1AA0 electronic module for ID key-operated switches for IO-Link
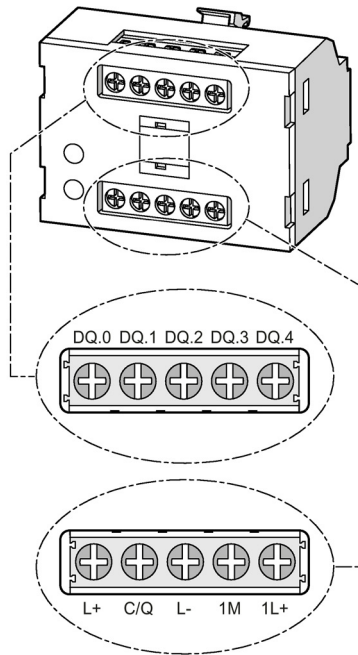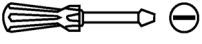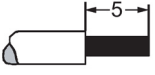
Terminal labeling

The IO-Link device is connected to the IO-Link master via the terminals L+, C/Q and L-. The IO-Link device is powered (24 V DC) via the two cables L+ and L-. Communication of the IO-Link device with the IO-Link master takes place via the cable C/Q. The current available at one IO-Link port of the IO-Link master is 200 mA. If more than 200 mA are required for the IO-Link device, the terminals 1M and 1L+ can be additionally connected.

Terminal labeling					
Pin	X1		Pin	X2	
1	DQ.0	Digital output	6	L+	Supply voltage for IO-Link
2	DQ.1	Digital output	7	C/Q	Communication signal/switching signal
3	DQ.2	Digital output	8	L-	IO-Link ground
4	DQ.3	Digital output	9	1M	Ground
5	DO.4	Digital output	10	1L+	24 V DC

Conductor cross-sections
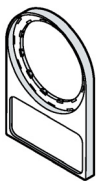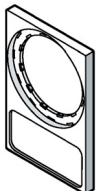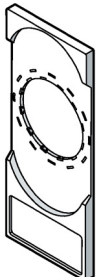
SZM (⌀ 3.5 mm x 0.6 mm)	0.4 Nm 3.5 lb in
←5→	1 x 0.2 ... 2.5 mm²
←5→	1 x 0.25 ... 1.5 mm² 2 x 0.25 ... 0.75 mm²
←5→	1 x 0.2 ... 2.5 mm² 2 x 0.2 ... 0.75 mm²
AWG	26 to 14

Accessories 11

11.1 Labels

11.1.1 Label holders

Label holders are used to attach labeling plates. Labeling plates can be snapped on or attached by sticking to the holder.

	Description	Size	Shape	Article number
3SU1900-0A (https://mall.industry.siemens.com/mall/en/en/Catalog/Products/10231447)				
	Label holder for labeling plate (self-adhesive)	12.5 x 27 mm	Rounded on one side	3SU1900-0AG10-0AA0
		17.5 x 27 mm		3SU1900-0AH10-0AA0
		27 x 27 mm		3SU1900-0AJ10-0AA0
	Label holder for labeling plate (snap-on)	12.5 x 27 mm		3SU1900-0AR10-0AA0
		17.5 x 27 mm		3SU1900-0AS10-0AA0
		27 x 27 mm		3SU1900-0AT10-0AA0
	Label holder for labeling plate (self-adhesive)	12.5 x 27 mm	Square	3SU1900-0AN10-0AA0
		17.5 x 27 mm		3SU1900-0AP10-0AA0
		27 x 27 mm		3SU1900-0AQ10-0AA0
	Label holder for labeling plate for twin pushbutton	12.5 x 27 mm	Rectangular	3SU1900-0AK10-0AA0

11.1.2   Labeling plate 12.5 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

	Description	Article number
3SU1900-0AC16 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226804)		
	Labeling plate	3SU1900-0AC16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AC16-0AB0
Aus	3SU1900-0AC16-0AC0
Auf	3SU1900-0AC16-0AD0
Ab	3SU1900-0AC16-0AE0
Vor	3SU1900-0AC16-0AF0
Zurück	3SU1900-0AC16-0AG0
Rechts	3SU1900-0AC16-0AH0
Links	3SU1900-0AC16-0AJ0
Halt	3SU1900-0AC16-0AK0
Zu	3SU1900-0AC16-0AL0
Betrieb	3SU1900-0AC16-0AP0
Störung	3SU1900-0AC16-0AQ0
Hand Auto	3SU1900-0AC16-0DB0
Hand O Auto	3SU1900-0AC16-0DD0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AC16-0DJ0
Off	3SU1900-0AC16-0DK0
Up	3SU1900-0AC16-0DL0
Down	3SU1900-0AC16-0DM0
Forward	3SU1900-0AC16-0DN0
Reverse	3SU1900-0AC16-0DP0
Right	3SU1900-0AC16-0DQ0
Left	3SU1900-0AC16-0DR0
Stop	3SU1900-0AC16-0DS0
Start	3SU1900-0AC16-0DT0
Reset	3SU1900-0AC16-0DU0
Test	3SU1900-0AC16-0DV0
Open	3SU1900-0AC16-0DW0
Close	3SU1900-0AC16-0DX0
Jog	3SU1900-0AC16-0DE0
Running	3SU1900-0AC16-0EB0
Fault	3SU1900-0AC16-0EC0
Run	3SU1900-0AC16-0ED0
Stop Start	3SU1900-0AC16-0DC0
Off On	3SU1900-0AC16-0DH0
Power off	3SU1900-0AC16-0DF0
Power on	3SU1900-0AC16-0DG0
Man O Auto	3SU1900-0AC16-0DY0
Man Auto	3SU1900-0AC16-0EA0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AC16-0GA0
Arrêt	3SU1900-0AC16-0GB0
Montée	3SU1900-0AC16-0GC0
Descente	3SU1900-0AC16-0GD0
Avant	3SU1900-0AC16-0GE0
Retour	3SU1900-0AC16-0GF0
Droite	3SU1900-0AC16-0GG0
Gauche	3SU1900-0AC16-0GH0
Ouvert	3SU1900-0AC16-0GJ0
Fermé	3SU1900-0AC16-0GK0
Rapide	3SU1900-0AC16-0GL0
En Service	3SU1900-0AC16-0GM0
Defaut	3SU1900-0AC16-0GN0
Reglage	3SU1900-0AC16-0GP0
Arrêt d'urgence	3SU1900-0AC16-0GQ0
Hors service	3SU1900-0AC16-0GR0
Sous tension	3SU1900-0AC16-0GS0
Manu Auto	3SU1900-0AC16-0GT0
Marche Arrêt	3SU1900-0AC16-0GU0
Rearmement	3SU1900-0AC16-0GV0

Labeling plate with symbol

Printed symbols	Article number
O	3SU1900-0AC16-0QA0
I	3SU1900-0AC16-0QB0
O I	3SU1900-0AC16-0QG0
1 2	3SU1900-0AC16-0QJ0
Motion arrow direction up	3SU1900-0AC16-0QS0

11.1.3 Labeling plate 17.5 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

	Description	Article number
3SU1900-0AD16 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226804)		
	Labeling plate	3SU1900-0AD16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AD16-0AB0
Aus	3SU1900-0AD16-0AC0
Auf	3SU1900-0AD16-0AD0
Ab	3SU1900-0AD16-0AE0
Vor	3SU1900-0AD16-0AF0
Zurück	3SU1900-0AD16-0AG0
Halt	3SU1900-0AD16-0AK0
Zu	3SU1900-0AD16-0AL0
Betrieb	3SU1900-0AD16-0AP0
Störung	3SU1900-0AD16-0AQ0
Hand Auto	3SU1900-0AD16-0DB0

Labeling plate with inscription in English

Description	Article number
Stop Start	3SU1900-0AD16-0DC0
On	3SU1900-0AD16-0DJ0
Off	3SU1900-0AD16-0DK0
Up	3SU1900-0AD16-0DL0
Down	3SU1900-0AD16-0DM0
Forward	3SU1900-0AD16-0DN0
Reverse	3SU1900-0AD16-0DP0
Right	3SU1900-0AD16-0DQ0
Left	3SU1900-0AD16-0DR0
Stop	3SU1900-0AD16-0DS0
Start	3SU1900-0AD16-0DT0
Open	3SU1900-0AD16-0DW0
Close	3SU1900-0AD16-0DX0
Man Auto	3SU1900-0AD16-0EA0
Running	3SU1900-0AD16-0EB0
Fault	3SU1900-0AD16-0EC0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AD16-0GA0
Arrêt	3SU1900-0AD16-0GB0
Droite	3SU1900-0AD16-0GG0
Gauche	3SU1900-0AD16-0GH0
En Service	3SU1900-0AD16-0GM0
Defaut	3SU1900-0AD16-0GN0
Sous tension	3SU1900-0AD16-0GS0
Manu Auto	3SU1900-0AD16-0GT0
Marche Arrêt	3SU1900-0AD16-0GU0
Rearmement	3SU1900-0AD16-0GV0

Labeling plate with symbol

Printed symbols	Article number
O	3SU1900-0AD16-0QA0
I	3SU1900-0AD16-0QB0
O I	3SU1900-0AD16-0QG0
Motion arrow direction to right	3SU1900-0AD16-0QR0
Motion arrow direction up	3SU1900-0AD16-0QS0

11.1.4 Labeling plate 27 x 27 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with label holders.

	Description	Article number
3SU1900-0AE16 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226804)		
	Labeling plate	3SU1900-0AE16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AE16-0AB0
Aus	3SU1900-0AE16-0AC0
Auf	3SU1900-0AE16-0AD0
Ab	3SU1900-0AE16-0AE0
Vor	3SU1900-0AE16-0AF0
Zurück	3SU1900-0AE16-0AG0
Rechts	3SU1900-0AE16-0AH0
Links	3SU1900-0AE16-0AJ0
Halt	3SU1900-0AE16-0AK0
Zu	3SU1900-0AE16-0AL0
Betrieb	3SU1900-0AE16-0AP0
Störung	3SU1900-0AE16-0AQ0
Hand Auto	3SU1900-0AE16-0DB0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AE16-0DJ0
Off	3SU1900-0AE16-0DK0
Up	3SU1900-0AE16-0DL0
Down	3SU1900-0AE16-0DM0
Forward	3SU1900-0AE16-0DN0
Reverse	3SU1900-0AE16-0DP0
Stop	3SU1900-0AE16-0DS0
Start	3SU1900-0AE16-0DT0
Emergency Stop	3SU1900-0AE16-0DA0
Stop Start	3SU1900-0AE16-0DC0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AE16-0GA0
Arrêt	3SU1900-0AE16-0GB0
Montée	3SU1900-0AE16-0GC0
Descente	3SU1900-0AE16-0GD0
En Service	3SU1900-0AE16-0GM0
Defaut	3SU1900-0AE16-0GN0
Sous tension	3SU1900-0AE16-0GS0
Manu Auto	3SU1900-0AE16-0GT0
Marche Arrêt	3SU1900-0AE16-0GU0

Labeling plate with symbol

Printed symbols	Article number
O I	3SU1900-0AE16-0QG0
Motion arrow direction to right	3SU1900-0AE16-0QR0

11.1.5   Labeling plate 22 x 22 mm

Labeling plates can be snapped on or attached by sticking to the holder. Labeling plates are used in combination with the enclosure.

	Description	Article number
3SU1900-0AF16 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226805)		
	Labeling plate	3SU1900-0AF16-0AA0

Labeling plate with inscription in German

Description	Article number
Ein	3SU1900-0AF16-0AB0
Aus	3SU1900-0AF16-0AC0
Auf	3SU1900-0AF16-0AD0
Ab	3SU1900-0AF16-0AE0
Vor	3SU1900-0AF16-0AF0
Zurück	3SU1900-0AF16-0AG0
Rechts	3SU1900-0AF16-0AH0
Links	3SU1900-0AF16-0AJ0
Halt	3SU1900-0AF16-0AK0
Zu	3SU1900-0AF16-0AL0
Schnell	3SU1900-0AF16-0AM0
Langsam	3SU1900-0AF16-0AN0
Betrieb	3SU1900-0AF16-0AP0
Störung	3SU1900-0AF16-0AQ0
Einrichten	3SU1900-0AF16-0AR0
NOT-AUS	3SU1900-0AF16-0AS0

Labeling plate with inscription in English

Description	Article number
On	3SU1900-0AF16-0DJ0
Off	3SU1900-0AF16-0DK0
Up	3SU1900-0AF16-0DL0
Down	3SU1900-0AF16-0DM0
Forward	3SU1900-0AF16-0DN0
Reverse	3SU1900-0AF16-0DP0
Right	3SU1900-0AF16-0DQ0
Left	3SU1900-0AF16-0DR0
Stop	3SU1900-0AF16-0DS0
Start	3SU1900-0AF16-0DT0
Reset	3SU1900-0AF16-0DU0
Test	3SU1900-0AF16-0DV0
Open	3SU1900-0AF16-0DW0
Close	3SU1900-0AF16-0DX0
Running	3SU1900-0AF16-0EB0
Fault	3SU1900-0AF16-0EC0
Fast	3SU1900-0AF16-0EE0
Slow	3SU1900-0AF16-0EF0
Emergency Stop	3SU1900-0AF16-0DA0

Labeling plate with inscription in French

Description	Article number
Marche	3SU1900-0AF16-0GA0
Arrêt	3SU1900-0AF16-0GB0
Montée	3SU1900-0AF16-0GC0
Descente	3SU1900-0AF16-0GD0
Avant	3SU1900-0AF16-0GE0
Retour	3SU1900-0AF16-0GF0
Droite	3SU1900-0AF16-0GG0
Gauche	3SU1900-0AF16-0GH0
Ouvert	3SU1900-0AF16-0GJ0
Fermé	3SU1900-0AF16-0GK0
Rapide	3SU1900-0AF16-0GL0
En Service	3SU1900-0AF16-0GM0
Defaut	3SU1900-0AF16-0GN0
Sous tension	3SU1900-0AF16-0GS0
Manu Auto	3SU1900-0AF16-0GT0
Marche Arrêt	3SU1900-0AF16-0GU0
Rearmement	3SU1900-0AF16-0GV0
Lent	3SU1900-0AF16-0GW0
D'Urgent	3SU1900-0AF16-0GX0

Labeling plate with symbol (ON/OFF)

Printed symbols	Article number
O	3SU1900-0AF16-0QA0
I	3SU1900-0AF16-0QB0
II	3SU1900-0AF16-0QC0
III	3SU1900-0AF16-0QD0
O I	3SU1900-0AF16-0QG0
I O II	3SU1900-0AF16-0QK0
I O (one below the other)	3SU1900-0AF16-0QP0
II O I (one below the other)	3SU1900-0AF16-0QQ0

Labeling plate with symbol

Printed symbols	Article number
Motion arrow direction to right	3SU1900-0AF16-0QR0
Pump	3SU1900-0AF16-0RD0
Fan	3SU1900-0AF16-0RV0
Cooling	3SU1900-0AF16-0RW0
Illumination	3SU1900-0AF16-0RX0
Motor	3SU1900-0AF16-0RY0

11.1.6   Insert label

The insert labels can be inserted under the caps of pushbuttons (only with clear pushbutton cap 3SU10x0-0AB70-0AA0) and illuminated pushbuttons. These insert labels are made of transparent
plastic with black inscription. They can be inserted at any 90° angle.
Insert labels without an inscription are intended for user marking using a permanent marker pen.

Description		Article number
3SU1900-0AB71 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10226803)		
	Insert label for self-inscription	3SU1900-0AB71-0AA0

Insert label with inscription in German

Description	Article number
Ein	3SU1900-0AB71-0AB0
Aus	3SU1900-0AB71-0AC0
Auf	3SU1900-0AB71-0AD0
Ab	3SU1900-0AB71-0AE0
Vor	3SU1900-0AB71-0AF0
Zurück	3SU1900-0AB71-0AG0
Rechts	3SU1900-0AB71-0AH0
Links	3SU1900-0AB71-0AJ0
Halt	3SU1900-0AB71-0AK0
Zu	3SU1900-0AB71-0AL0
Schnell	3SU1900-0AB71-0AM0
Langsam	3SU1900-0AB71-0AN0
Betrieb	3SU1900-0AB71-0AP0
Störung	3SU1900-0AB71-0AQ0
Einrichten	3SU1900-0AB71-0AR0

Insert label with inscription in English

Description	Article number
On	3SU1900-0AB71-0DJ0
Off	3SU1900-0AB71-0DK0
Down	3SU1900-0AB71-0DM0
Forward	3SU1900-0AB71-0DN0
Reverse	3SU1900-0AB71-0DP0
Right	3SU1900-0AB71-0DQ0
Left	3SU1900-0AB71-0DR0
Stop	3SU1900-0AB71-0DS0
Start	3SU1900-0AB71-0DT0
Reset	3SU1900-0AB71-0DU0
Test	3SU1900-0AB71-0DV0
Open	3SU1900-0AB71-0DW0
Close	3SU1900-0AB71-0DX0
Running	3SU1900-0AB71-0EB0
Fast	3SU1900-0AB71-0EE0
Slow	3SU1900-0AB71-0EF0

Insert label with symbol (ON/OFF)

Description	Printed symbols	Article number
Black/White (label/lettering)	O I	3SU1900-0AB16-0QE0
White/Black (label/lettering)	O I	3SU1900-0AB61-0QE0
Clear/Black (label/lettering)	O	3SU1900-0AB71-0QA0
	I	3SU1900-0AB71-0QB0
	II	3SU1900-0AB71-0QC0
	III	3SU1900-0AB71-0QD0

Insert label with symbol (graphical)

Description	Printed symbols	Article number
Clear/Black (label/lettering)	Motion arrow direction to right	3SU1900-0AB71-0QR0
	Motion arrow direction up	3SU1900-0AB71-0QS0
	Clockwise rotation	3SU1900-0AB71-0QT0
	Counterclockwise rotation	3SU1900-0AB71-0QU0
	Rapid traverse	3SU1900-0AB71-0QV0
	Feed	3SU1900-0AB71-0QW0
	Increase, plus	3SU1900-0AB71-0QX0
	Decrease, minus	3SU1900-0AB71-0QY0
	Electric motor	3SU1900-0AB71-0RA0
	Horn	3SU1900-0AB71-0RB0
	Water tap	3SU1900-0AB71-0RC0
	Pump	3SU1900-0AB71-0RD0
	Coolant pump	3SU1900-0AB71-0RE0
	Lock, tighten	3SU1900-0AB71-0RF0
	Unlock, unclamp	3SU1900-0AB71-0RG0
	Brake	3SU1900-0AB71-0RH0
	Release brake	3SU1900-0AB71-0RJ0
	Interlock	3SU1900-0AB71-0RK0
	Unlock	3SU1900-0AB71-0RL0
	Setting	3SU1900-0AB71-0RM0
	ON-OFF momentary contact type	3SU1900-0AB71-0RN0
	Manual operation	3SU1900-0AB71-0RP0
	Automatic cycle	3SU1900-0AB71-0RQ0
	Suction	3SU1900-0AB71-0RR0
	Blowing	3SU1900-0AB71-0RS0

11.1.7 EMERGENCY STOP

Backing plate diameter 45 mm

Inscription	Article number
3SU1900-0B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10228442)	
None	3SU1900-0BA31-0AA0

Backing plate diameter 75 mm

Inscription	Article number
None	3SU1900-0BB31-0AA0
NOT-AUS	3SU1900-0BB31-0AS0
NOT-HALT	3SU1900-0BB31-0AT0

Backing plate diameter 75 mm, self-adhesive

Inscription	Article number
None	3SU1900-0BC31-0AA0
NOT-AUS	3SU1900-0BC31-0AS0
NOT-HALT	3SU1900-0BC31-0AT0
EMERGENCY STOP	3SU1900-0BC31-0DA0
Arrêt d'urgence	3SU1900-0BC31-0GQ0
EMERGENZA	3SU1900-0BC31-0JA0
NODSTOP	3SU1900-0BC31-0LA0
NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (de, en, it, sp)	3SU1900-0BC31-0NB0
EMERGENCY STOP in Chinese	3SU1900-0BC31-0MA0

11.1.8 Labels for printing

The labels for printing are supplied as preformatted labels on A4 size sheets and can be printed individually.

Using the Label Designer software, which can be downloaded from the Internet, and the labeling plates for laser inscription you can create your own customized labels with a standard laser printer. The self-adhesive or snap-on labels can be stuck or snapped onto the corresponding label holder. Round labels are provided for inserting in illuminated pushbuttons and switches. The labels are suitable for printing with one to three lines of text or symbols. For applications with more exacting requirements we recommend preprinted labeling plates and insert labels (laser-printed or engraved depending on the type).
You can download the Label Designer software from the following website: LabelDesigner (http://support.automation.siemens.com/WW/view/en/24559069)

Description	Article number
3SU1900-0B (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10231346)	
A4 sheets of insert labels, semi-transparent	3SU1900-0BH60-0AA0
A4 sheets of labeling plates 12.5 x 27 mm, white	3SU1900-0BJ61-0AA0
A4 sheets of labeling plates 17.5 x 27 mm, white	3SU1900-0BK61-0AA0
A4 sheets of labeling plates 27 x 27 mm, white	3SU1900-0BL61-0AA0
A4 sheets of labeling plates 22 x 22 mm, white	3SU1900-0BM61-0AA0

11.1.9 Square single frame
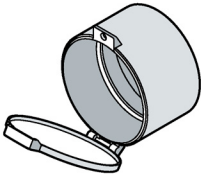
You can mount the square single frame over a round signal panel cutout to change its appearance to "square".

	Description	Article number
3SU1900-0AX10-0AA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Product/?mlfb=3SU1900-0AX10-0AA0)		
	Square single frame	3SU1900-0AX10-0AA0

11.2 Protection
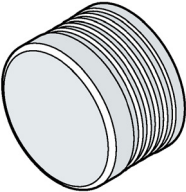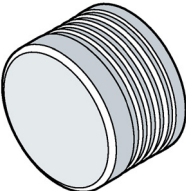
11.2.1 Sealable cap

The sealable cap is fitted before the pushbutton is installed so as to prevent unauthorized access to the pushbutton.
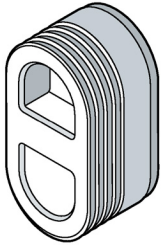
	Description		Article number
3SU1900-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)			
	Sealable cap for pushbutton	Black	3SU1900-0DA10-0AA0
		Clear	3SU1900-0DA70-0AA0
	Sealable cap for pushbutton with extended stroke	Black	3SU1900-0EL10-0AA0
		Clear	3SU1900-0EL70-0AA0
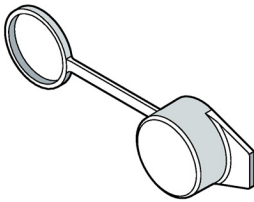
11.2.2 Protective cap

The protective cap is fitted before the actuating element is installed so as to protect the element against dust and contamination.

	Description	Article number
3SU1900-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)		
	Protective cap for pushbutton, flat	3SU1900-0DB70-0AA0
	Protective cap for pushbutton, flat, silicone-free	3SU1900-0ED70-0AA0
	Protective cap for pushbutton, raised	3SU1900-0DC70-0AA0
	Protective cap for pushbutton, flat, silicone-free	3SU1900-0EE70-0AA0

	Protective cap for selector switch (short selector)	3SU1900-0DD70-0AA0
	Protective cap for selector switch (short selector), silicone-free	3SU1900-0EF70-0AA0
	Protective cap for mushroom pushbutton, diameter 40 mm	3SU1900-0DE70-0AA0
	Protective cap for mushroom pushbutton, silicone-free, diameter 40 mm	3SU1900-0EG70-0AA0
	Protective cap for EMERGENCY STOP button	3SU1900-0DF70-0AA0
	Protective cap for EMERGENCY STOP button, silicone-free	3SU1900-0EH70-0AA0
	Protective cap for twin pushbutton, flat	3SU1900-0EJ70-0AA0
	Protective cap for twin pushbutton, silicone-free, flat	3SU1900-0EK70-0AA0
	Protective cap for twin pushbutton, raised	3SU1900-0EK70-0AA0
	Protective cap for twin pushbutton, silicone-free, raised	3SU1900-0EJ70-0AA0

	Description	Article number
	Dust cover for key-operated switch	3SU1900-0EB10-0AA0

11.2.3 Sun collar

The sun collar is fitted after the illuminated pushbutton is installed and helps to improve the visibility of the pushbutton display.
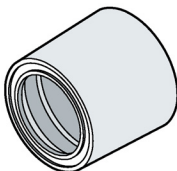
	Description	Article number
3SU1900-0DJ10-0AA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)		
	Sun collar	3SU1900-0DJ10-0AA0

11.2.4 Protective collar
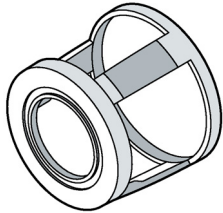
Note

The front plate thickness is restricted to < 4 mm for all accessory components that are installed beneath an actuator

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The protective collar is fitted before the pushbutton / illuminated pushbutton is installed. It is designed to protect the pushbutton and improve the visibility of the illuminated pushbutton display.
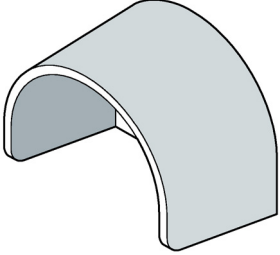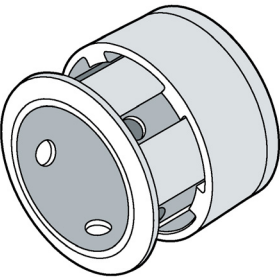
	Description		Article number
3SU1900-0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)			
	Protective collar for pushbutton and short selector switch (suitable for front plate thickness of < 4 mm)	Plastic, black	3SU1900-0DW10-0AA0

The protective collar is fitted before the pushbutton / mushroom pushbutton is installed and is designed to protect the button against very heavy blows/shocks.

	Description		Article number
	Protective collar for pushbutton, visibility from the side (suitable for front plate thickness of < 4 mm)	Metal, gray	3SU1950-0DK80-0AA0
	Protective collar for mushroom pushbutton, diameter 40 mm, visibility from the side (suitable for front plate thickness of < 4 mm)		3SU1950-0DL80-0AA0

The protective collar is fitted before the EMERGENCY STOP button is installed and is designed to protect the button against heavy blows/shocks.

	Description		Article number
	Protective collar for EMERGENCY STOP (suitable for front plate thickness of < 4 mm)	Plastic, yellow	3SU1900-0DY30-0AA0
		Plastic, gray	3SU1900-0DY80-0AA0
	Protective collar for EMERGENCY STOP, SEMI-Industry (front plate thickness of < 4 mm)	Plastic, yellow	3SU1900-0EA30-0AA0
	Protective collar for padlocks (suitable for front plate thickness of < 4 mm)	Metal, yellow	3SU1950-0DX30-0AA0
		Metal, gray	3SU1950-0DX80-0AA0
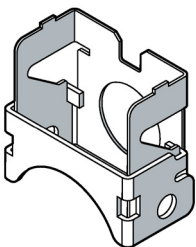
	Description		Article number
	Protection for sensor switch	Cover: Plastic, transparent	3SU1900-0EC10-0AA0
		Base: Plastic, black	

11.2.5 Locking device

Note

The front plate thickness is restricted to < 4 mm for all accessory components that are installed beneath an actuator

---

Locking devices are designed to protect pushbuttons and switches against unauthorized actuation.
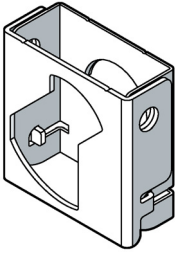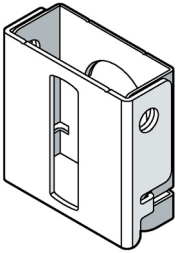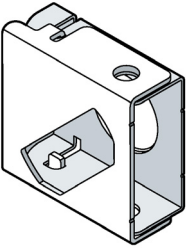
	Description	Article number
3SU1950-0D (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)		
	Locking device for pushbuttons, flat (suitable for front plate thickness of < 4 mm)	3SU1950-0DM80-0AA0
	Locking device for pushbuttons, raised (suitable for front plate thickness of < 4 mm)	3SU1950-0DN80-0AA0

	Description	Article number
	Locking device for mushroom pushbuttons in diameter 30 mm or 40 mm (suitable for front plate thickness of < 4 mm)	3SU1950-0DP80-0AA0

Note
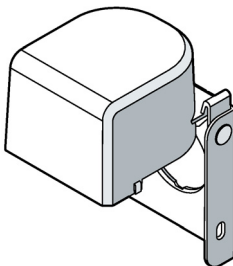
Locking devices for selector switches require a hole (diameter 22.5 mm) with knock-out to prevent unauthorized switch actuation.

	Description	Article number
	Locking device for selector switches (short / long actuator), position on left (suitable for front plate thickness of < 4 mm)	3SU1950-0DQ80-0AA0
	Locking device for selector switches (short / long actuator), position in center (suitable for front plate thickness of < 4 mm)	3SU1950-0DR80-0AA0
	Locking device for selector switches (short / long actuator), position on right (suitable for front plate thickness of < 4 mm)	3SU1950-0DS80-0AA0
	Locking device for selector switches (short / long actuator), position on left only (suitable for front plate thickness of < 4 mm)	3SU1950-0DT80-0AA0
	Locking device for selector switches (short / long actuator), position on right only (suitable for front plate thickness of < 4 mm)	3SU1950-0DU80-0AA0

11.2.6 Cover for locking device

The cover for locking devices is designed to prevent unauthorized actuation.

	Description	Article number
3SU1950-0DV80-0AA0 (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221534)		
	Cover for locking device (front plate thickness of < 4 mm)	

11.3 Actuators

Flat button

Description	Article number
3SU1900-0FT (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221535)	
Flat button for pushbutton, plastic	
Black	3SU1900-0FT10-0AA0
Red	3SU1900-0FT20-0AA0
Yellow	3SU1900-0FT30-0AA0
Green	3SU1900-0FT40-0AA0
Blue	3SU1900-0FT50-0AA0
White	3SU1900-0FT60-0AA0
Flat button for illuminable pushbutton, plastic	
Amber	3SU1901-0FT00-0AA0
Red	3SU1901-0FT20-0AA0
Yellow	3SU1901-0FT30-0AA0
Green	3SU1901-0FT40-0AA0
Blue	3SU1901-0FT50-0AA0
White	3SU1901-0FT60-0AA0
Clear	3SU1901-0FT70-0AA0

Raised button

Description	Article number
3SU1900-0FS (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221535)	
Flat button for pushbutton, plastic	
Black	3SU1900-0FS10-0AA0
Red	3SU1900-0FS20-0AA0
Yellow	3SU1900-0FS30-0AA0
Green	3SU1900-0FS40-0AA0
Flat button for illuminable pushbutton, plastic	
Red	3SU1901-0FS20-0AA0
Yellow	3SU1901-0FS30-0AA0
Green	3SU1901-0FS40-0AA0
Blue	3SU1901-0FS50-0AA0
Clear	3SU1901-0FS70-0AA0

Key

Description		Article number
3SU1950-0F (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221535)		
Ronis key		
	SB30	3SU1950-0FB80-0AA0
	455	3SU1950-0FC80-0AA0
BKS key		
	S1	3SU1950-0FD80-0AA0
CES key		
	LSG1	3SU1950-0FN80-0AA0
	SSG10	3SU1950-0FP80-0AA0
	VL5	3SU1950-0FQ80-0AA0
IKON key		
	360012K1	3SU1950-0FR80-0AA0
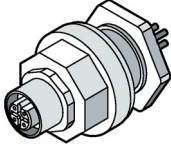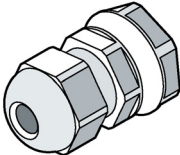
11.4 Sealing plug

The sealing plug is used in place of an actuating or signaling element in a command point. You can thus carry out the complete wiring without the need for the actuating or signaling element to be available. You then remove the sealing plug and install the configured actuating or signaling element.
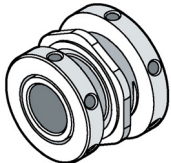
	Description	Article number
3SU1900-0FA (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221535)		
	Sealing plug, plastic, black	3SU1900-0FA10-0AA0
	Sealing plug, metal matte	3SU1930-0FA80-0AA0
	Sealing plug, metal	3SU1950-0FA80-0AA0

11.5 Accessories for enclosures
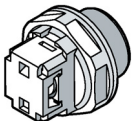
Cable glands

	Description	Material	Article number
3SU1900-0H (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221536)			
	Metric M20 cable gland with AS-i cable entry	Plastic	3SU1900-0HE10-0AA0
	Metric M25 cable gland with AS-i cable entry		3SU1900-0HF10-0AA0
	Metric M20 cable gland for enclo-sure		3SU1900-0HG10-0AA0
	Metric M25 cable gland for enclo-sure		3SU1900-0HH10-0AA0
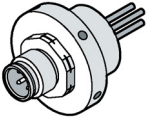
Connection pieces

	Description	Material	Article number
	For plastic enclosure		
	M20/M20 connection piece for con-necting 2 enclosures	Plastic	3SU1900-0HJ10-0AA0
	M20/M25 connection piece for con-necting 2 enclosures		3SU1900-0HK10-0AA0
	M25/M25 connection piece for con-necting 2 enclosures		SU1900-0HL10-0AA0
	For metal enclosure		
	M20/M20 connection piece for con-necting 2 enclosures	Metal	3SU1950-0HJ10-0AA0
	M20/M25 connection piece for con-necting 2 enclosures		3SU1950-0HK10-0AA0
	M25/M25 connection piece for con-necting 2 enclosures		3SU1950-0HL10-0AA0

Adapter for AS-i shaped cables
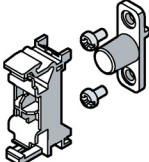
	Description	Material	Article number
	Insulation piercing method, for M20	Plastic	3SU1900-0HX10-0AA0
	Insulation piercing method, for M25		3SU1900-0HY10-0AA0

Adapter for AS-i tab connection
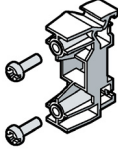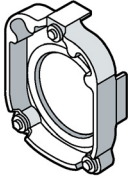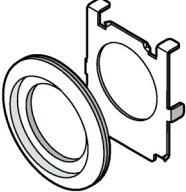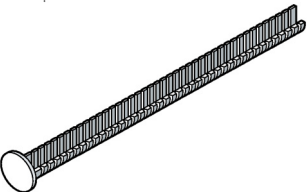
	Description	Material	Article number
	For plastic enclosure		
	M12 socket, 4-pole, for M20	Plastic	3SU1930-0HA10-0AA0
	M12 socket, 4-pole, for M25		3SU1930-0HB10-0AA0
	M12 connector, 4-pole, for M20		3SU1930-0HC10-0AA0
	M12 connector, 4-pole, for M25		3SU1930-0HD10-0AA0
	M12 socket, 5-pole, for M20		3SU1930-0HP10-0AA0
	M12 socket, 5-pole, for M25		3SU1930-0HQ10-0AA0
	M12 connector, 5-pole, for M20		3SU1930-0HR10-0AA0
	M12 connector, 5-pole, for M25		3SU1930-0HS10-0AA0
	M12 socket, 8-pole, for M20		3SU1930-0HT10-0AA0
	M12 socket, 8-pole, for M25		3SU1930-0HU10-0AA0
	M12 connector, 8-pole, for M20		3SU1930-0HV10-0AA0
	M12 connector, 8-pole, for M25		3SU1930-0HW10-0AA0
	For metal enclosure		
	M12 socket, 4-pole, for M20	Metal	3SU1950-0HA10-0AA0
	M12 socket, 4-pole, for M25		3SU1950-0HB10-0AA0
	M12 connector, 4-pole, for M20		3SU1950-0HC10-0AA0
	M12 connector, 4-pole, for M25		3SU1950-0HD10-0AA0
	M12 socket, 5-pole, for M20		3SU1950-0HP10-0AA0
	M12 socket, 5-pole, for M25		3SU1950-0HQ10-0AA0
	M12 connector, 5-pole, for M20		3SU1950-0HR10-0AA0
	M12 connector, 5-pole, for M25		3SU1950-0HS10-0AA0
	M12 socket, 8-pole, for M20		3SU1950-0HT10-0AA0
	M12 socket, 8-pole, for M25		3SU1950-0HU10-0AA0
	M12 connector, 8-pole, for M20		3SU1950-0HV10-0AA0
	M12 connector, 8-pole, for M25		3SU1950-0HW10-0AA0

Enclosure cover monitoring

Enclosure cover monitoring is fitted at the intermediate position of the command points. The plunger is screwed onto the enclosure cover. The module attachment is snapped into the intermediate position on the enclosure base and fitted with 1 NO (normally-open) contact module. The entire circuit is routed via this contact module. When the enclosure has been correctly screwed together, the circuit closes and the controlled device can be operated. Please note that the enclosure cover monitoring cannot be used with the raised enclosures with one command point (3SU18.1-1AA00-1AA1).

	Description	Material	Article number
	Enclosure cover monitoring (module with extension plunger)	Plastic	3SU1900-0HM10-0AA0

11.6 Additional Accessories

	Description	Material	Article number
3SU1900-0K (http://mall.industry.siemens.com/mall/en/en/Catalog/Products/10221537)			
	PCB carrier	Plastic	3SU1900-0KA10-0AA0
	Pressure plates for selectors and locks	Plastic	3SU1900-0KC10-0AA0
	Adapters for actuators and indicators with front ring for flat mounting	Metal	3SU1950-0KJ80-0AA0
	Adapter for installing 22.5 mm actuators in a 30.5 mm mounting hole With the adapter, all 22.5 mm pushbuttons can also be used in a 30.5 mm mounting hole.	Metal	3SU1950-0KB10-0AA0
	Drilling template for 30 x 40 grid, horizontal	Plastic	3SU1900-0KF10-0AA0
	Extension plungers For compensation of the distance between a pushbutton and the unlatching button of an overload relay	Plastic	3SU1900-0KG10-0AA0
	Grounding stud	Metal	3SU1950-0KK80-0AA0
	Angle plug For connecting the sensor switch	Plastic	3SU1900-0KL10-0AA0

11.7   ID keys

The ID keys are used in the ID key-operated switches. Using the four ID keys with different codes, it is possible to select 1 of 4 positions. The ID keys are color-coded (yellow, blue, red, green, white) so that they can be clearly differentiated at a glance. The white ID key is supplied without coding and can be individually encoded via IO-Link using the electronic module for ID key-operated switches for IO-Link.

Different versions of ID keys are available depending on the following features:

● Authorization level (different colors)
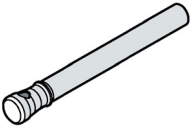
For further information refer to Chapters "Operating principle of the command point with ID key-operated switch (Page 214)" and "ID key-operated switches (Page 78)".

Authorization level

The ID keys are divided into five authorization levels. The authorization levels 1, 2, 3 and 4 as well as "Individually encodable ID key". Authorization levels 1 to 4 correspond to the maximum key position. The authorization level "Individually encodable ID key" has no maximum key position in the standard setting. The user can configure the key position in accordance with one of the authorization levels 1 to 4. This configuration option is only available with the white ID key.

Article numbers

ID keys

		Authorization level	Key color	Article number
	3SU1900-0F (http://mall.industry.siemens.com/mall/de/de/Catalog/Products/10221535)			
	ID group 1	1	Green	3SU1900-0FV40-0AA0
	ID group 2	1 ... 2	Yellow	3SU1900-0FW30-0AA0
	ID group 3	1 ... 3	Red	3SU1900-0FX20-0AA0
	ID group 4	1 ... 4	Blue	3SU1900-0FY50-0AA0
	• Individually encodable • Multiple teach-in capability • Can only be used for IO-Link	Can assume all authorization levels	White	3SU1900-0FU60-0AA0

11.8   Use of accessories for the enclosure

Please note the following instructions for using the accessories:

Enclosure with recess for labeling plate		
Accessories	Suitable for front mounting	Suitable for base mounting
Label holder	✓	—
Single frame, square	✓	—
EMERGENCY STOP backing plate	—	—
Protective collar for EMERGENCY STOP	—	—
Protective collar for EMERGENCY STOP, SEMI-Industry	—	—
Protective collar for pushbutton	✓	—
Protective collar for mushroom pushbutton	✓	—
Sun collar	✓	✓
Protective collar 360° for pushbutton and short selector	✓	—
Locking device	—	—
Padlock	—	—
Protective caps	✓	—
Dust cover for key-operated switch	✓	✓
Sealable cap	✓	—
Yellow backing plate	✓	✓
Sealing plug	✓	✓
Enclosure cover monitoring	—	✓

Enclosure without recess for labeling plate		
Accessories	Suitable for front mounting	Suitable for base mounting
Label holder	✓	—
Single frame, square	✓	—
EMERGENCY STOP backing plate	—	—
Protective collar for EMERGENCY STOP	✓	—
Protective collar for EMERGENCY STOP, SEMI-Industry	✓	—
Protective collar for pushbutton	✓	—
Protective collar for mushroom pushbutton	✓	—
Sun collar	✓	✓
Protective collar 360° for pushbutton and short selector	✓	—
Locking device	✓	—
Padlock	✓	—
Protective caps	✓	—
Dust cover for key-operated switch	✓	✓
Sealable cap	✓	—
Yellow backing plate	✓	✓
Sealing plug	✓	✓
Enclosure cover monitoring	—	✓

When using an accessory that is mounted between the actuating element and the front plate, the maximum thickness of the front plate is reduced by the corresponding value of the accessory.

Technical specifications 12

12.1 Product data sheet

You can find the technical data of the devices at Siemens Industry Online Support (https://support.industry.siemens.com/cs/de/en).

Enter the article number of the desired device in the "Product" field to search for it. A view of the device appears with the link to the technical data.

Application examples

<div style="text-align: right; font-size: 3em;">13</div>

13.1 Examples of EMERGENCY STOP shutdown applications

13.1.1 Emergency stop shutdown to SIL 3 or PL e with a safety relay

Application

Two-channel emergency stop shutdown of a motor by a 3SK1 safety relay and power contactors.

Configuration
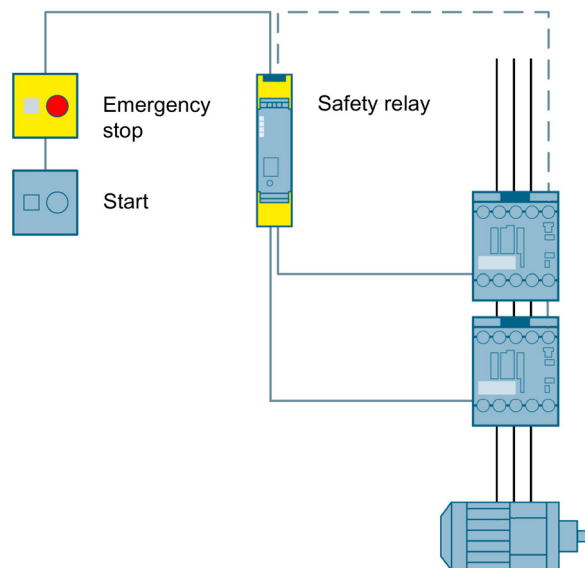
Figure 13-1   Emergency stop shutdown to SIL 3 or PL e with a safety relay

Operating principle

The safety relay monitors the emergency stop device on two channels. When the emergency stop device is actuated, the safety relay opens the enabling circuits and switches the power contactors off in a safety-related way. If the emergency stop device is unlatched and the feedback circuit is closed, the Start button can be used to switch on again.
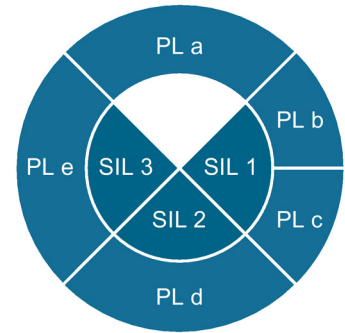
Safety-related components

Emergency stop device	Safety relay	Contactor
3SU1	3SK1	2x 3RT20

13.1.2 Emergency stop shutdown via AS-i with a Modular Safety System to SIL 3 or PL e

Application

Monitoring of multiple emergency stop devices via AS-i with a 3RK3 Modular Safety System.

Configuration
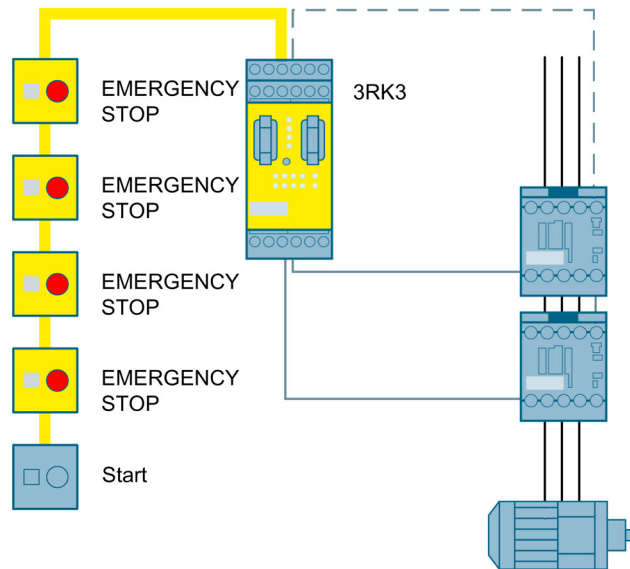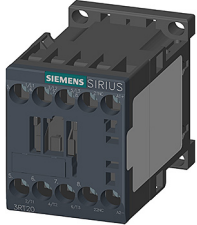
Figure 13-2   Emergency stop shutdown via AS-i to SIL 3 or PL e with a Modular Safety System

Operating principle

The Modular Safety System monitors each of the two-channel emergency stop devices connected to AS-i. When one of the emergency stop devices is actuated, the Modular Safety System opens the enabling circuits and switches the power contactors off in a safety-related way. If the emergency stop device is unlatched and the feedback circuit is closed, the Start button can be used to switch on again.
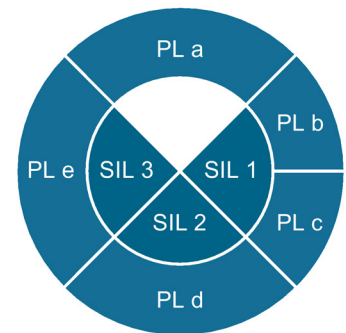
Safety-related components

Emergency stop device	Modular Safety System	Contactor
3SU1	3RK3	2 x 3RT20

Note

In addition to the safety-related components, operation of an AS-i network requires an AS-i master and an AS-i power supply.

13.2 Examples of two-hand operation console applications

Two-hand operation console, wall-mounted
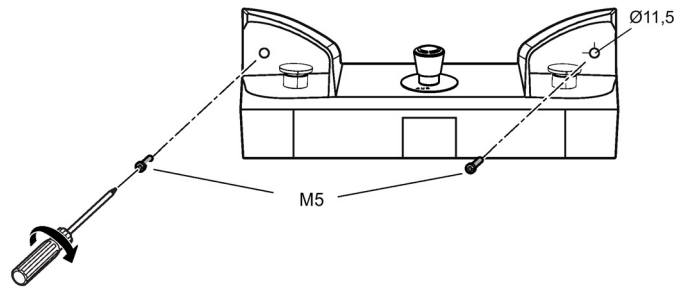
For further examples of applications refer to Chapter "Application examples (Page 265)"

13.2.1 Two-hand operation to SIL 3 or PL e with a safety relay

Application

Two-hand operation consoles comprise two buttons (e.g. sensor switches) that must be pressed simultaneously to operate a machine. This prevents the operator from reaching into the danger zone during operation.

Configuration
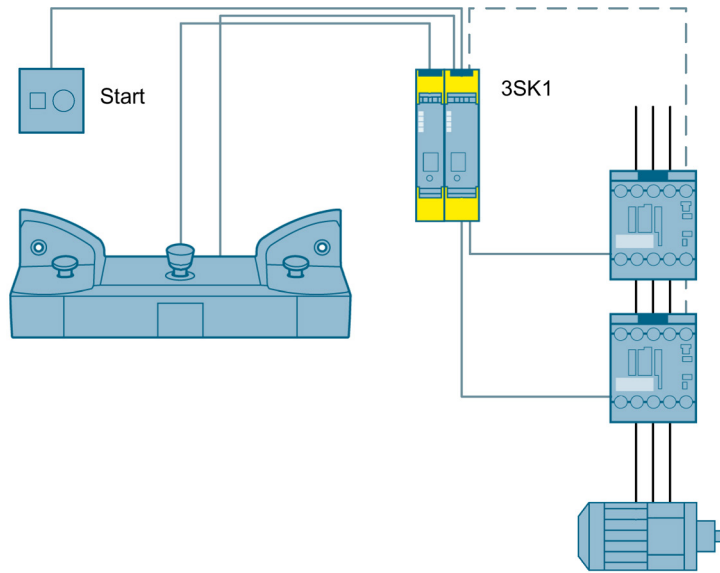
Figure 13-3   Two-hand operation to SIL 3 or PL e with a safety relay
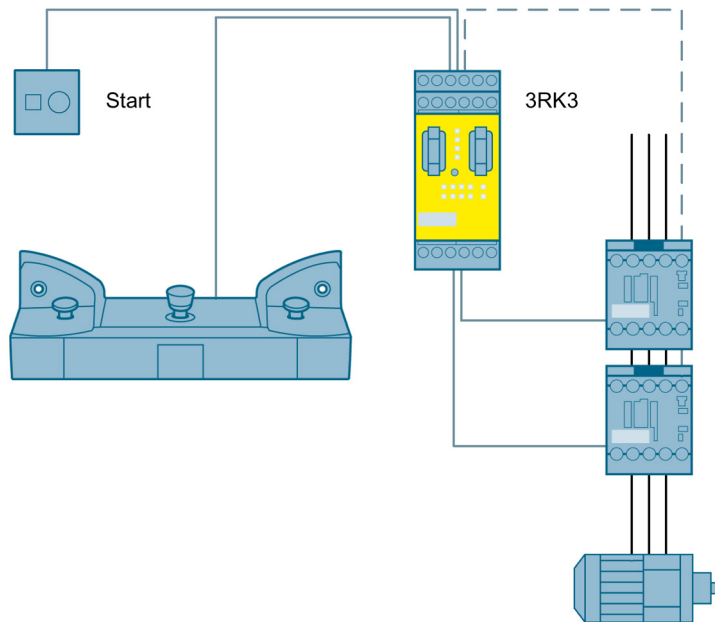
Operating principle

By imposing the condition of simultaneous pressing of both pushbuttons, the operator is restricted to the two-hand operation console and is thus unable to reach into the danger zone. The safety relay only switches the enabling circuits when both signals are active within 500 ms and the feedback circuit is closed.

If one of the two pushbuttons is released, the safety relay immediately switches the machine off in a safety-related manner.

After the emergency stop is actuated, the Start button must be used to restart.
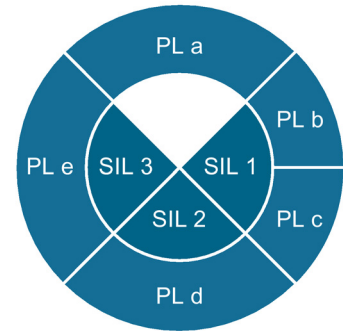
Safety-related components

Two-hand operation console	Safety relay	Input expansion	Contactor
3SU18	3SK1	3SK1	2x 3RT20

13.2.2 Two-hand operation to SIL 3 or PL e with a Modular Safety System

Application

Two-hand operation consoles comprise two pushbuttons (e.g. sensor switches) that must be pressed simultaneously to operate a machine. This prevents the operator from reaching into the danger zone during operation.

Configuration

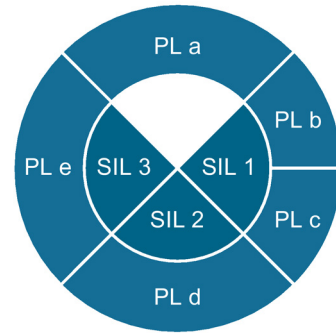Figure 13-4   Two-hand operation to SIL 3 or PL e with a Modular Safety System

Operating principle

By imposing the condition of simultaneous pressing of both pushbuttons, the operator is restricted to the two-hand operation console and is thus unable to reach into the danger zone. The Modular Safety System only switches the enabling circuits when both signals are active within 500 ms and the feedback circuit is closed.
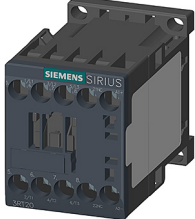
If one of the two pushbuttons is released, the Modular Safety System immediately switches the machine off in a safety-related manner.

The four-channel design in the two-hand operation console ensures that possible welding of one of the contacts is detected immediately.

After the emergency stop devices are actuated, the Start button must be used to restart.

Safety-related components

Two-hand operation console	Modular Safety System	Contactor
3SU18	3RK3	2x 3RT20

13.3   Application examples for ID key-operated switches

Machine tool application

Generally with special-purpose applications on a machine tool

Selection of optional assemblies with 2 differently encoded ID keys / 2 user groups

Module 1	Module 2	Module 3	Module 4

• Drill 1
   User authorization
	• Drill 1
	   User authorization
	• Drill 1+2
		• Drill 1
		• Usage authorization
		• Drill 1+2
		• Milling machine 1
			• Drill 1
			   User authorization
			   Drill 1+2
			• Milling machine 1
			• Milling machine 1+2

• **Added value**: Registration of the use of the supplementary devices			

Production line application

Generally with special-purpose applications on a production line, e.g. in automobile manufacture

Mode selector of a measuring machine with 4 differently encoded ID keys / 4 user groups.

Automatic mode (operating personnel)	Setting / maintenance mode (setting engineer)	Manual mode (service personnel)	Calibration mode (calibration service)
• Normal process cycle • Manual infeed and re-moval	• Setting up the machine for manufacturing a new part • Setting • Cleaning	• Step-by-step switching of the functions in the ma-chine possible to deter-mine the step where the fault occurs	• A special section in the control program is used to align the machine • The machine is provided with a sample part and carries out calibration with that
• **Added value:**Registration of the time required for production	• **Added value**: Registering the time required for set-ting	• **Added value**: Registra-tion of the fault times / fault frequency	• **Added value**: Registra-tion of the time required for calibration

Appendix

<div style="text-align: right; font-size: 2em;">A</div>

A.1 Process data and data sets

A.1.1 Electronic module for ID key-operated switches

A.1.1.1 Structure of the data sets

Overview of the data sets

Table A- 1   Data sets - overview

Index (dec)	Index (hex)	Subindex supported	Name	Access	Value	Length (bytes)
0	0	Yes	**Parameter Page 1**	r / w	—	16
2	2	Yes	System Command	w	—	1
3	3	Yes	Data Storage	r / w	—	24
12	0C	No	Device Access locks	r / w	—	2
16	10	No	Vendor Name	r	Siemens AG	10
17	11	No	Vendor Text	r	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)	64
18	12	No	Product Name	r	SIRIUS ACT electronic module for ID key-operated switch	55
19	13	No	Product ID	r	3SU1400-1GD10-1AA0	18
23	17	No	Firmware Revision	r	—	5
24	18	No	Application Specific Name	r / w	—	32
69	45	Yes	Process Data In	r	—	6
80	50	Yes	Delete individually en-codable ID key, data set 80	r / w	—	5
81	51	Yes	Memory for the individually encodable ID keys (1-30) data set 81	r	—	180
82	52	Yes	Memory for the individually encodable ID keys (31-50) data set 82	r	—	120
92	5C	Yes	Diagnostics - data set 92	r	—	20
94	5E	Yes	ID keys - data set 94	r	—	22
131	83	Yes	Parameters - data set 131	r / w	—	20

A.1.1.2 IO-Link communication parameters

Parameter Page 1 - IO-Link communication parameters

Table A- 2 Parameter Page 1

Address	Parameter name	Access	Description
0x00	Master Command	w	—
0x01	Master Cycle Time	r / w	—
0x02	Min. Cycle Time	r	0x6e
0x03	M-Sequence Capability	r	0x11
0x04	IO-Link Revision ID	r / w	0x11
0x05	Process data IN	r	0x50
0x06	Process data OUT	r	0x00
0x07	Vendor ID 1	r	0x00
0x08	Vendor ID 2	r	0x2a
0x09	Device ID 1	r / w	0x0c
0x0A	Device ID 2	r / w	0x03
0x0B	Device ID 3	r / w	0x01
0x0C	Function ID 1	r	0x00
0x0D	Function ID 2	r	0x00
0x0E	Reserved	r	—
0x0F	System Command	w	—

A.1.1.3 Identification data

Identification data

Identification data refers to data stored in a module that supports users in the following areas:

- When checking the system configuration
- When locating modified system hardware
- When troubleshooting a system.

Modules can be uniquely identified using the identification data.

Table A- 3 Identification data of the electronic modules for ID key-operated switches for IO-Link

DPP [1] Index (dec)	Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
0x07 (7)	—	r	Vendor ID	2	0x00
0x08 (8)	—	r			0x2A
0x09 (9)	—	r	Device ID	3	0x0C
0x0A (10)	—	r			0x03
0x0B (11)	—	r			0x01
—	0x10 (16)	r	Vendor Name	11	SIEMENS AG
—	0x11 (17)	r	Vendor Text	64 max.	Internet (http://support.automation.siemens.com/WW/view/en/29801139/130000)
—	0x12 (18)	r	Product Name	64 max.	SIRIUS ACT electronic module for ID key-operated switch
—	0x13 (19)	r	Product ID	18	3SU1400-1GD10-1AA0
—	0x17 (23)	r	Firmware Revision	7	*Firmware version*
—	0x18 (24)	r / w	Application Specific Name	32 max.	—

[1] Direct Parameter Page

A.1.1.4   System commands - data set (index) 2

Data set (index) 2 - system commands

Table A- 4   Data set (index) 2 - system commands

Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
0x02 (2)	w	System Command[1]	1	—

[1] Permitted vendor-specific system commands:
  0x82 for restore factory settings
  0xA1 for authorization level 1
  0xA2 for authorization level 2
  0xA3 for authorization level 3
  0xA4 for authorization level 4
  0xA5 for delete individually encodable ID key
  0xA6 for delete individually encodable ID key using data set 80
  0xA7 for delete all keys

A.1.1.5   Delete individually encodable ID key - data set (index) 80

Data set (index) 80- delete individually encodable ID key

Table A- 5   Data set (index) 80- delete individually encodable ID key

Data set Index (dec)	Access	Parameter	Length (bytes)	Default setting
0x50 (80)	r / w	Identification number of the individually encodable ID key to be deleted	5	—

A.1.1.6   Memory for the individually encodable ID keys (1-30) - data set (index) 81

Data set (index) 81- memory for the individually encodable ID keys

Table A- 6   Data set (index) 81- memory for the individually encodable ID keys

Byte.Bit	Subindex	Description
0.0 ... 4.7	1	Key 1
5.0 ... 5.7	2	Authorization level for key 1
6.0 ... 10.7	3	Key 2
11.0 ... 11.7	4	Authorization level for key 2
12.0 ... 16.7	5	Key 3
17.0 ... 17.7	6	Authorization level for key 3
18.0 ... 22.7	7	Key 4
23.0 ... 23.7	8	Authorization level for key 4
24.0 ... 28.7	9	Key 5
29.0 ... 29.7	10	Authorization level for key 5
30.0 ... 34.7	11	Key 6
35.0 ... 35.7	12	Authorization level for key 6
36.0 ... 40.7	13	Key 7
41.0 ... 41.7	14	Authorization level for key 7
42.0 ... 46.7	15	Key 8
47.0 ... 47.7	16	Authorization level for key 8
48.0 ... 52.7	17	Key 9
53.0 ... 53.7	18	Authorization level for key 9
54.0 ... 58.7	19	Key 10
59.0 ... 59.7	20	Authorization level for key 10
60.0 ... 64.7	21	Key 11
65.0 ... 65.7	22	Authorization level for key 11
66.0 ... 70.7	23	Key 12
71.0 ... 71.7	24	Authorization level for key 12
72.0 ... 76.7	25	Key 13
77.0 ... 77.7	26	Authorization level for key 13
78.0 ... 82.7	27	Key 14
83.0 ... 83.7	28	Authorization level for key 14
84.0 ... 88.7	29	Key 15
89.0 ... 89.7	30	Authorization level for key 15
90.0 ... 94.7	31	Key 16
95.0 ... 95.7	32	Authorization level for key 16
96.0 ... 100.7	33	Key 17
101.0 ... 101.7	34	Authorization level for key 17
102.0 ... 106.7	35	Key 18

Byte.Bit	Subindex	Description
107.0 ... 107.7	36	Authorization level for key 18
108.0 ... 112.7	37	Key 19
113.0 ... 113.7	38	Authorization level for key 19
114.0 ... 118.7	39	Key 20
119.0 ... 119.7	40	Authorization level for key 20
120.0 ... 124.7	41	Key 21
125.0 ... 125.7	42	Authorization level for key 21
126.0 ... 130.7	43	Key 22
131.0 ... 131.7	44	Authorization level for key 22
132.0 ... 136.7	45	Key 23
137.0 ... 137.7	46	Authorization level for key 23
138.0 ... 142.7	47	Key 24
143.0 ... 143.7	48	Authorization level for key 24
144.0 ... 148.7	49	Key 25
149.0 ... 149.7	50	Authorization level for key 25
150.0 ... 154.7	51	Key 26
155.0 ... 155.7	52	Authorization level for key 26
156.0 ... 160.7	53	Key 27
161.0 ... 161.7	54	Authorization level for key 27
162.0 ... 166.7	55	Key 28
167.0 ... 167.7	56	Authorization level for key 28
168.0 ... 172.7	57	Key 29
173.0 ... 173.7	58	Authorization level for key 29
174.0 ... 178.7	59	Key 30
179.0 ... 179.7	60	Authorization level for key 30

A.1.1.7 Memory for the individually encodable ID keys (31-50) - data set (index) 82

Data set (index) 82- memory for the individually encodable ID keys

Table A- 7   Data set (index) 82- memory for the individually encodable ID keys

Byte.Bit	Subindex	Description
0.0 ... 4.7	1	Key 31
5.0 ... 5.7	2	Authorization level for key 31
6.0 ... 10.7	3	Key 32
11.0 ... 11.7	4	Authorization level for key 32
12.0 ... 16.7	5	Key 33
17.0 ... 17.7	6	Authorization level for key 33
18.0 ... 22.7	7	Key 34
23.0 ... 23.7	8	Authorization level for key 34
24.0 ... 28.7	9	Key 35
29.0 ... 29.7	10	Authorization level for key 35
30.0 ... 34.7	11	Key 36
35.0 ... 35.7	12	Authorization level for key 36
36.0 ... 40.7	13	Key 37
41.0 ... 41.7	14	Authorization level for key 37
42.0 ... 46.7	15	Key 38
47.0 ... 47.7	16	Authorization level for key 38
48.0 ... 52.7	17	Key 39
53.0 ... 53.7	18	Authorization level for key 39
54.0 ... 58.7	19	Key 40
59.0 ... 59.7	20	Authorization level for key 40
60.0 ... 64.7	21	Key 41
65.0 ... 65.7	22	Authorization level for key 41
66.0 ... 70.7	23	Key 42
71.0 ... 71.7	24	Authorization level for key 42
72.0 ... 76.7	25	Key 43
77.0 ... 77.7	26	Authorization level for key 43
78.0 ... 82.7	27	Key 44
83.0 ... 83.7	28	Authorization level for key 44
84.0 ... 88.7	29	Key 45
89.0 ... 89.7	30	Authorization level for key 45
90.0 ... 94.7	31	Key 46
95.0 ... 95.7	32	Authorization level for key 46
96.0 ... 100.7	33	Key 47
101.0 ... 101.7	34	Authorization level for key 47
102.0 ... 106.7	35	Key 48

Byte.Bit	Subindex	Description
107.0 ... 107.7	36	Authorization level for key 48
108.0 ... 112.7	37	Key 49
113.0 ... 113.7	38	Authorization level for key 49
114.0 ... 118.7	39	Key 50
119.0 ... 119.7	40	Authorization level for key 50

A.1.1.8 Diagnostics - data set (index) 92

Data set (index) 92 - diagnostics

> **Note**
>
> Bits that are not described in the tables below are reserved and should be ignored.

Table A- 8   Data set (index) 92 - diagnostics

Byte.Bit	Subindex	Description
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Ready
16.1	5	Group error
16.2	6	Reserved
16.3	7	Reserved
16.4	8	Reserved
16.5	9	Reserved
16.6	10	Reserved
16.7	11	Reserved
17.0	12	Digital output 0
17.1	13	Digital output 1
17.2	14	Digital output 2
17.3	15	Digital output 3
17.4	16	Digital output 4
17.5	17	Reserved
17.6	18	Reserved
17.7	19	Reserved
18.0	20	Detection of the ID key
19.0 ... 19.7	21	Status of the individually encodable ID key

A.1.1.9   ID keys - data set (index) 94

Data set (index) 94 (ID keys)

> **Note**
>
> Bits that are not described in the tables below are reserved and should be ignored.

Table A- 9   Data set (index) 94 (ID keys)

Byte.Bit	Subindex	Description
0.0 … 15.7	1 ... 3	Reserved
16.0 … 20.7	4	Identification number of the individually encodable ID key
21.0 … 21.2	5	Authorization level
21.3 … 21.5	6	Key position

A.1.1.10   Parameters - Data set (index) 131

Data set (index) 131 (parameters)

Note

Bits that are not described in the tables below are reserved and should be ignored.

Table A- 10   Data set (index) 131 (parameters)

Byte.Bit	Subindex	Description
Operating system functions		
0.0 ... 15.7	1 ... 3	Reserved
16.0	4	Incremental mode Default: [0] [0] disabled [1] enabled
16.1	5	Switch position memory Default: [0] [0] disabled (key position = 0) [1] enabled (last switch position is retained)
16.2	6	Key memory Default: [0] [0] disabled [1] enabled
16.3	7	Individual keys only Default: [0] [0] disabled [1] enabled
17.0 ... 17.7	8	Switch position delay Type: CHAR Resolution: 0.1 s = 1 Default: 20 Min: 1 or 0 (disabled) Max: 100 * 0.1 s = 10 s
18.0 ... 18.7	9	Select memory range Default [1] Min: 1 Max: 5
19.0 ... 19.7	—	Reserved

A.2 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)

China Compulsory Certification

(Certification system in China)

Association of German Electrical Engineers
(The VDE logo for electrical/electronic products including products as defined in the German legislation on equipment and product safety (GPSG), and medical products as defined in the medical products legislation (MPG), designates compliance with the VDE regulations or European or internationally harmonized standards, and confirms that the protection requirements of the relevant directives are met).

A.3 Correction sheet

Have you noticed any errors while reading this manual? If so, please use this form to tell us about them. We welcome comments and suggestions for improvement.

Fax response

	From (please complete):
To	Name
SIEMENS AG	
DF CP PRM IM 2	Company/Department
92220 Amberg / Germany	Address

_____

Fax: +49 (0)9621-80-3337

Manual title:

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