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- Art. no. 57120, Terminals 8X24 V DC
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Manual CUBE20S Expansion

Function module incl. base
potential distributor 8x 24 V DC

This document is valid for the following products:

Name	Art. no.
CUBE20S system potential distributor 8x 24 V DC Function modules incl. base	57120

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1 Introduction

1.1 Service and support

Sales	Our sales staff in the company, field service and technicians will support you at all times.
CONNECTIVITY system consultants	<p>Our system consultants are your competent contact persons when you want to develop CONNECTIVITY solutions. Together with you, they find the optimum solutions for your electrical installations.</p> <p>Our CONNECTIVITY consultants find ways that help you to permanently improve the competitiveness of your machines and plants.</p>
Customer Service Center (CSC)	<p>Our staff of the Customer Service Center will help you with all questions concerning installation and set-up. They support you, for example, if you have problems when combining hardware and software products of different manufacturers.</p> <p>There are numerous support tools and possibilities for measurements - both for fieldbus systems and electromagnetic interference.</p> <p>Please do not hesitate to call us on +49 (0) 7191 47-2050 or send us an e-mail to: csc@murrelektronik.de.</p>
Service addresses	<p>Please see our website for your contact person:</p> <p>www.murrelektronik.com</p>

1.2 Introduction / about this document

Function of this document

This document describes the use of the module **potential distributor 8x 24 V DC** from the Cube20S system of Murrelektronik GmbH. It includes a description of the design, engineering and application.

1.3 Symbols

This document includes information and notes that have to be observed for your own safety and to avoid personal and material damage. They are characterized as follows:



DANGER!

Immediate danger

→ Failure to observe this warning involves an imminent risk of death or serious injuries!



WARNING!

Possible danger

→ Failure to observe this warning may cause death or serious injuries.



CAUTION!

Low-risk danger

→ Failure to observe this warning causes minor to moderate injuries.

NOTICE

Risk of material damage

→ Failure to observe this warning causes material damage.



NOTE

Other technical information and notes of Murrelektronik GmbH.



RECOMMENDATION

Notes with this symbol are recommendations of Murrelektronik GmbH.



Products and Accessories

This symbol refers to accessories or product recommendations.

Instruction for use

- An arrow marks instructions for use.
- Read and observe the instructions for use.
- 1 | If they are numbered, it is absolutely necessary to follow them in the correct order.
- 2 | Read and observe the instructions for use.

1.4 Trademarks

The trademarks of the following companies are used in this documentation:

Adobe Systems Corp.	Adobe Acrobat Reader
Microsoft Corp.	Microsoft Windows 7, Windows Vista, Windows 2000, Windows XE/XP and Microsoft Internet Explorer
PROFIBUS International (P.I.)	PROFIBUS, PROFIBUS DP
PROFIBUS / PROFINET International (P.I.)	PROFINET, PROFINET IO
ODVA Open DeviceNet Vendor Association	EtherNet/IP
Beckhoff Automation GmbH	EtherCAT
CAN in AUTOMATION - International Users and Manufacturers Group e.V.	CANopen
Gould Inc. Corporation	Modbus
Siemens AG	S5-200, S5-300, S5-400 S7-200, S7-300, S7-400

2 For your own safety

2.1 Target group

Users	This manual is intended for users who have knowledge of automation systems.
Documentation	Please give this manual to all employees involved in the following tasks: <ul style="list-style-type: none">■ Planning■ Installation■ Set-up■ Operation

2.2 Intended purpose

Designated use	The Cube20S system has been designed and manufactured for: <ul style="list-style-type: none">■ communication and process control■ general control and automation tasks■ industrial use■ operation under the ambient conditions specified under technical data■ installation in a switch cabinet
Foreseeable misuse	The device is not approved for being used: <ul style="list-style-type: none">■ in potentially explosive atmospheres (EX Zone)■ outside of switch cabinets.

2.3 General safety instructions

Note:

- the relevant safety and accident prevention regulations;
- the EC Directives or other national regulations;
- generally recognized safety rules;
- the section 2.5 "EMC installation guidelines".

NOTICE

Defective device!

Improper use of the hardware and software can cause damage to the device.

- Only qualified personnel of Murrelektronik GmbH may manipulate the device.
- Only use the device to the extent described in the manual.

Avoid accidents caused by electrical voltage!

- Comply with the 5 safety rules of electrical engineering!
- Disconnect the device from the mains.
- Then carry out installation or repair work.

Avoid personal and material damage due to malfunctions!

- Provide external circuit breakers.
- The device may only be operated within the specified tolerances.

Avoid undefined states!

- ➔ Select and install connection lines so that capacitive and inductive interferences do not have adverse effects on the system.
- ➔ Protect the device against improper and unintended use.

2.4 Notes on electrostatically sensitive equipment

NOTICE**Overvoltage due to electrostatic discharge!**

The assemblies might get damaged.

- ➔ Ensure sufficient grounding of persons and working material!

Handling

Murrelektronik assemblies include highly integrated MOS components. These components are extremely sensitive to over-voltages occurring, for example, due to electrostatic discharge. Assemblies at risk are marked by the adjacent symbol.

The symbol is fixed to assemblies, sub-racks or packaging and indicates electrostatically sensitive equipment. These assemblies may become irreparably damaged by voltage and energy levels which are far below the perception levels of human beings.

If a person who is not electrostatically discharged handles electrostatically sensitive equipment, voltages may be produced. They may damage components, impair the functioning of the assemblies or render the assembly inoperative. Frequently, assemblies damaged like this cannot directly be recognized as faulty. The fault may show only after longer operation.

Components damaged by electrostatic discharge may produce temporary faults in case of temperature changes, vibrations or load changes.

Only with a consistent use of protective devices and a responsible compliance of the instructions for use can you avoid malfunctions or failures of the electrostatically sensitive equipment.

Shipping

- ➔ For shipping electrostatically sensitive equipment, use **always** the original packaging.

Measurements

Observe the following notes for measurements on electrostatically sensitive equipment:

- ➔ Discharge potential-free measuring instrument briefly.
- ➔ Ground the measuring instruments used.

2.5 EMC installation guidelines

Industrial use

The CUBE20S system is an electronic device manufactured according to the current state-of-the-art standards. Both the robust mechanical construction and the design of the electronic components make it ideal for industrial use. To guarantee a trouble-free operation, observe the following rules when installing the device in systems. Otherwise, the high interference immunity and resistance to damage of the device may become partially ineffective.

The interference immunity of the entire system considerably depends on the correct installation, location and wiring.

- 1 | For safe operation, check the installation regulations stipulated by the manufacturer of the controller.
- 2 | Bring them in line with the recommendations for an EMC-compatible design.
- 3 | Then install CUBE20S system.

2.6 Notes on spare parts and accessories

Spare parts

- Only use the original spare parts or spare parts by other manufacturers expressly authorized by Murrelektronik GmbH.
- Check the function of the device after having replaced a component.

Accessories

- The use of accessories may alter the device function. Use only accessories authorized by Murrelektronik GmbH.
- Observe the enclosed instructions of the accessories when installing them.

2.7 Environmentally friendly disposal



Disposal

Do not throw electrical devices, batteries or accumulators in the domestic waste!

If you want to dispose of the product, it may be returned free of charge to Murrelektronik GmbH. This is also valid for original packaging and batteries or accumulators.

Return

- ➔ Label the product and the packaging with **"For disposal"**.
- ➔ Pack the product.
- ➔ Send the package to:
Murrelektronik GmbH
Falkenstraße 3
D-71570 Oppenweiler

We ensure that it is disposed of according to the German legislation. Transport to the place of destination is at the expense of the last owner.

2.8 EC Declaration of Conformity



Murrelektronik GmbH herewith declares that the products and systems comply with the basic requirements and other relevant regulations of the following Directives:

- 2004/108/EC Electromagnetic compatibility
- 2011/65/EU RoHS

2.9 Warranty and liability

Warranty and liability claims

Warranty and liability claims shall be lost if

- the product is not used according to its designated use,
- damage is caused because the manual and the operating instructions have not been observed,
- the staff was/is not qualified.

3 Description

3.1 System

Overview

The Cube20S system is a modular automation system mounted on a 35 mm DIN rail. Using 2, 4 and 8-channel expansion modules, you may adapt this system perfectly to your automation tasks.

You do not need much wiring because the 24 V DC power supply is integrated in the backplane bus. Defective electronic modules can be replaced without having to replace the wiring.

Using power modules with different colors, you may define further voltage ranges for the 24 V DC power supply within the system or add 2 A to the electronic supply.

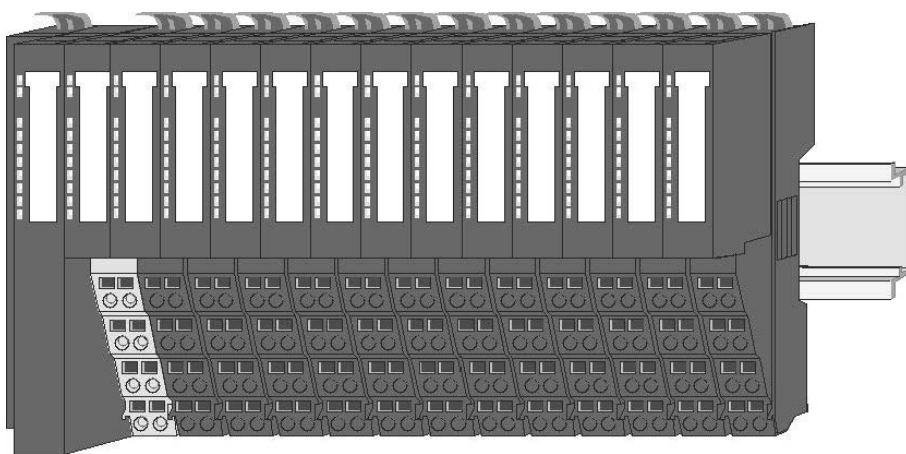


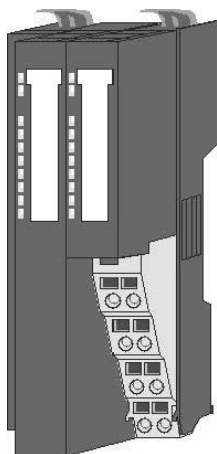
Fig. 3-1: Cube20S system

Components

The Cube20S system consists of the following components:

- Bus node
- Expansion modules
- Power modules
- Accessories

Bus node



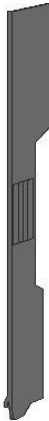
Bus interface and power module of the bus node are incorporated in one housing. The bus interface is used to connect to a parent bus system.

Both bus interface and the electronics of the connected expansion modules are supplied with power over the power module.

There is another connection on the power module for the 24 V DC power supply of the connected expansion modules.

By installing up to 64 expansion modules on the bus node, they will be electrically connected, i.e.

- they are incorporated in the backplane bus,
- the electronic modules are supplied with power,
- each expansion module is connected to the 24 V DC power supply.

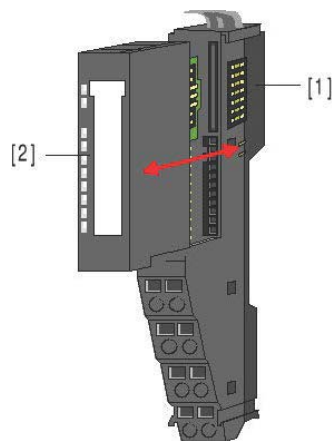
Bus cover

Each bus node has a cover to protect the contacts.

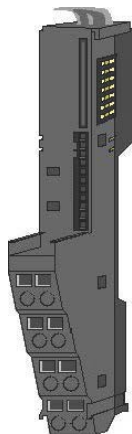
- ➔ Remove the cover on the bus node before installing CUBE20S modules.
- ➔ To protect the contacts, mount the bus cover on the outmost module.

Expansion modules

Each expansion module consists of a terminal and an electronic module.



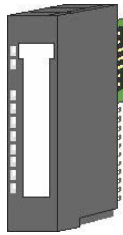
- 1 Terminal module
- 2 Electronic module

Terminal module

The terminal module consists of the following functional elements:

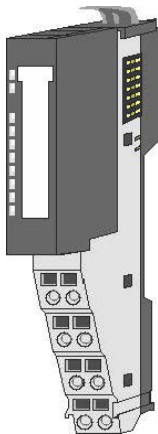
- a sliding mechanism to fasten the electronic module,
- the backplane bus with power supply for the electronics,
- the connection to the 24 V DC power supply,
- the staircase-shaped terminal block for wiring,
- a safe locking system for fastening on a mounting rail.

This locking mechanism allows you to mount your Cube20S system outside the switch cabinet and fix the complete system later in the switch cabinet.

Electronic module

The functionality of an expansion module is defined over the electronic module.

- If the electronic module is defective, it can be replaced while wiring is kept.
- On its front, there are LEDs indicating the status.
- For an easier wiring, there are wiring diagrams on the front and side of each electronic module.

Power modules

Power modules provide the Cube20S system with power. The power modules are either integrated in the bus node or may be plugged between the expansion module.

Depending on the type of power module, groups of potential can be defined for the 24 V DC power supply, or the electronics supply may be extended by 2 A.

For a better recognition, the power modules have a different color than the expansion modules.

3.2 Dimensions

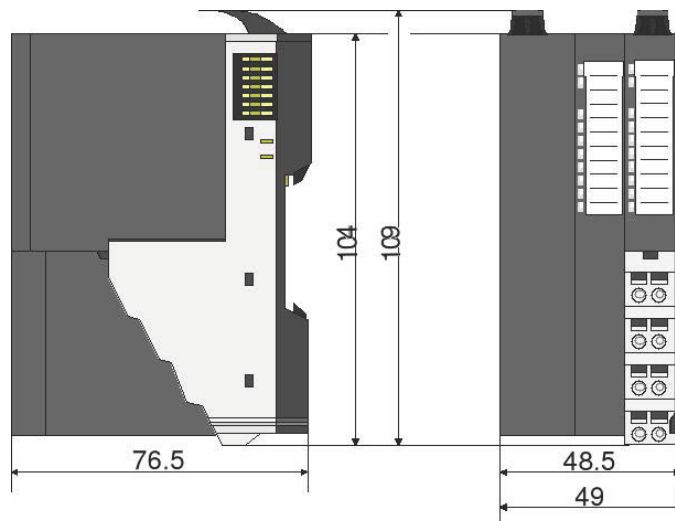
Dimensions of the bus node

Fig. 3-2: Dimensions of the bus node

Dimensions of the expansion module

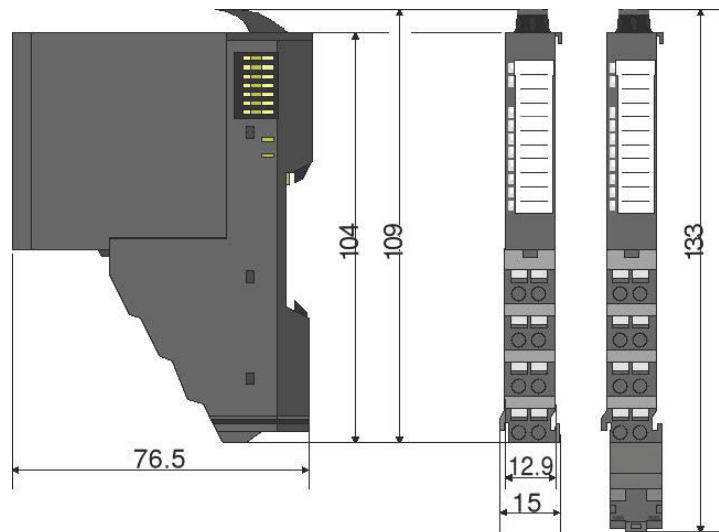


Fig. 3-3: Dimensions of the expansion module

Dimensions of the electronic module

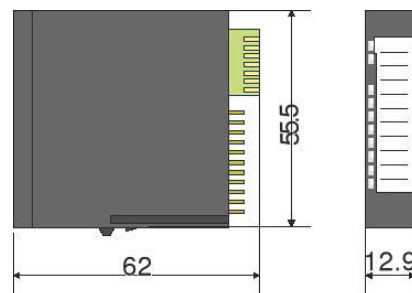


Fig. 3-4: Dimensions of the electronic module

3.3 Mounting

**NOTE**

You can mount the modules individually or as a whole block on the DIN rail. For block installation, please observe the following: **All** locking levers must be open.

3.3.1 General notes

The individual modules are mounted directly on a DIN rail. Electronics and power supply are connected over the backplane bus.

Conditions:

- Max. number of plug-in modules: 64
- Max. total current of the electronics supply: 3 A

A **power module sensor/actuator/bus art. no. 57131** extends the current for the electronics supply by 2 A. For details, refer to section 3.5 "Wiring".

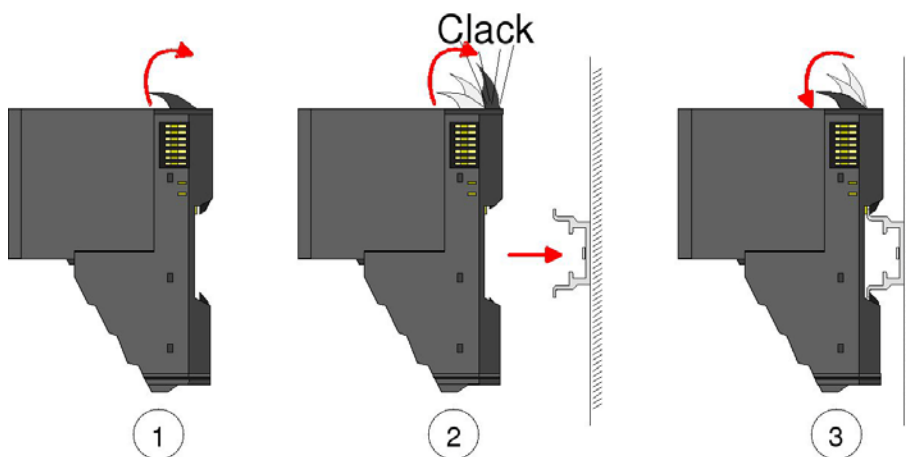


Fig. 3-5: Installing the module

3.3.2 Functional principle of the locking

Inserting and locking the module

✖ The terminal module has a locking lever at its top.

- 1 | For installation and disassembly, please press this lever upwards until it engages audibly.
- 2 | Plug the module to be mounted in the previously plugged-in module.
- 3 | Slide the module with the help of the guide strips at top and bottom onto the DIN rail.
- 4 | Flip the locking lever downwards.

The module is fastened to the DIN rail.

3.3.3 Replacing an electronic module

Disassembly

- ✓ The electronic module has a locking lever at the bottom.
- 1 | Press the locking lever upwards for disassembly.
- 2 | To remove the electronic module, pull it out towards the front.

The electronic module has been removed.

Installation

- ✓ The electronic module has a locking lever at the bottom.
- ➔ Slide the electronic module with the help of the guide strip into the terminal module.

The electronic module engages audibly at the bottom.

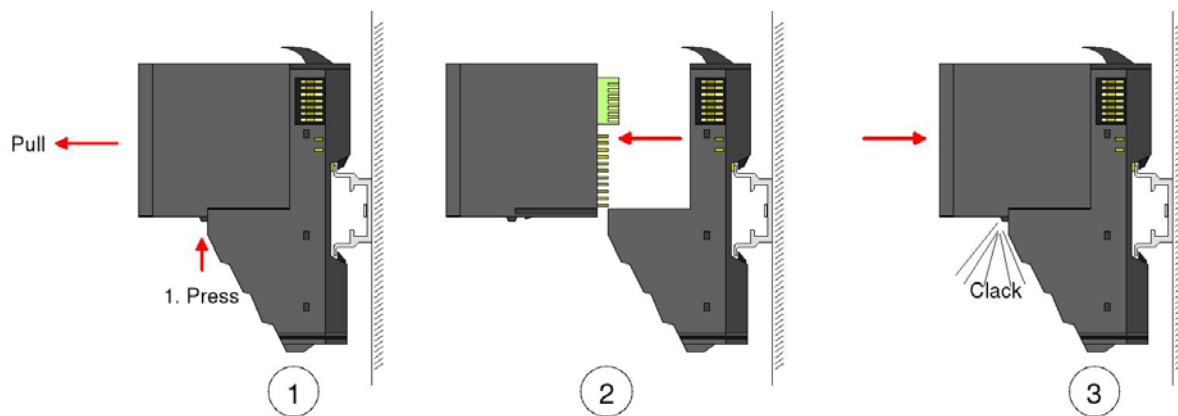


Fig. 3-6: Disassembling and installing the electronic module

3.3.4 Installing the DIN rail

- ➔ Install the DIN rail with the necessary distances (see Fig. 3-7: "Installation distances").

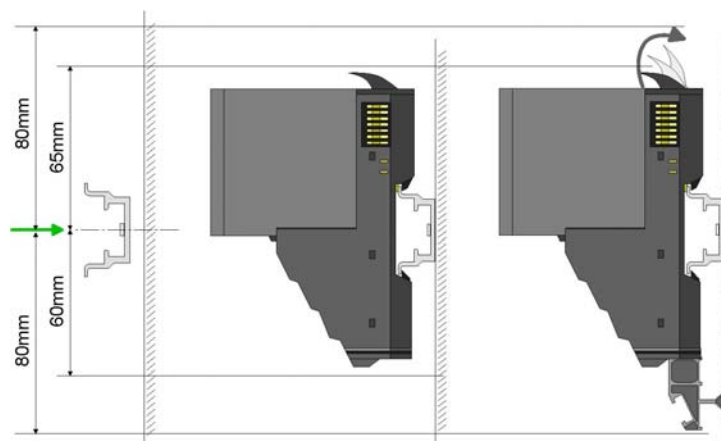


Fig. 3-7: Installation distances

3.3.5 Installing the bus node

- ✓ To mount the system, start on the left with the bus node.
- 1 | Flap the two locking levers of the bus node upwards.
- 2 | Plug the bus node in the DIN rail.
- 3 | Flap the two locking levers of the bus node downwards.
- 4 | To remove the right bus cover, pull it out towards the front.
- 5 | Store the bus cover to use it as termination of the system.

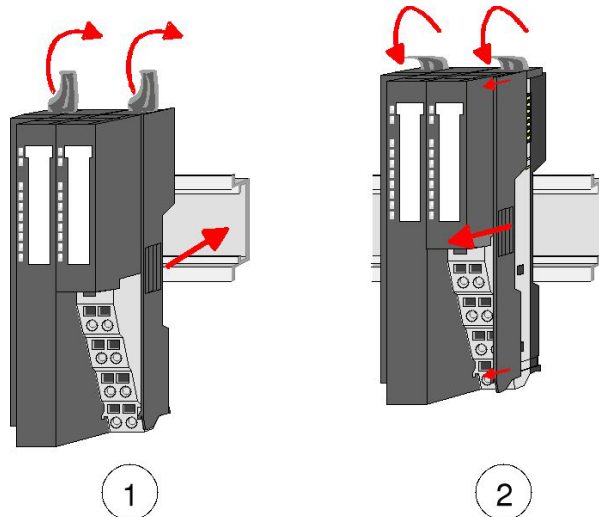


Fig. 3-8: Installing the bus node

3.3.6 Installing the expansion modules

- 1 | Flap the locking lever of the expansion module upwards.
- 2 | Plug the expansion module in the DIN rail.
- 3 | Push the expansion module towards the bus node or the last expansion module.
- 4 | Flap the locking lever of the expansion module downwards.
- 5 | Mount all expansion modules as described.

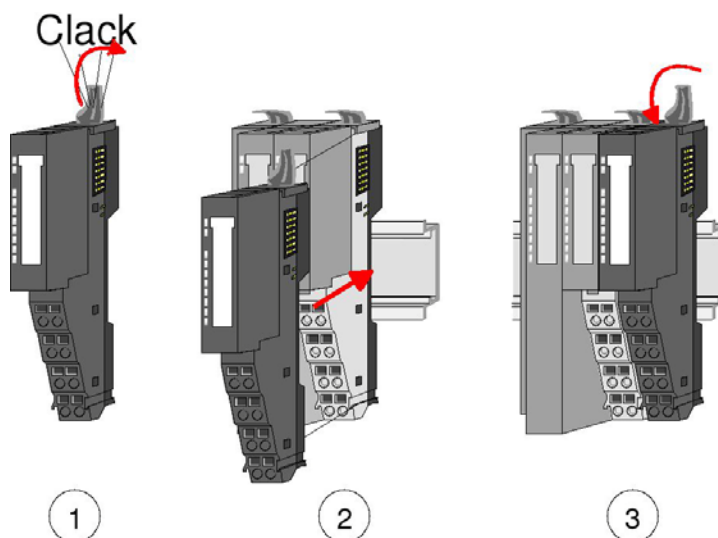


Fig. 3-9: Installing the expansion module

3.3.7 Installing the bus cover

- ✓ Prerequisite: The system has been completely mounted.
- ➔ Plug the bus cover in the outmost module as a protection of the bus contacts.

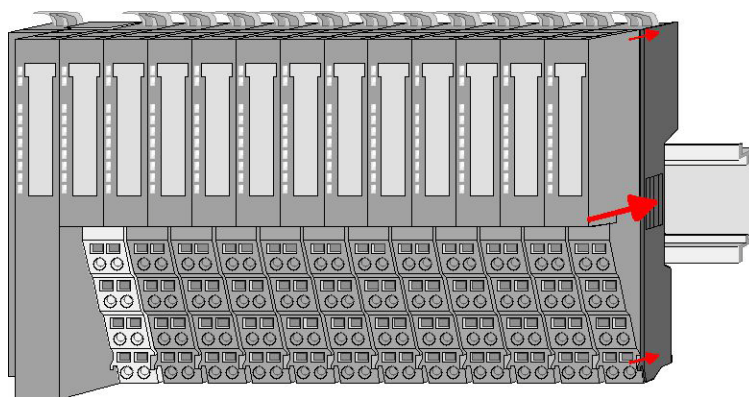


Fig. 3-10: Installing the bus cover

3.4 Disassembling and replacing modules

3.4.1 Procedure

During disassembly or when replacing a module or module group, please observe the following:

- 1 | Remove the electronic module to the right of the module or module group.
- 2 | Dismount/replace the module or module group.
- 3 | Plug in the electronic module.

3.4.2 Replacing an electronic module

Disassembly

- ✓ The electronic module has a locking lever at the bottom.
- 1 | Press the locking lever upwards for disassembly.
- 2 | To remove the electronic module, pull it out towards the front.

The electronic module has been removed.

Installation

- ✓ The electronic module has a locking lever at the bottom.
- ➔ Slide the electronic module with the help of the guide strip into the terminal module.

The electronic module engages audibly at the bottom.

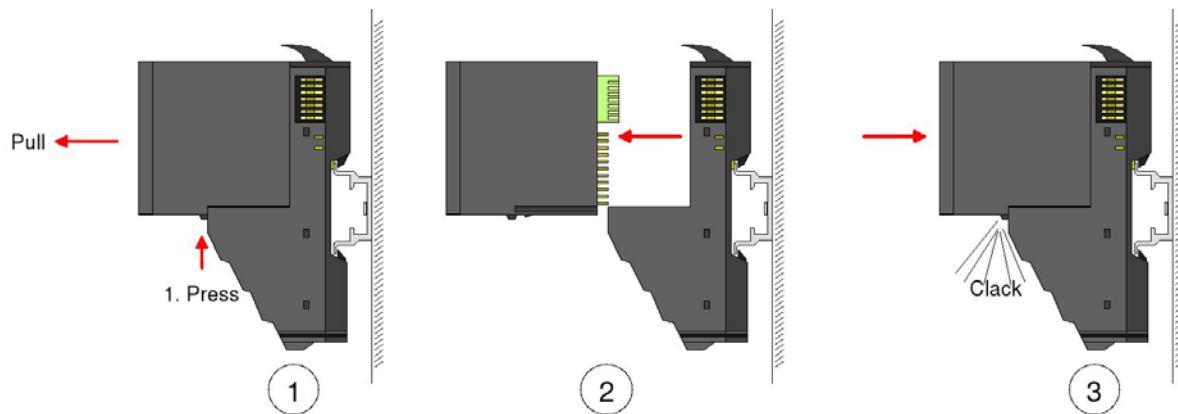


Fig. 3-11: Disassembling and installing the electronic module

3.4.3 Replacing a module

Dismounting

- 1 | Remove the wiring from the module, if any. For details refer to section **Wiring**.
- 2 | Unlock the electronic module to its right at the bottom.
- 3 | To remove the electronic module, pull it out towards the front.
- 4 | Flap the locking lever of the module to be replaced upwards.
- 5 | To remove the module, pull it out towards the front.

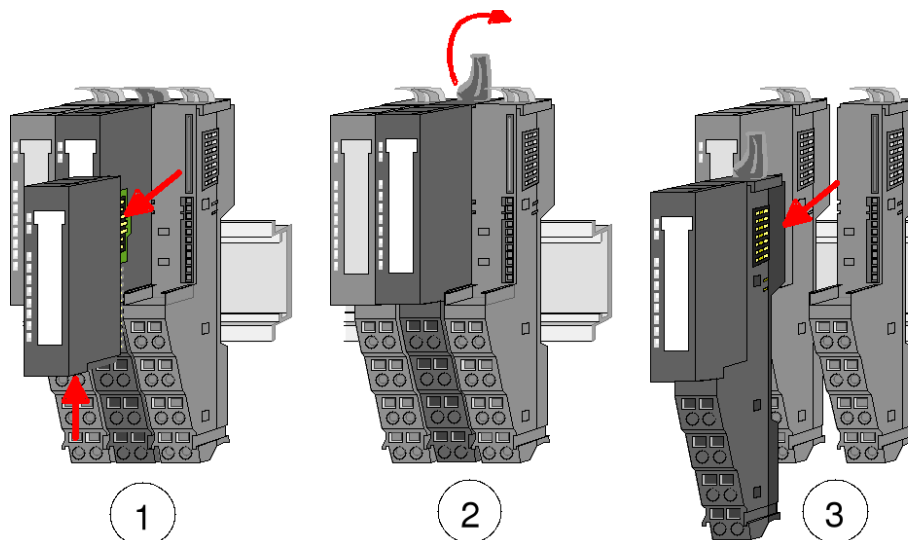


Fig. 3-12: Disassembling a module

Installing the new module

- 1 | Flap the locking lever of the module upwards.
- 2 | Plug the module in the gap between the modules.
- 3 | Slide the module with the help of the guide strips at both sides onto the DIN rail.
- 4 | Flap the locking lever of the module downwards.
- 5 | Plug in the electronic module.

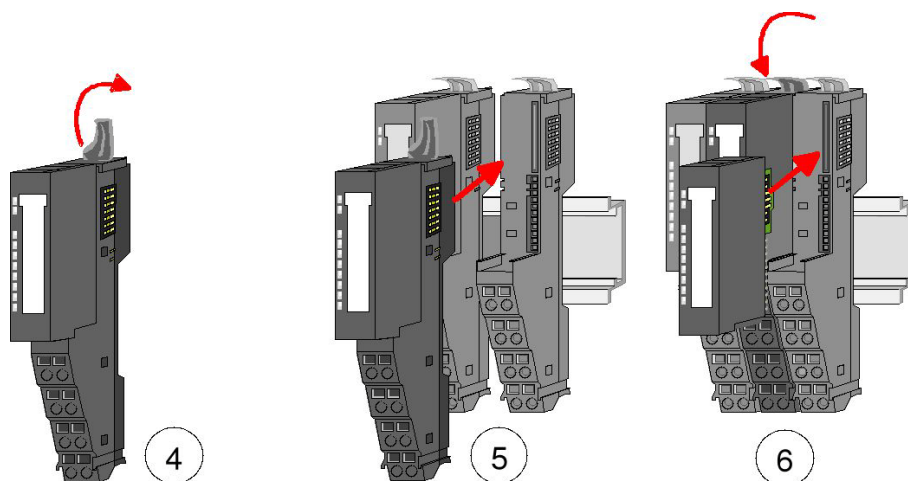


Fig. 3-13: Installing the new module

3.4.4 Replacing a bus node

Disassembly

**CAUTION!**

Power module and bus interface belong together!

If separated, the modules get destroyed.

→ Do not separate power module and bus interface!

- 1 | Remove the wiring from the bus node, if any. For details, please see section **Wiring**.
- 2 | Unlock the electronic module to its right at the bottom.
- 3 | To remove the electronic module, pull it out towards the front.
- 4 | Flap the locking lever of the bus node upwards.
- 5 | To remove the bus node, pull it out towards the front.

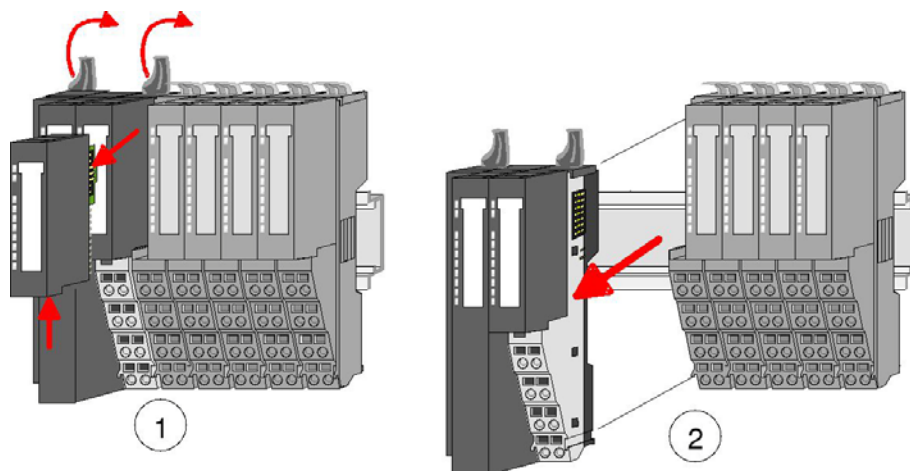


Fig. 3-14: Disassembling the bus node

Installing the new bus node

- 1 | Flap the locking levers of the bus node upwards.
- 2 | Plug the bus node in the left module.
- 3 | Slide the bus node with the help of the guide strips onto the DIN rail.
- 4 | Flap the locking levers downwards.
- 5 | Plug in the electronic module.

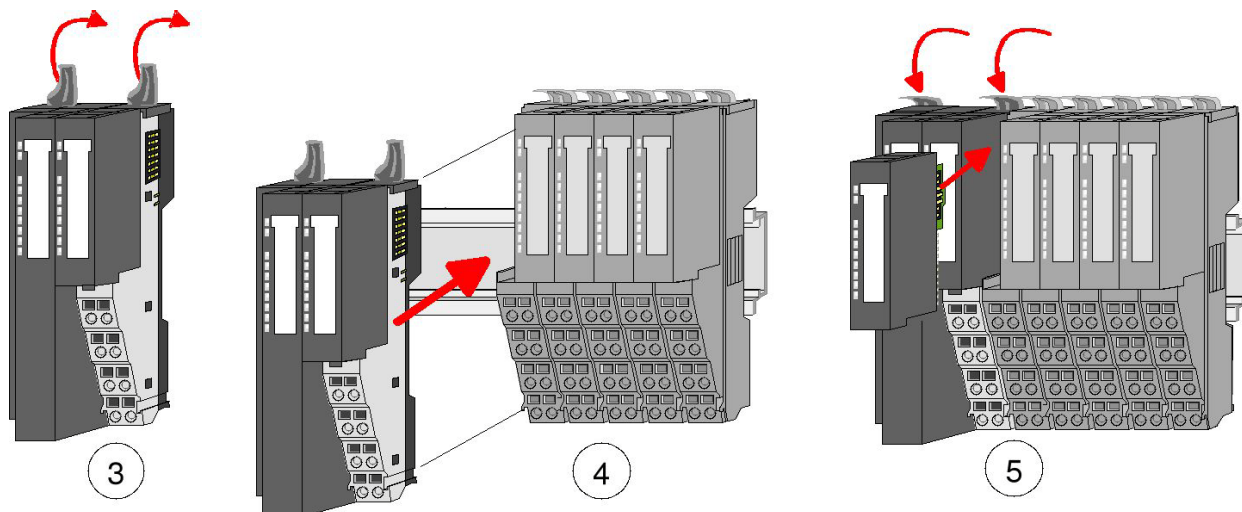


Fig. 3-15: Installing the new bus node

3.4.5 Replacing a module group

Disassembly

- 1 | Remove the wiring from the module group, if any. For details, please see section **Wiring**.
- 2 | Unlock the electronic module to its right at the bottom.
- 3 | To remove the electronic module, pull it out towards the front.
- 4 | Flap the locking levers of the module group upwards.
- 5 | To remove the module group, pull it out towards the front.

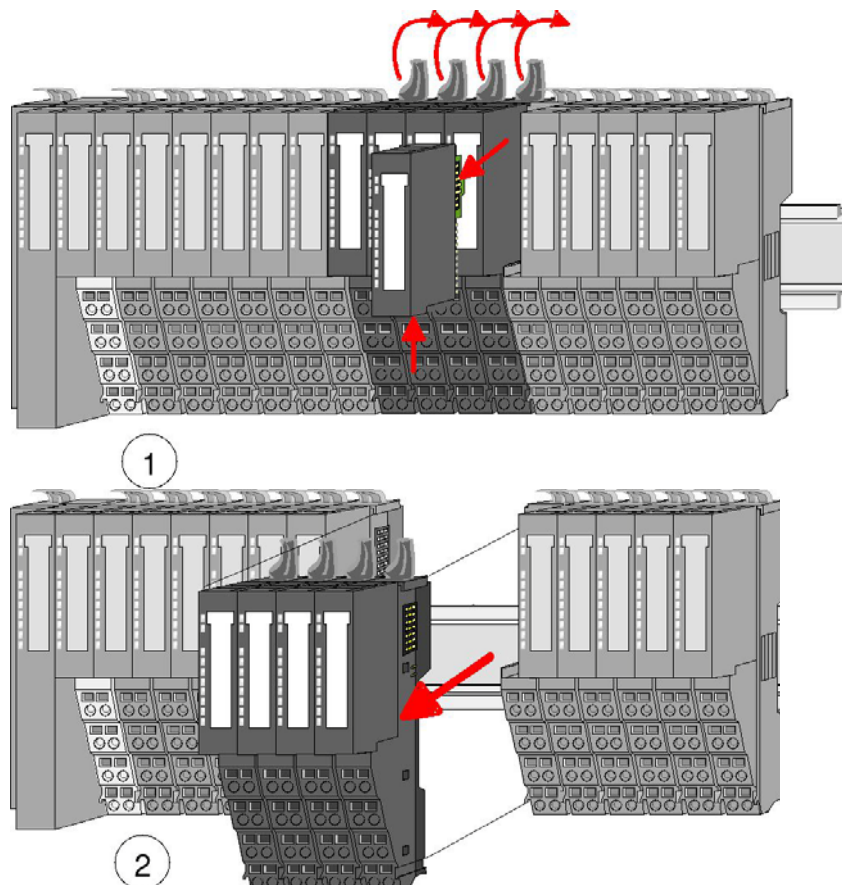


Fig. 3-16: Disassembling the module group

Installing the new module group

- 1 | Flap the locking levers of the module group upwards.
- 2 | Plug the module group in the gap between the modules.
- 3 | Slide the module group with the help of the guide strips at both sides onto the DIN rail.
- 4 | Flap the locking levers of the module group downwards.
- 5 | Plug in the electronic module.

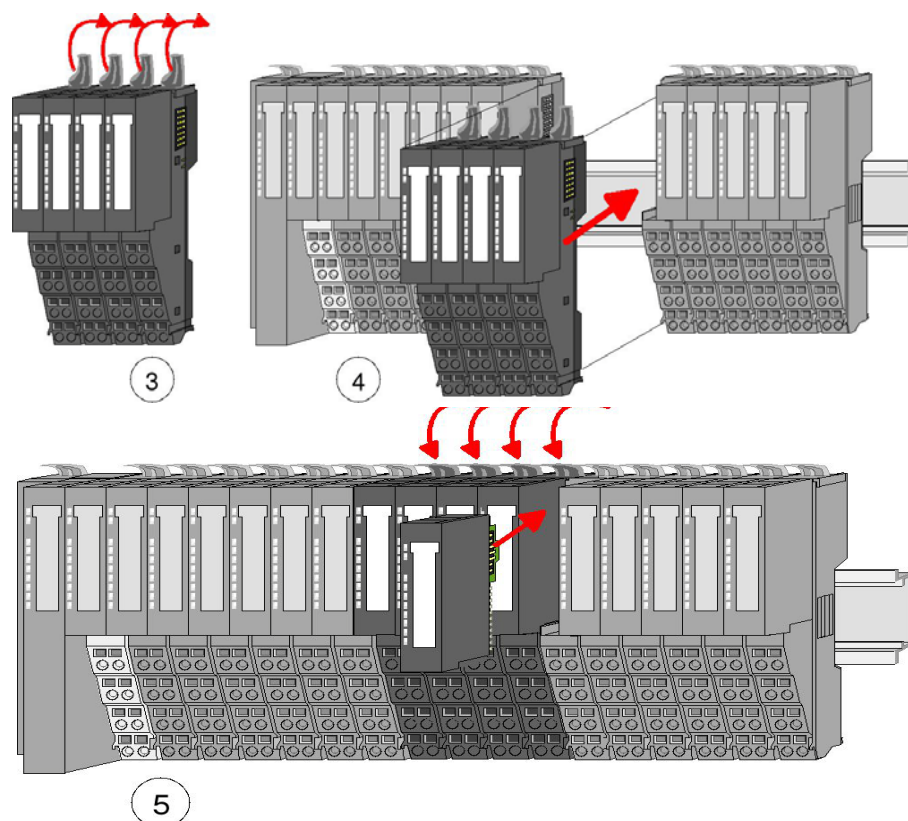


Fig. 3-17: Mounting of the module group

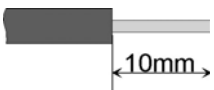
3.5 Wiring

3.5.1 Spring terminals

Terminals

Spring terminals are used for wiring. Spring terminals allow you to connect the signaling lines and power cables fast and easily. This type of connection is resistant to vibrations.

Cable data

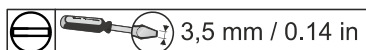


$U_{\max.}$: 240 V AC / 30 V DC
 $I_{\max.}$: 10 A
 Cross section: 0.08 ... 1.5 mm² (AWG 28 ... 16)
 Stripping length: 10 mm

3.5.2 Procedure

Wiring

✂ Tools: suitable screwdriver



✂ Wire cross-section: 0.08 mm² ... 1.5 mm² (AWG 28 ... 16)

- 1 | Put the screwdriver slightly inclined in the rectangular opening (Fig. 3-18: 1).
- 2 | Press and hold the screwdriver away from the round opening. The contact spring is open (Fig. 3-18: 2).
- 3 | Put the stripped wire in the round opening (Fig. 3-18: 2).
- 4 | Remove the screwdriver (Fig. 3-18: 3).

The wire is securely connected with the terminal by means of a spring contact.

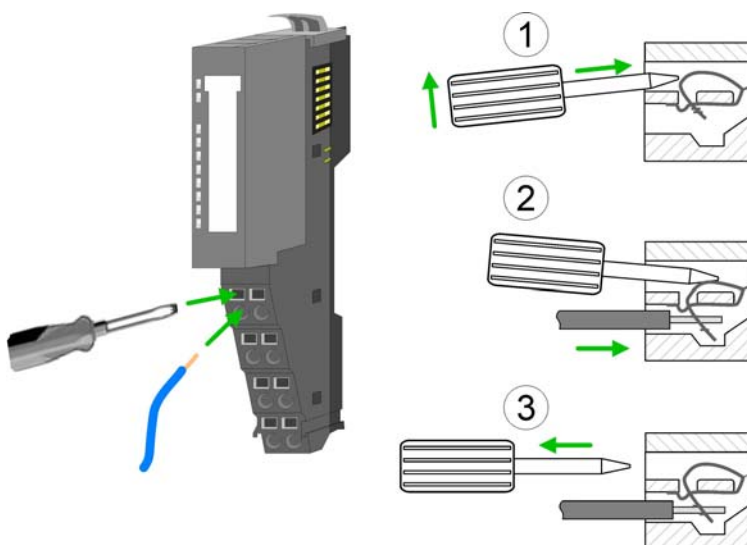


Fig. 3-18: Spring terminals

3.5.3 Standard wiring

Standard wiring

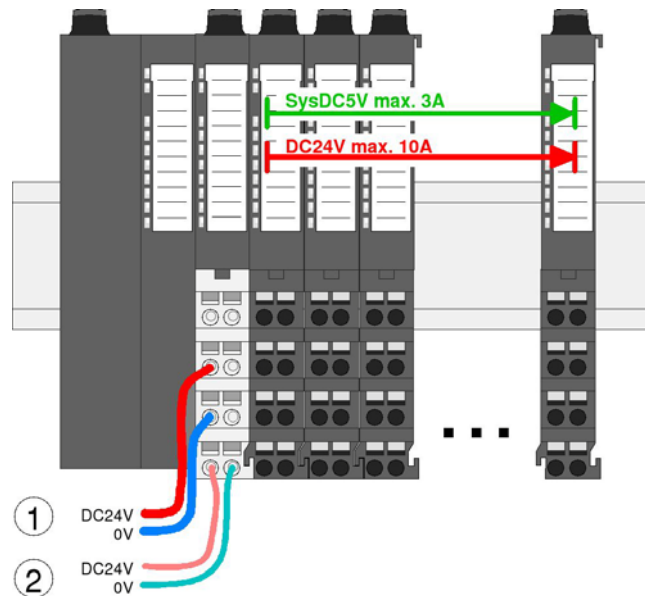


Fig. 3-19: Standard wiring

- 1 24 V DC for power supply of I/O level (max. 10 A)
- 2 24 V DC for electronics supply, bus node and I/O level

3.5.4 Fuse protection



WARNING!

The power supply is not protected internally.

It can get destroyed by too high currents.

→ Protect the power supply externally using a fuse or line circuit breaker!



NOTE

The electronics supply is internally protected against too high voltages by means of a fuse. The fuse is located inside the power module. After the fuse has tripped, the electronic module has to be replaced!

External fuse

To protect the power supply, Murrelektronik provides a number of circuit breakers. They can be found under the product name **MICO** on the internet www.murrelektronik.com.

3.5.5 Using power modules

Status of the electronics power supply

After switching on Cube20S, the RUN or MF LED lights up at every module. If the total current for the electronics supply exceeds 3 A, the LEDs are not activated. In this case, plug in the power module, art. no. 57130, between the expansion modules.



NOTE

To guarantee power supply, the power modules can be used in any combination.

Power module art. no. 57130

Use this power module if

- 10 A are not longer enough for power supply
- you want to have groups of different potentials

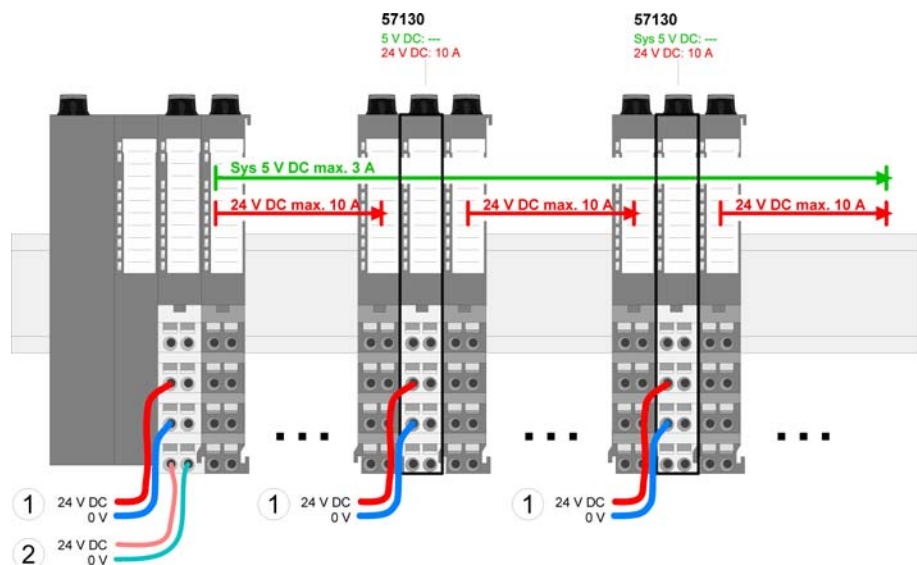


Fig. 3-20: Power module art. no. 57130

- 1 24 V DC for power supply of I/O level (max. 10 A)
- 2 24 V DC for electronics supply, bus node and I/O level

Power module art. no. 57131

Use this power module if 3 A are not enough for electronics supply on backplane bus.

In addition, you will have a new group of potential for 24 V DC power supply with max. 4 A.

Using a power module, you can plug in modules with a maximum total current of 2 A in the following backplane bus. Then you have to plug in another power module.

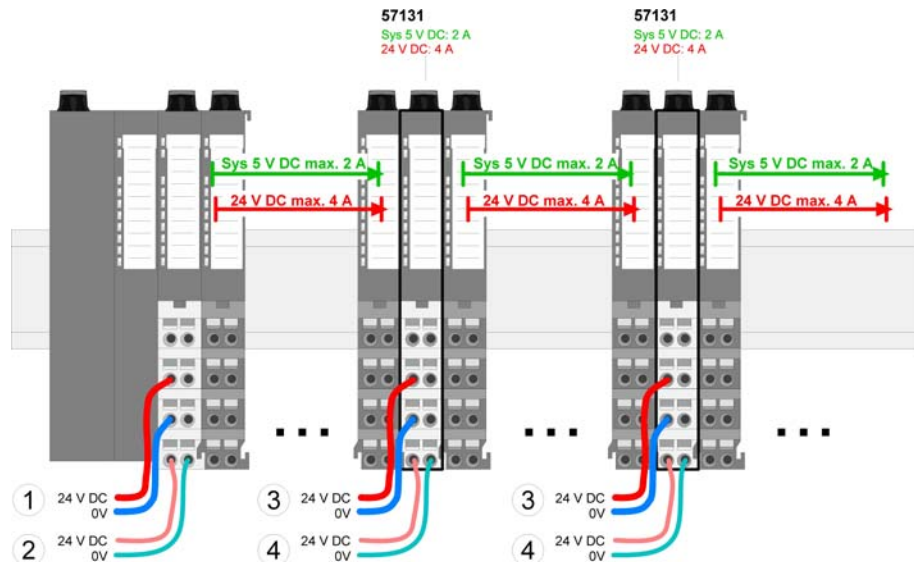


Fig. 3-21: Power module art. no. 57131

- 1 24 V DC for power supply of I/O level (max. 10 A)
- 2 24 V DC for electronics supply, bus node and I/O level
- 3 24 V DC for power supply of I/O level (max. 4 A)
- 4 24 V DC for electronics supply, I/O level

3.5.6 Fixing the shield



Fixing the shield

NOTE

Shield bus carriers are required for installing a shield (see **Accessories**).

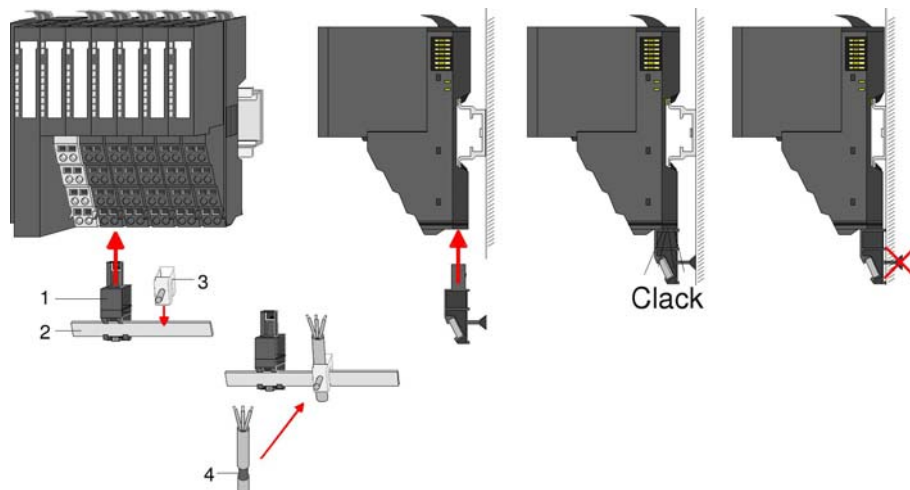


Fig. 3-22: Fixing the shield

- 1 Shield bus carrier
- 2 Shield bus (10 mm x 3 mm)
- 3 Shield terminal block
- 4 Shielding







Fixing the shielding

- ✓ The shield bus carrier and the shield bus have been plugged in.
- ➔ Fasten the lines with the stripped shield.
- ➔ Connect the shield terminal blocks to the shield bus.

3.6 Troubleshooting - LEDs

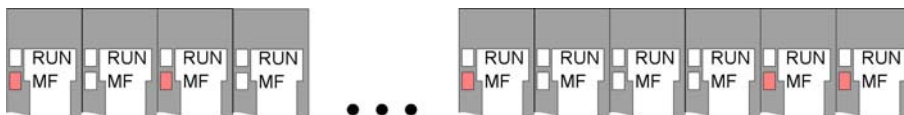
General information

Each module has two LEDs on the front: **RUN** and **MF**. These LEDs allow you to detect errors in your system or faulty modules.

Designation	Indication	LED status
RUN LED		off
		green
		flashing green
MF LED		off
		red
		flashing red

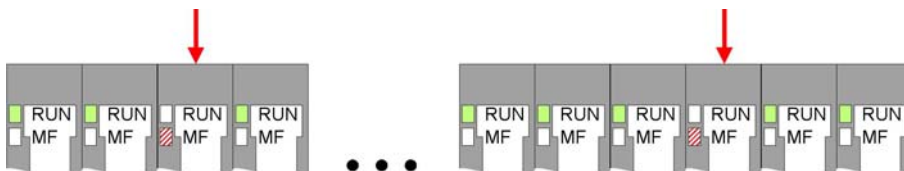
Tab. 3-1: Status indications of the LEDs

Total current of electronics supply exceeded



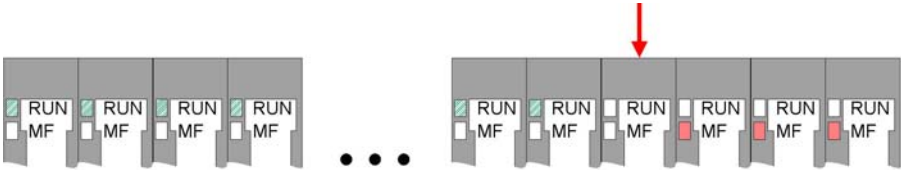
Reaction of the LEDs after switching on:	The RUN LEDs of all modules are off. The MF LEDs are only lighted on some modules.
Cause:	The total current for electronics supply exceeds the maximum current.
Remedy:	Plug in the power module art. no. 57131. For details, please see section Wiring .

Configuration error



Reaction of the LEDs after switching on:	The RUN LEDs are off on one or several modules. The MF LEDs are flashing on these modules.
Cause:	The module on which the MF LED is flashing, does not match the current configuration.
Remedy:	Match configuration and hardware structure.

Module failure



Reaction of the LEDs after switching on:	<p>The RUN LEDs are flashing up to the module to the left of the defective module. On the following modules, the RUN LED is off.</p> <p>The MF LEDs are off up to the module to the left of the defective module. On the following modules, the MF LED is lit.</p>
Cause:	The module to the right of the flashing modules is defective.
Remedy:	Replace the defective module.

4 Art. no. 57120, Terminals 8X24 V DC

4.1 Features

Description

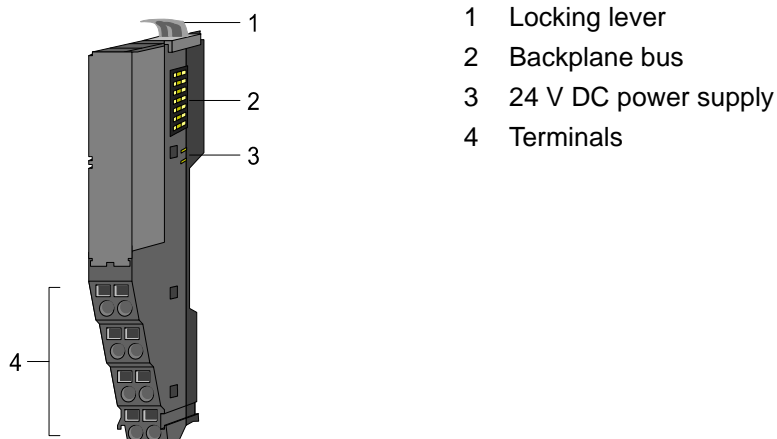
The terminal module is a **potential distributor**. Using 8 terminals you have access to the 24 V DC power supply. The backplane bus is looped through the module. The module does not have any module identification, but it is considered in the calculation of the maximum number of the modules.

Properties

- 8 terminals 24 V DC power supply
- Maximum terminal current 10 A
- Backplane bus looped through
- Electrical isolation 500 V_{eff.} (field voltage to the bus)

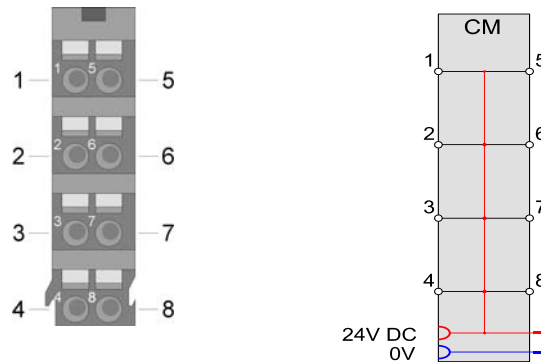
4.2 Design

57120



Terminal

Connect the wires with a cross section of 0.08 mm² to 1.5 mm².



Pos.	Function	Type	Description
1	24 V DC	Output	24 V DC power supply
2	24 V DC	Output	24 V DC power supply
3	24 V DC	Output	24 V DC power supply
4	24 V DC	Output	24 V DC power supply
5	24 V DC	Output	24 V DC power supply
6	24 V DC	Output	24 V DC power supply
7	24 V DC	Output	24 V DC power supply
8	24 V DC	Output	24 V DC power supply

Tab. 4-1: Terminal assignment

5 General data

Conformity			
	CE	2004/108/EC	EMC Directive
		2011/65/EU	RoHS
Personal and device protection			
	Ingress protection	EN 60529	IP20
	Electric isolation		
	To fieldbus	-	DC-isolated
	To process level	-	DC-isolated
	Dielectric strength	EN 61131-2	-
	Insulation voltage to ground		
	Inputs / outputs	-	50 V AC/DC, with test voltage 500 V AC
	Protective measures	-	against short-circuit
Ambient conditions			
	Climatic		
	Storage / transport	EN 60068-2-14	-25 ... +70 °C
	Operation		
	Horizontal installation	EN 61131-2	0 ... +60 °C
	Vertical installation	EN 61131-2	0 ... +60 °C
	Humidity	EN 60068-2-30	RH1 (without condensation, relative humidity 10 ... 95 %)
	Pollution	EN 61131-2	Pollution degree 2
	Mechanical		
	Vibration	EN 60068-2-6	1 g, 9 Hz ... 150 Hz
	Shock	EN 60068-2-27	15 g, 11 ms
Installation conditions			
	Place of installation	-	Inside the switch cabinet
	Installation position	-	Horizontal and vertical
	Fastening	-	35 mm DIN rail
EMC / Standard			Notes
	Emitted interference	EN 61000-6-4	Class A (industrial environments)
	Immunity Zone B	EN 61000-6-2	Industrial environments
		EN 61000-4-2	ESD 8 kV with air discharge (severity grade 3), 4 kV with contact discharge (severity grade 2)
		EN 61000-4-3	HF irradiation (housing) 80 MHz ... 1000 MHz, 10 V/m, 80 % AM (1 kHz) 1.4 GHz ... 2.0 GHz, 3 V/m, 80 % AM (1 kHz) 2 GHz ... 2.7 GHz, 1 V/m, 80 % AM (1 kHz)
		EN 61000-4-6	conducted 150 kHz ... 80 MHz, 10 V, 80 % AM (1 kHz)
		EN 61000-4-4	Burst, severity grade 3
		EN 61000-4-5	Surge, installation class 3 *)

*) Due to single high-energy impulses, a suitable external wiring with lightning protection elements is required for surge, e.g. lightning arresters and surge arrester.

6 Technical data

Terminal parameters		
	Max terminal voltage	30 V DC
	Max. terminal current	10 A
Mechanical data	Housing	
	Material	PPE / PPE GF10
	Dimensions (W x H x D)	12.9 x 109 x 76.5 mm
	Weight	60 g
Ambient conditions		
	Operating temperature	0 °C to 60 °C
	Storage temperature	-25 °C to 70 °C
Certifications		
	Certification according to UL 508	yes

7 Annex

7.1 Accessories

Bus cover
Art. no. 57190



Fig. 7-1: Bus cover

Carrier for shield busses



The shield busses (10 mm x 3 mm) to connect cable shields are fastened on the carrier.

NOTE

Carriers for shield busses, shield busses and cable shield fasteners are not included in the delivery.

Installing the carrier

- ✓ Prerequisite: The Cube20S system has been completely mounted.
- ➔ If the DIN rail is flat, break the spacer off the carrier.
- ➔ Plug the carrier in the terminal module below the terminal block until it engages.

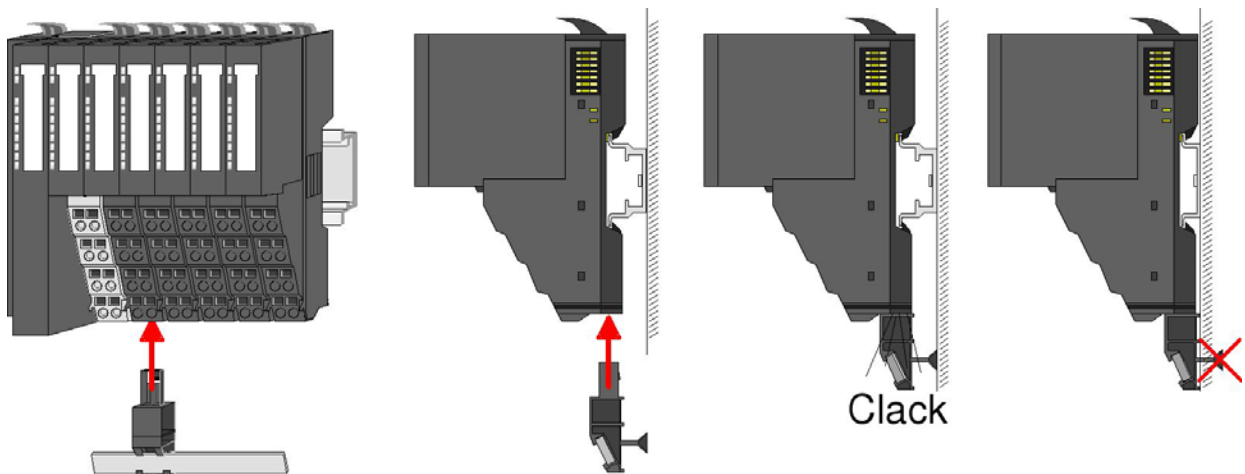


Fig. 7-2: Installing the carriers for shield busses

7.2 Glossary

General terms:

Term	Meaning
Intended purpose	Use of a product, process, or feature according to the specifications, instructions, and information supplied by the MANUFACTURER.
Bit	Binary digit
Byte	1 byte corresponds to 8 bit
DI	Digital inputs
DIN	Deutsches Institut für Normung (German Institute for Standardization)
I/O	Input/Output
Directive 2004/108/CE	EMC Directive
EMC	Electromagnetic compatibility
EN	European standard
ESD	Electrostatic discharges
FE	Functional earth
I	Current
IEC	International Electrotechnical Commission, international standardization institute
IN	Input
IP20	Ingress Protection, protection class according to DIN EN 60529 1st code digit = Protection against accidental contact and solid foreign objects 2nd code digit = Protection against ingress of water 2: protected against: solid foreign objects with diameter starting from 12.5 mm and contact with a finger. 0: No protection
IP67	6: Dustproof, protection against contact with a wire 7: Protection against the effects of temporary submersion in water
ISO	International Standard Organization
LED	Light Emitting Diode
n. c.	not connected
OUT	Output
PELV	Protective Extra Low Voltage
SELV	Safety Extra Low Voltage
U	Voltage
U/I	Voltage / current

7.3 Legal information

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