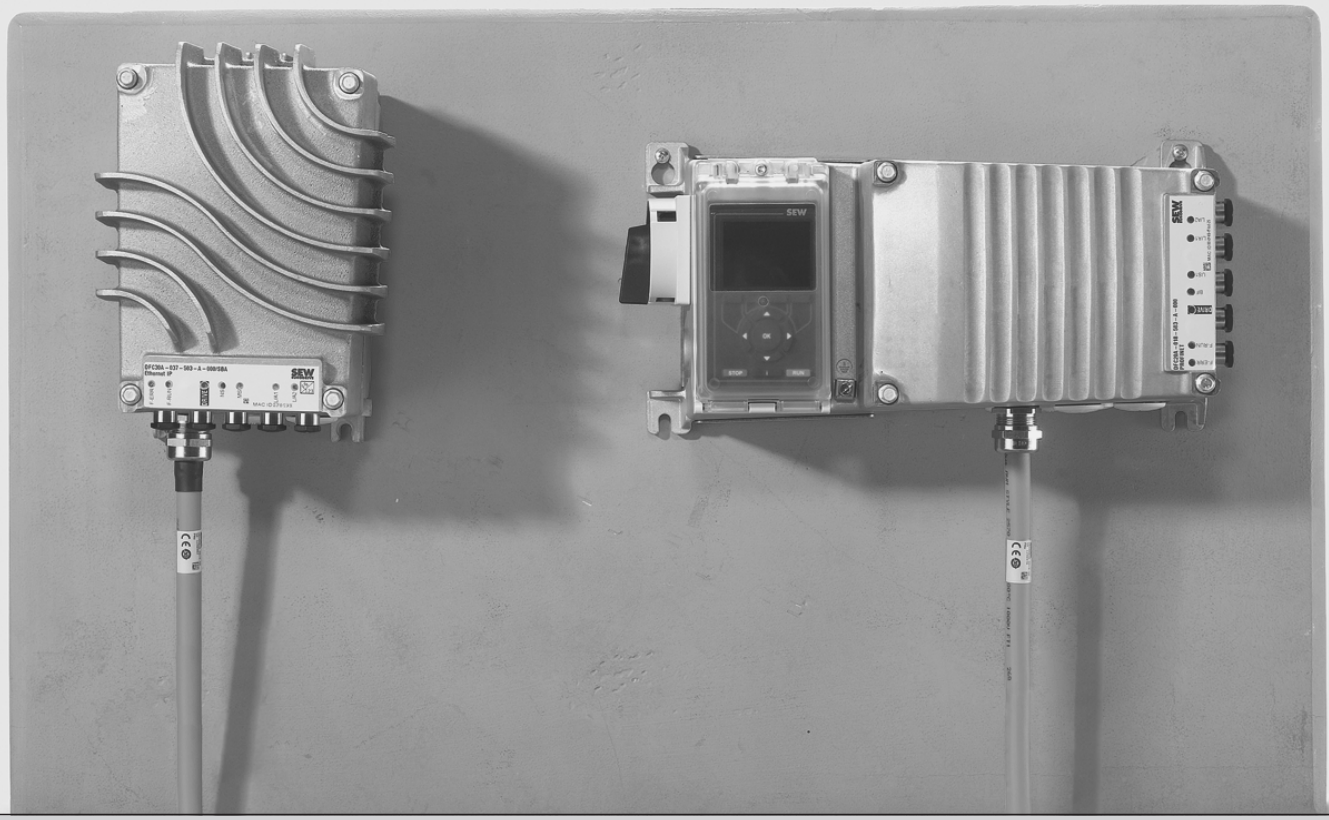
SEW EURODRIVE

Operating instructions



Decentralized inverter

MOVIMOT® flexible DFC

MMF..-C/DFC (PROFINET IO, EtherNet/IP™, Modbus TCP)

Edition 02/2026

33354626/EN

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1 General information

1.1 Structure of the safety notes

1.1.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words in the safety notes.

Signal word	Meaning	Consequences if not observed
⚠ **DANGER**	Imminent danger	Death or severe injuries
⚠ **WARNING**	Possibly dangerous situation	Death or severe injuries
⚠ **CAUTION**	Possibly dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the product or its environment

1.1.2 Meaning of the hazard symbols

The hazard symbols in the safety notes have the following meaning:

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning of risk of crushing
	Warning of automatic startup
	Warning of suspended load

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2 Safety notes for MOVIMOT® flexible

2.1 Target group

Specialist for mechanical work

Any mechanical work may be performed only by adequately qualified specialists. Specialists in the context of this documentation are persons who are familiar with the design, mechanical installation, troubleshooting, and maintenance of the product, and who possess the following qualifications:

- Qualifications in the field of mechanics in accordance with the national regulations
- Familiarity with this documentation

Specialist for electrotechnical work

Any electrotechnical work may be performed only by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons who are familiar with electrical installation, startup, troubleshooting, and maintenance of the product, and who possess the following qualifications:

- Qualifications in the field of electrical engineering in accordance with the national regulations
- Familiarity with this documentation

Additional qualifications

In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation.

The persons must have the express authorization of the company to operate, program, parameterize, label, and ground devices, systems, and circuits in accordance with the standards of safety technology.

Instructed persons

All work in the areas of transport, storage, installation, operation and waste disposal may only be carried out by persons who are trained and instructed appropriately. These instructions must enable the persons to carry out the required activities and work steps safely and in accordance with regulations.

2.2 Designated use

The product is intended for installation in electrical systems or machines.

In case of installation in electrical systems or machines, startup of the product is prohibited until it is determined that the machine meets the requirements stipulated in the local laws and directives. For Europe, Machinery Directive 2006/42/EC as well as the EMC Directive 2014/30/EU apply. Observe EN 60204-1 (Safety of machinery - electrical equipment of machines). The product meets the requirements stipulated in the Low Voltage Directive 2014/35/EU.

The standards given in the declaration of conformity apply to the product.

Technical data and information on the connection conditions are provided on the nameplate and in chapter "Technical data" in the documentation. Always comply with the data and conditions.

Unintended or improper use of the product may result in severe injury to persons and damage to property.

Do not use the product as a climbing aid.

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2.2.1 Designated use of the MOVISAFE® CS..A safety option

The MOVISAFE® CS..A safety option is a parameterizable safety controller that can be used to realize safety shutdowns and safety functions. The product is intended for use:

- In emergency stop devices
- As a safety-related component pursuant to Machinery Directive 2006/42/EC
- As a PE system for risk reduction pursuant to EN 61508
- In safety circuits according to EN 60204-1
- As a PE system for functional safety pursuant to EN 62061
- As a SRP/CS pursuant to EN ISO 13849
- As a device for implementing the safety functions according to EN 61800-5-2

2.2.2 Restrictions of use

The following applications are prohibited unless the device is explicitly designed for such use:

- Use in potentially explosive areas
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, and radiation
- Use in applications with impermissibly high mechanical vibration and shock loads
- Use at an elevation of more than 3800 m above sea level.

The product can be used at altitudes above 1000 m above sea level up to 3800 m above sea level under the following conditions:

- The reduction of the nominal output current and/or line voltage is taken into account as per chapter "Technical data" in the associated product manual.
- Above 2000 m above sea level, the air and creepage distances are only sufficient for overvoltage class II according to EN 60664. At altitudes above 2000 m above sea level, limiting measures must therefore be taken that reduce the line side overvoltage from category III to category II for the entire system.
- If a protective electrical separation is required, implement it outside the product at altitudes of more than 2000 m above sea level.

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2.3 Functional safety technology

The product includes the STO safety subfunction. As an option, additional safety subfunctions can be available for the product.

The safety subfunctions are deactivated in the delivery state. The product may not perform any safety function without higher-level safety systems.

Observe the product manual of the device for use of the STO safety subfunction or other safety subfunctions.

2.4 Transportation

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product or the packaging is damaged, do not assemble, install, connect, or start up the product. If the packaging is damaged, the product itself may also be damaged.

Observe the following notes when transporting the device:

- Ensure that the product is not subject to mechanical impact.
- Before transportation, cover the connections with the supplied protection caps.
- Only place the product on the cooling fins or on the side without connectors during transportation.

If necessary, use suitable, adequately dimensioned transport aids.

Observe the notes on the climatic conditions in accordance with chapter "Technical data" in the corresponding product manual.

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2.5 Creating a safe working environment

Before you work on the product, ensure a safe working environment. Observe the following basic safety notes:

2.5.1 Performing work on the product safely

Defective or damaged product

Never install defective or damaged products. Observe the following information to avoid injuries or damage:

- Before installation, check the product for external damage and replace a damaged product.

Hot surfaces

The surfaces of the product can become very hot during operation. Observe the following information to avoid burns:

- Let the product and its accessories cool down before touching it.
- Do not touch any surfaces of the product during operation, except for the control elements.
- Observe the information signs and product safety labels on the product.

Falling load

Observe the following information to avoid death or severe injury due to falling loads:

- Do not stand under the load.
- Secure the area where loads can fall down.
- Use personal protective equipment (such as helmet and safety shoes).
- Use a suitable lifting tool (chain hoist, forklift) and transport protection.

Sharp edges

Observe the following information to avoid cuts caused by sharp or non-deburred cutting edges:

- Wear safety gloves.

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2.5.2 Performing electrical work safely

Observe the following information to perform electrical work safely:

Electrical work may only be performed by an electrically skilled person or an electronically instructed person under the supervision of an electrically skilled person.

The fact that the operation or display elements are no longer illuminated does not indicate that the product has been disconnected from the supply system and no longer carries any voltage.

Live parts

Always adhere to the 5 safety rules for all work on electrical components:

1. Disconnect.
2. Secure the device against a restart.
3. Check that no voltage is applied.
4. Ground and short-circuit.
5. Cover or isolate neighboring live parts.

Depending on the situation, it is possible to deviate from rules 4 and 5. Observe standard EN 50110-1.

Dangerous voltage

When the system is switched on, dangerous voltages are present at all power connections as well as any cables and terminals that are connected. This also applies even when the voltage supply has been disconnected at the device's switch disconnector or if the product is inhibited. Observe the following information to avoid the risk of electric shock:

- Do not touch any exposed live parts (e.g. male contacts, connectors, terminals).
- Secure all open live components with a touch guard.
- Ensure that the connection boxes are closed and screwed down before applying the supply voltage.
- Before applying the supply voltage, make sure that all of the required covers are mounted.

Danger due to electric arc

An electric arc may occur when plug-in connections are disconnected or connected while voltage is applied (e.g. connection between drive and control). In order to avoid damaging electrical components, observe the following information:

- Do not disconnect power connections during operation.
- Do not connect power connections during operation.
- Ensure that the product is de-energized before disconnecting and connecting the plug-in connections.

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Dangerous voltage

Voltage from charged capacitors can still be present in live product components or power connections after disconnecting from the supply voltage. Observe the following information:

- Observe the following waiting periods before performing electrical work and after disconnecting the supply voltage: **5 minutes**.
- Ensure that the unit is de-energized.
- Observe the information signs and product safety labels on the product.

2.6 Installation/assembly

Ensure that the product is installed and cooled in accordance with the regulations in the documentation.

Protect the product from excessive mechanical strain. The product and its mounted components must not protrude into the path of persons or vehicles. Ensure that no components are deformed or no insulation spaces are modified, particularly during transportation. Electrical components must not be mechanically damaged or destroyed.

Observe the notes in chapter "Mechanical installation" in the documentation.

2.7 Protective separation

The product meets all requirements for protective separation of power and electronics connections in accordance with IEC 61800-5-1. The connected signal circuits must meet requirements according to SELV (**S**afety **E**xtra **L**ow **V**oltage) or PELV (**P**rotective **E**xtra **L**ow **V**oltage) to ensure protective separation. The installation must meet the requirements for protective separation.

In order to avoid exceeding the permitted contact voltages in SELV or PELV power circuits in the event of an an error, continuous equipotential bonding is required in the vicinity of these power circuits. If this is not possible, other protective measures must be taken. These protective measures are described in IEC 61800-5-1.

2.8 Electrical installation

The preventive measures and protection devices must comply with the applicable regulations (e.g. EN 60204-1 or EN 61800-5-1).

2.8.1 Stationary application

The necessary preventive measure for the product is:

Type of energy transfer	Preventive measure
Direct power supply	Ground connection

2.8.2 Regenerative operation

The drive is operated as a generator due to the kinetic energy of the system/machine. Before opening the connection box, secure the output shaft against rotation.

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2.9 Startup/operation

Observe the safety notes in chapters "Startup" and "Operation" in the associated product manual.

Depending on the degree of protection, products may have live, uninsulated, and sometimes moving or rotating parts as well as hot surfaces during operation.

Never plug or unplug connectors while they are energized.

Do not separate the connection to the product during operation. This may result in dangerous electric arcs damaging the product.

If you disconnect the product from the voltage supply, do not touch any live components or power connections because capacitors might still be charged. Observe the following minimum switch-off time:

5 minutes.

Observe the corresponding information signs on the product.

The fact that the operation LED and other display elements are no longer illuminated does not indicate that the product has been disconnected from the supply system and no longer carries any voltage.

Mechanical blocking or internal protective functions of the product can cause a motor standstill. Removing the cause of this problem or performing a reset can result in the machine or the system re-starting on its own. First, disconnect the product from the supply system before you start troubleshooting.

Risk of burns: The surface temperature of the product can exceed 60 °C during operation. Do not touch the product during operation. Let the product cool down before touching it.

2.9.1 Switch disconnector

- The load disconnectors /D11 and /M11 disconnect the inverter MOVIMOT® flexible from the supply system. The terminals of the inverter are still connected to the line voltage after the switch disconnector /D11 or /M11 is switched off.
- The load disconnector /R01 disconnects the motor from the inverter MOVIMOT® flexible. The inverter remains supplied with the line voltage even when the load disconnector /R01 is switched off. Do not perform any electrical work on the motor or inverter even when the load disconnector /R01 is switched off.

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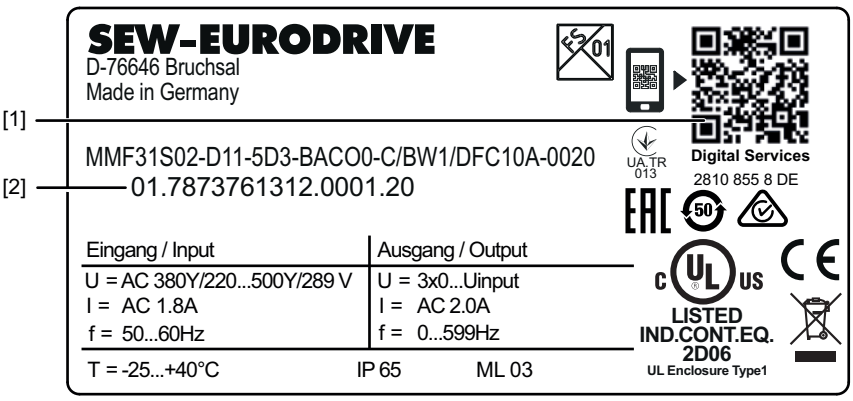
3 Device structure

3.1 Example of a nameplate and type designation

3.1.1 Nameplate of MOVIMOT® flexible DFC

The following figure shows an example of the nameplate of the device. For the structure of the type designation, see chapter "Type designation ...".



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[1] Product label with QR code. The QR code can be scanned. You will be redirected to the digital services of SEW-EURODRIVE. There, you have access to product-specific data, documents, and further services.
In the "Documentation" > "Data and documents" area, the product manual of the device with further information is available.

[2] Unique serial number

3.1.2 Type designation of MOVIMOT® flexible DFC

The following table shows the type designation of the device.

MMF	**Product family** MMF = MOVIMOT® flexible
3	**Variant** 1 = Device variant 1 3 = Device variant 3
1	**Flange dimensions for the sizes of electronics covers** 1 = Suitable for electronics cover size 1 with or without cooling fins 2 = Suitable for electronics cover size 2 with or without fan
S0	**Mechanical design** S0 = Housing with metric threads for cable entry S1 = Housing with 2 Han® Q connectors and metric threads

2	**Front module** 0 = Closed 1 = Engineering interface M12[1)] 2 = Protective housing for CBG.. keypad[1)] 3 = Protective housing for CBG.. on-site keypad and key switch[1)] 4 = Protective housing with integrated local control (key switch)[2)]
–	
D11	**Maintenance switch** 000 = Without switching element D11 = Load disconnector with feedback contact[1)] M11 = Load disconnector with feedback contact and overcurrent tripping[1)] R01 = Load disconnector at the inverter output with contact signal for output stage inhibit.[1)]
–	
5	**Connection voltage** 5 = AC 500 V
D	**Power section variant EMC** D = EMC filter with limit value category C3 (EN 61800-3)
3	**Connection type** 3 = 3-phase
–	
SP	**Connection unit** SF = System bus or fieldbus connection unit
CO	**Digital Interface (MOVILINK® DDI)** DI = Integrated MOVILINK® DDI slave (for motors without digital interface) CO = MOVILINK® DDI interface via coaxial cable (for motors with digital interface)
0	**Board design** 0 = Standard connection board
–	
C	**Version** C = Generation C
/	

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BW1	**Options** DSP = electrodynamic retarding function DynaStop®[3)] BES = BES brake rectifier control module 24 V[3)] IV = Connector at the connection box PE = Pressure compensation fitting for electronics BW1 = Integrated BW1 braking resistor BW2 = Integrated BW2 braking resistor M31 = Mounting panel M31 for MMF31 design[4)] M32 = Mounting panel M32 for MMF32 design[4)] EBW = External BW100-005 braking resistor[5)] ODI = Additional digital inputs via 3 x M12 at the connection box (X5504_1, X5504_2, X5504_3)
/	
DFC 20A	**Electronics cover design** **D**irect **F**ieldbus **C**ommunication: • DFC20A = PROFINET IO (communication via M12) • DFC21A = PROFINET IO (communication via MINI-IO) • DFC22A = PROFINET IO (communication via MINI-IO), without digital inputs/outputs • DFC30A = EtherNet/IP™, Modbus TCP (communication via M12) • DFC31A = EtherNet/IP™, Modbus TCP (communication via MINI-IO) • DFC32A = EtherNet/IP™, Modbus TCP (communication via MINI-IO), without digital inputs/outputs • DFC40A = POWERLINK (communication via M12) • DFC41A = POWERLINK (communication via MINI-IO) • DFC42A = POWERLINK (communication via MINI-IO), without digital inputs/outputs
–	

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0020	**Nominal output current of the electronics cover** 0020 = 2.0 A 0025 = 2.5 A 0032 = 3.2 A 0040 = 4.0 A 0055 = 5.5 A 0070 = 7.0 A 0095 = 9.5 A 0125 = 12.5 A 0160 = 16.0 A

1) Only available in conjunction with MOVIMOT® flexible MMF3.
2) Not available with R01 load disconnector (maintenance switch without feedback contact).
3) These options cannot be combined.
4) Options /M31 and /M32 are installed at the factory.
5) Option /EBW is only available in conjunction with option /M31. Option /EBW is installed and connected at the factory.

3.2 Electronics

3.2.1 Overview of electronics cover

Devices with the following electronics covers are available depending on the nominal output current:

Electronics cover			
Nominal output current	**Type designation**	**Size**	**Image**
2.0 A	DFC...-0020..	Size 1 without cooling fins	
2.5 A	DFC...-0025..		
3.2 A	DFC...-0032..		
4.0 A	DFC...-0040..	Size 1 with cooling fins	
5.5 A	DFC...-0055..		
7.0 A	DFC...-0070..	Size 2 without fan	
9.5 A	DFC...-0095..		
12.5 A	DFC...-0125..	Size 2 with fan	
16.0 A	DFC...-0160..		

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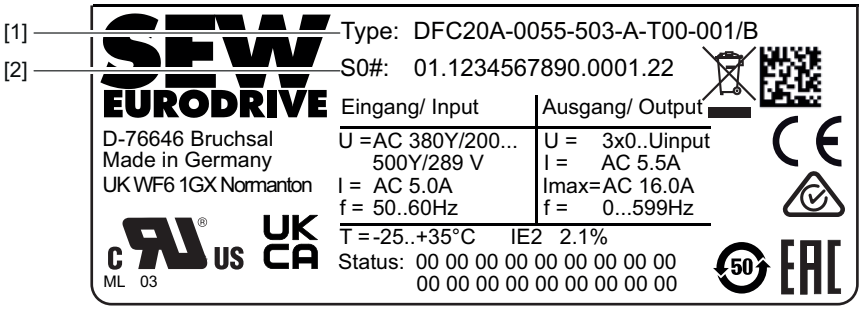
3.3 Example nameplate and type designation of the electronics

3.3.1 Inner nameplate of DFC.. electronics cover

The following figure gives an example of a nameplate of the electronics cover. For the structure of the type designation, refer to chapter "Type designation of the electronics cover ...".

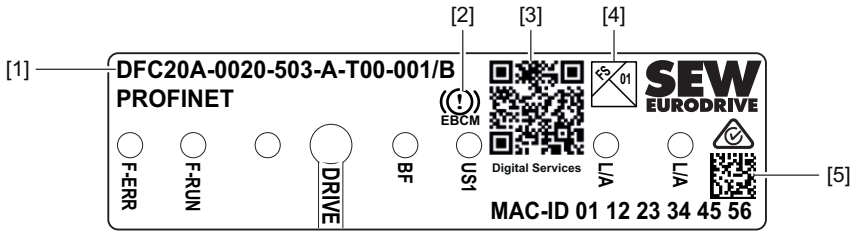


54043221215317131

[1] Type designation of the electronics cover
[2] Unique serial number of the electronics cover
DataMatrix code with the unique serial number of the electronics cover

3.3.2 Outer nameplate of DFC.. electronics cover

The following figure gives an example of a nameplate of the electronics cover. For the structure of the type designation, refer to chapter "Type designation of the electronics cover ...".



18014431498979595

[1] Type designation of the electronics cover
[2] Identification of the optional HV brake control /B
[3] Product label with QR code. The QR code can be scanned. You will be redirected to the digital services of SEW-EURODRIVE. There, you have access to product-specific data, documents, and further services.
In the "Documentation" > "Data and documents" area, the product manual of the device with further information is available.
[4] FS logo
[5] Data matrix code of the MAC-ID

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3.3.3 Type designation DFC.. electronics cover

The following table shows the type designation of the electronics cover:

DFC	**Product family** DFC = **D**irect **F**ieldbus **C**ommunication electronics cover
2	**Communication type** 2 = PROFINET IO 3 = EtherNet/IP™, Modbus TCP 4 = POWERLINK
0	**Connection configuration** 0 = M12 connector on electronics cover (standard) 1 = M12 connector for digital inputs/outputs[1)].
A	**Communication version** A = PROFINET IO, version A B = PROFINET IO, version B
–	
0020	**Nominal output current of the electronics cover** 0020 = 2.0 A 0025 = 2.5 A 0032 = 3.2 A 0040 = 4.0 A 0055 = 5.5 A 0070 = 7.0 A 0095 = 9.5 A 0125 = 12.5 A 0160 = 16.0 A
–	
5	**Connection voltage** 5 = AC 500 V
0	**Power section variant EMC** 0 = Basic interference suppression 1 = IT system design
3	**Connection type** 3 = 3-phase
–	
A	**Version**
–	
T	**Device variant** T = Technology profile (fieldbus connection) E = CiA402 device profile (DS402)

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0	**Technology level** 0 = Technology level 0 (standard)
0	**Application level** 0 = Standard, MOVIKIT® Velocity Drive 1 = Activation of further MOVIKIT® software modules 2 = Customized solution
–	
000	**MOVIKIT® version** 000 = No MOVIKIT® module loaded ex works (controller with freely configurable process data interface) 001 = MOVIKIT® Velocity Drive (standard)
/	
SBA	**Safety option** SBA = Safe communication with MOVISAFE® CSB51A safety option SLA = Motion monitoring with built-in encoder EI7C FS, F-DI and safe communication with safety option MOVISAFE® CSL51A SSA = Motion monitoring with EI7C FS built-in encoder or with safe MOVILINK® DDI encoder, F-DI and safe communication with MOVISAFE® CSS51A safety option
/	
B	**Operating mode options** B = Brake control C = Specific customer identification D = Device-specific parameterization of the delivery state P = Customer-specific parameterization

1) The fieldbus is connected via mini I/O connector on the connection unit

3.4 Markings

The following table shows an example of the markings on the nameplate.

CE	CE marking to state compliance with European directives (see EU declaration of conformity or EU declaration of incorporation).
	Products and accessories may fall within the scope of the country-specific transposition of the WEEE Directive. Dispose of the product and its accessories in accordance with the national regulations of your country.
c UL us LISTED	UL logo to confirm that a component is UL (Underwriters Laboratory) tested, also valid for CSA in conjunction with the register number.
UK CA	The UKCA mark indicates compliance with British directives (see UK declaration of conformity or UK declaration of incorporation).

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	EAC mark (EurAsian Conformity) Confirms compliance with the technical regulations of the economic and customs union of Russia, Belarus, Kazakhstan, Armenia.
	The UA.TR mark declares conformity with the technical regulations of Ukraine.
	CMIM logo to confirm compliance with the technical regulations of Morocco.
	The RCM mark indicates compliance with the technical regulations of the Australian Communications and Media Authority (ACMA).
	The China RoHS mark indicates compliance with the directive regarding the restriction of use of certain hazardous substances in electrical and electronic equipment and its packaging.
	The KC mark declares compliance with §3 of Article 58-2 for the Korean Radio Wave Act.

3.5 FS logo description

The FS logo on the nameplate is based on the combination of safety-related components that is installed.

The following FS logo variants are possible:

FS 01	Device with STO connection via terminals or connectors
FS 81	Device with safe communication to activate STO via the MOVISAFE® CSB51A safety option
FS 82	Device with MOVISAFE® CSL51A safety option
FS 83	Device with MOVISAFE® CSS51A safety option

For further information, refer to chapter "Project planning for functional safety".

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4 Mechanical installation

4.1 Installation notes

Perform the following steps before installation:

1. ⚠ **WARNING!** Electric shock caused by dangerous voltages in the connection box. Severe or fatal injuries.
   De-energize the device. Pay attention to the 5 safety rules in chapter “Carrying out electrical work safely”.
2. Secure the output shaft of permanently excited motors against rotation. You thereby avoid an electric shock from the regenerative operation during the rotation of the shaft.
3. Secure the input and output elements with a touch guard. You thereby avoid injuries caused by rapid movements of the output elements.

4.2 Tolerances for torque ratings

Adhere to the specified tightening torques with a tolerance of +/- 10%.

4.3 Installation requirements

Check that the following conditions have been met:

- The information on the nameplate of the device corresponds to the line voltage.
- The device is undamaged (no damage caused by transport or storage).
- The ambient temperature corresponds to the specification in the operating instructions and the nameplate.
- The device must not be installed in the following ambient conditions:
  - Potentially explosive atmosphere
  - Oils
  - Acids
  - Gases
  - Vapors
  - Radiation
- For special designs: The device is designed in accordance with the actual ambient conditions.

4.4 Installing the device

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4.4.1 Notes

Observe the following information when installing the drive unit:

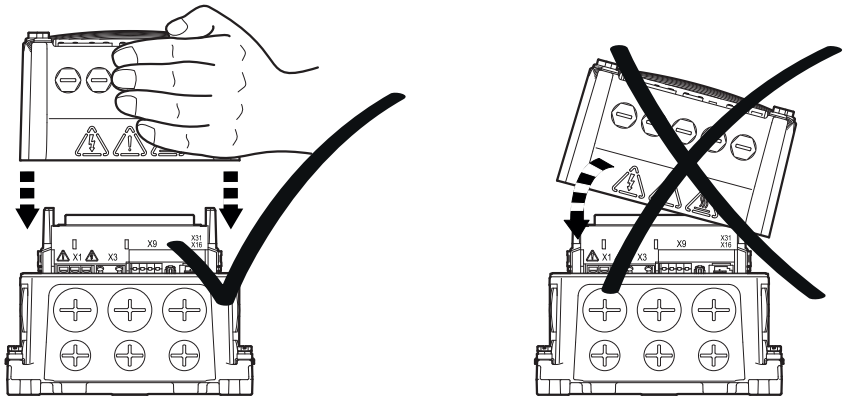
- Only install the device on a level, low-vibration, and torsionally rigid support structure.
- Check the validity of the degree of protection using the information in the operating instructions and the data on the nameplate.
- Make sure that the cooling air supply is unobstructed; warm exhaust air from other devices must not influence the cooling.
- Use suitable cable glands for the supply leads (use reducing adapters if necessary).
- Seal the cable entries properly.
- Clean the sealing surfaces of the cover before reinstalling it.
- Observe the specified tightening torques. If no tightening torques are specified or available, observe the specifications in directive VDI 2230-1.

4.4.2 Electronics cover

Installing the electronics cover

Install the electronics cover as follows:

1. ⚠ **WARNING!** Risk of burns due to hot surfaces. Severe injuries.
   Let the device cool sufficiently before touching it.
2. **NOTICE!** Loss of the guaranteed degree of protection. Possible damage to property.
   When the electronics cover is removed from the connection box, you have to protect the electronics cover and the wiring space from humidity, dust or foreign particles.
3. Use only electronics covers that match the size.
4. Fit the electronics cover to the connection box. Make sure that the electronics cover does not become jammed.
   ⇨ Example of MMF1.. design:



5. Screw the electronics cover onto the connection box with 4 screws. Gradually tighten the screws in diametrically opposite sequence.
   ⇨ Tightening torque for size 1 electronics cover: 6.0 Nm
   ⇨ Tightening torque for size 2 electronics cover: 9.5 Nm

Likewise install the size 2 electronics cover.

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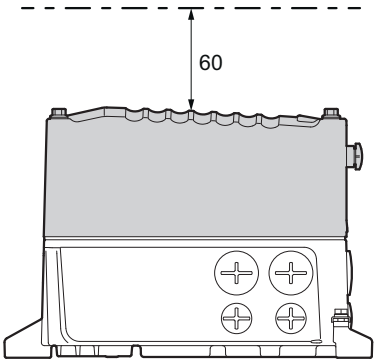
Minimum installation clearance

Note the minimum installation clearance required to remove the electronics cover. You can find detailed dimension drawings in chapter "Technical data".

The following figure shows the minimum installation clearance from the electronics cover for the MMF1.. design:



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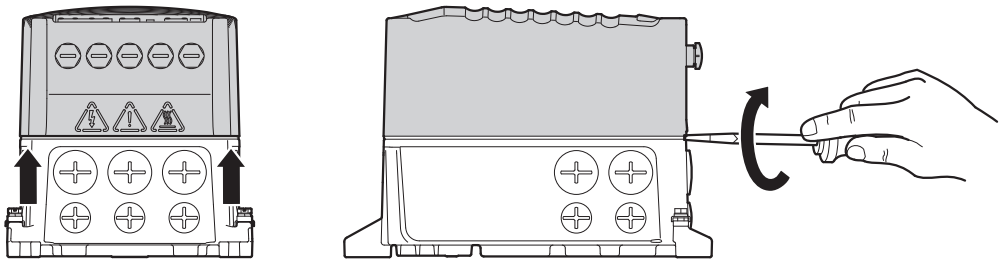
For MMF31.. and MMF32.. designs this minimum clearance is also 100 mm.

Removing the electronics cover

Remove the electronics cover as follows:

1. ⚠ **WARNING!** Risk of burns due to hot surfaces. Severe injuries.
   Let the device cool sufficiently before touching it.
2. Undo the screws of the electronics cover.
3. Remove the electronics cover from the connection box as shown in the following figure. Pay attention to the intended positions in the figure when doing this.

   ⇨ Example of MMF1.. design:



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4. Check the gasket. If the gasket is damaged, replace the gasket, see chapter "Replacing the gasket between connection box and electronics cover" (→ 🗎 123).
5. **NOTICE!** Loss of the guaranteed degree of protection. Possible damage to property.
   When the electronics cover is removed from the connection box, you have to protect the electronics cover and the wiring space from humidity, dust or foreign particles.

4.4.3 Derating depending on the installation altitude

Refer to the product manual > chapter "Technical data" > "Power-reducing factors" > "Derating depending on the installation altitude".

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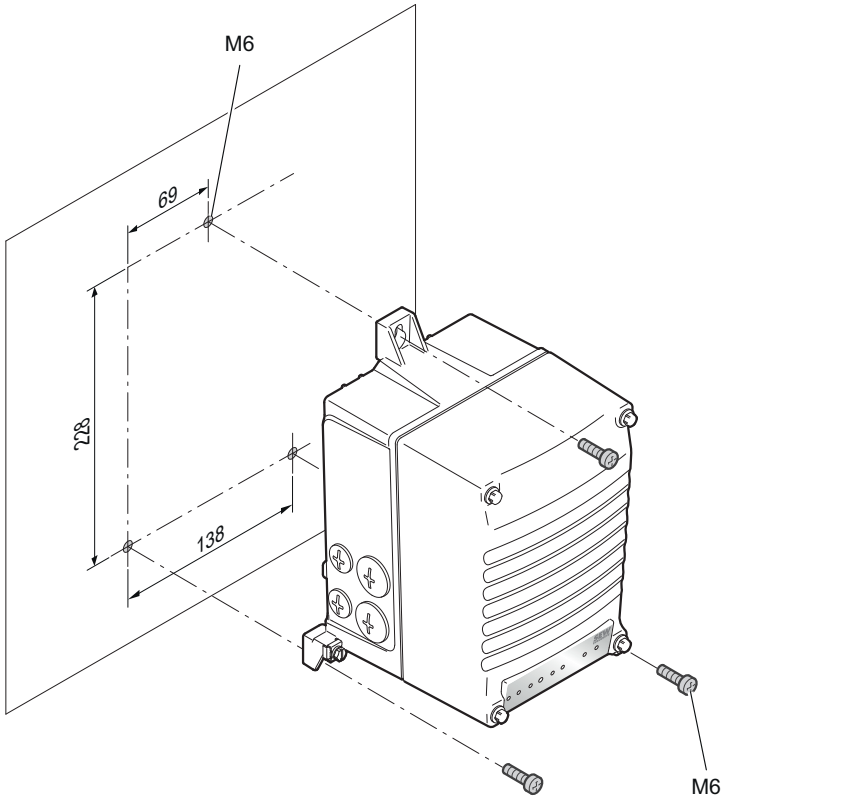
4.5 Mounting the device

4.5.1 Installing the MMF1.. design

Install the device according to the following figure.



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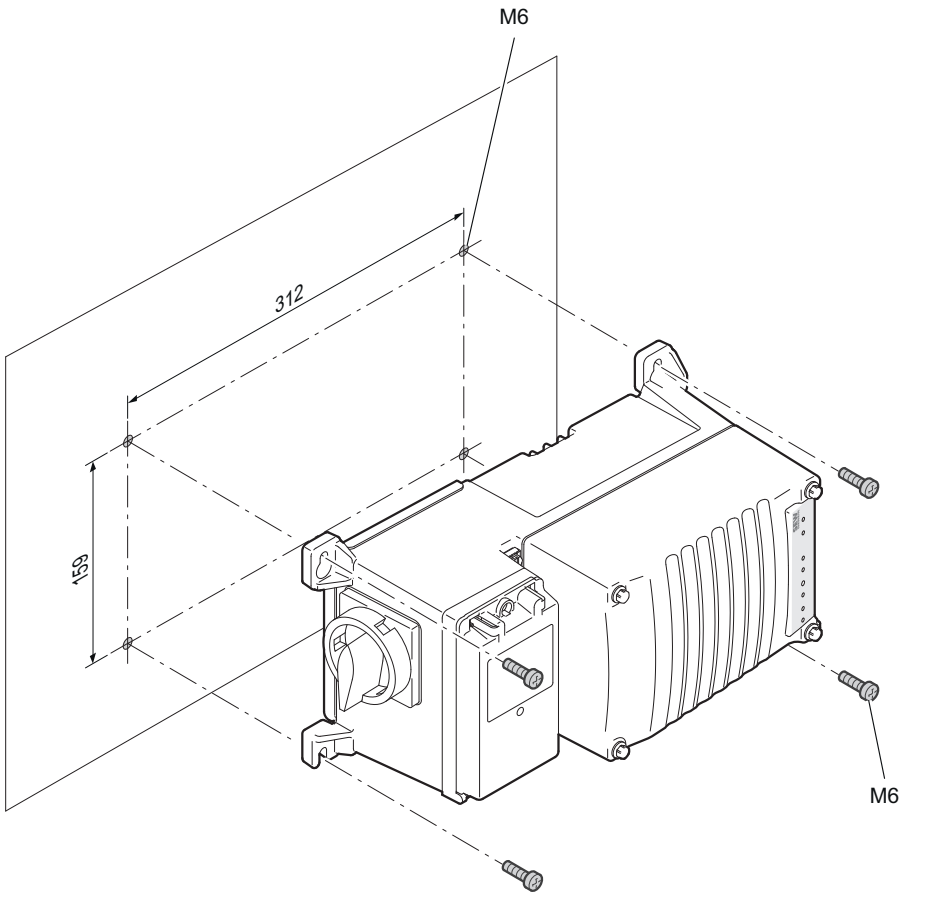
4.5.2 Installing the MMF31.. design

Install the device according to the following figure.



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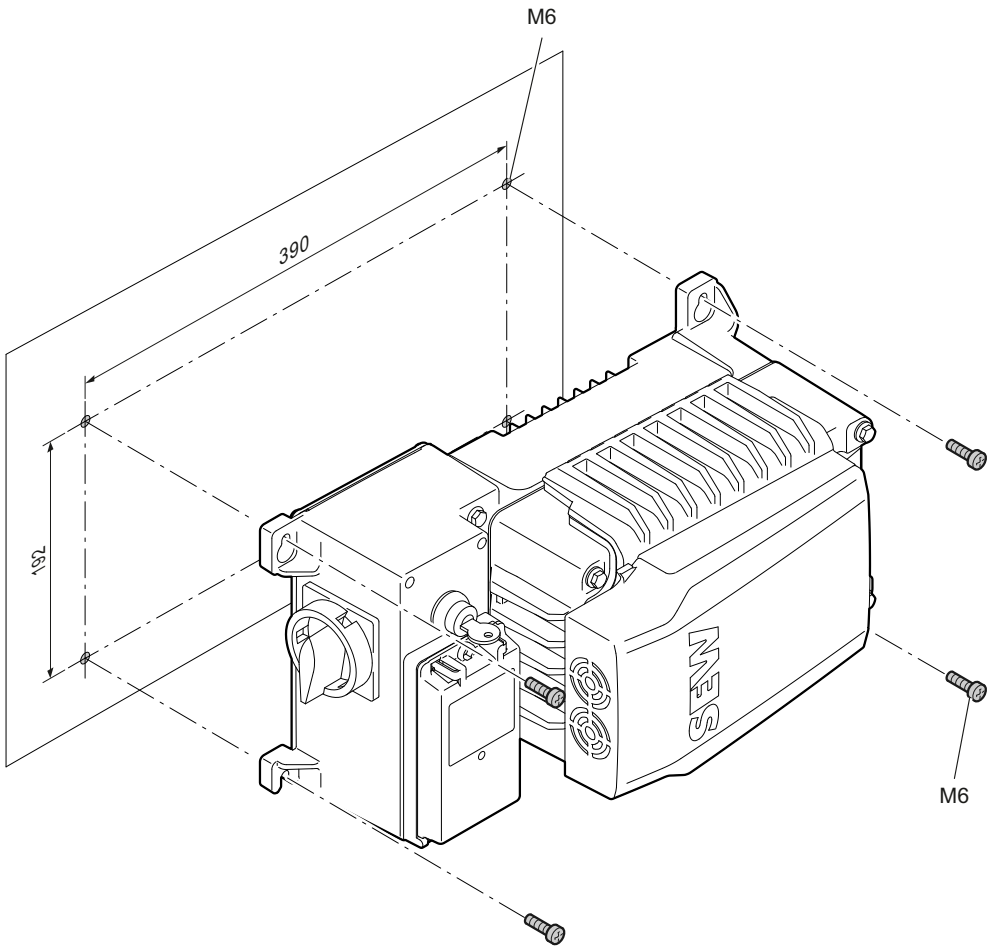
4.5.3 Installing the MMF32.. design

Install the device according to the following figure.



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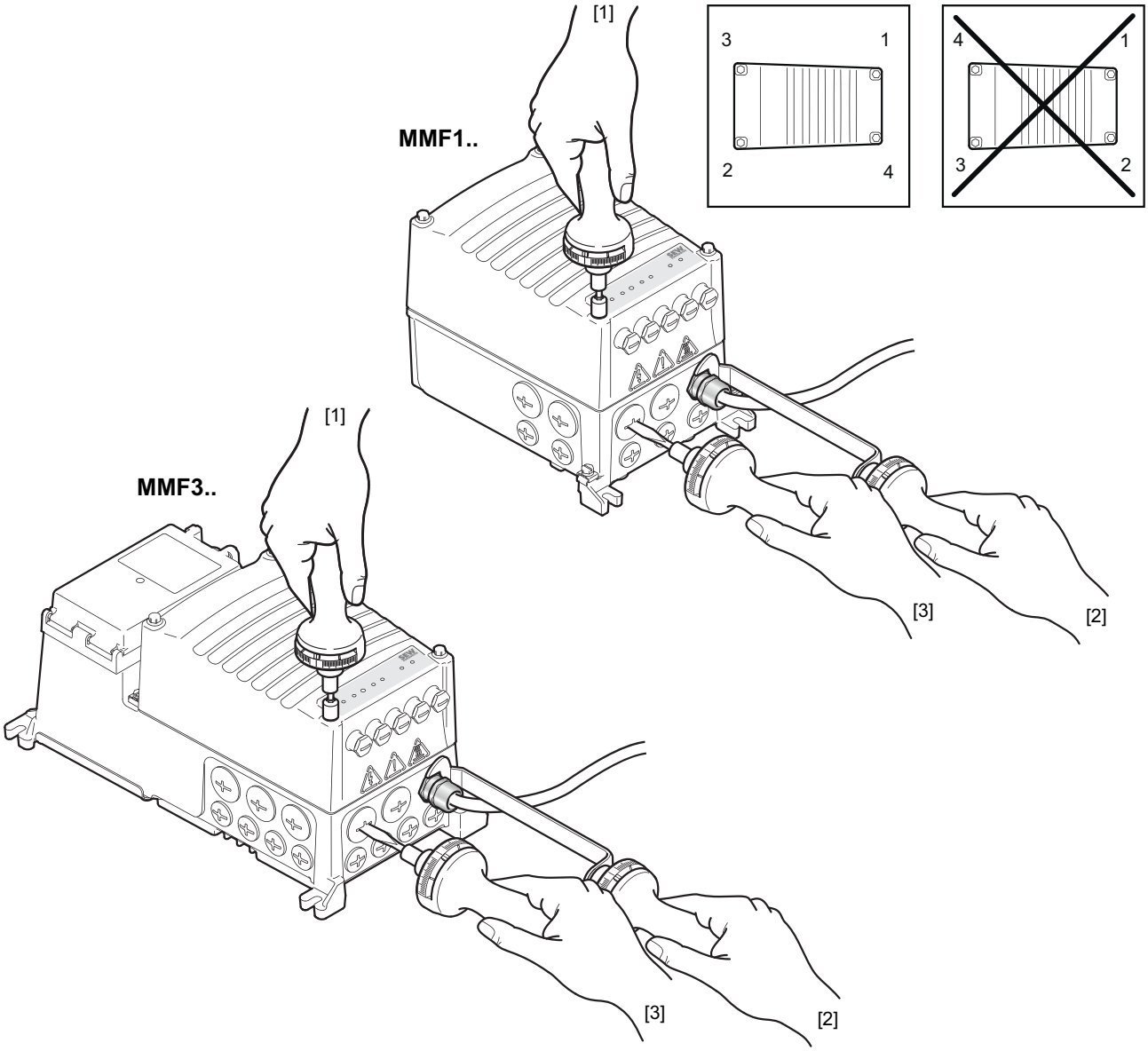
4.6 Tightening torques

4.6.1 Example MOVIMOT® flexible

The following figure shows an example of the installation of the threaded blanking plugs, cable glands and electronics cover. The number and position of threaded blanking plugs and cable bushings depend on the ordered variant.



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[1] Tighten the screws step by step in diametrically opposite sequence with a tightening torque of 6.0 Nm (for MMF1.. and MMF31.. design) or 9.5 Nm (for MMF32.. design).

[2] Tighten the cable gland with a tightening torque according to chapter "Mechanical installation" > "Tightening torques" > "Cable glands" (→ 🗎 28).

[3] Tighten the threaded plastic blanking plugs supplied by SEW-EURODRIVE with a tightening torque of 2.5 Nm.

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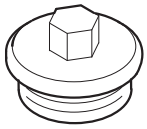
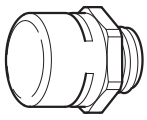
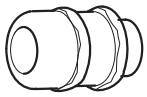
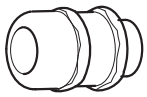
4.6.2 Cable glands / screw plugs / pressure compensation

Tighten the EMC cable glands **optionally** included in the delivery by SEW-EURODRIVE with the following torques:

Screw fitting type	Image	Content	Size	Tightening torque		Outer diameter of cable	Tightening force[1]	Part number
				Threaded jacket	Cable clamping			
Screw plugs external hexagon (stainless steel)		10 pieces	M16 × 1.5	6.8 Nm	–	–	–	18247342
		10 pieces	M25 x 1.5	6.8 Nm	–	–	–	18247350
Pressure compensation screw fittings (made of stainless steel)		1 piece	M16 × 1.5	4.0 Nm	–	–	–	28214617
EMC-compliant cable gland (brass, nickel-plated)		10 pieces	M16 × 1.5	4.0 Nm	3.5 Nm	> 4 to 8 mm	75 N	18204783
		10 pieces	M25 x 1.5	7.0 Nm	5.0 Nm	> 8 to 11 mm	120 N	18204805
						> 11 to 16 mm	130 N	
EMC-compliant cable gland (stainless steel)		10 pieces	M16 × 1.5	4.0 Nm	3.5 Nm	> 4 to 8 mm	75 N	18216366
		10 pieces	M25 x 1.5	7.0 Nm	5.0 Nm	> 8 to 11 mm	120 N	18216382
						> 11 to 16 mm	130 N	

1) The cable fastening in the cable gland must achieve the specified cable pull-out force from the cable gland. This is usually achieved with the specified tightening torque of the cable clamping.

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5 Electrical installation

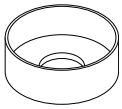
5.1 Installation instructions

5.1.1 Permitted voltage systems

Information on voltage supply systems	Information on permissibility
TN and TT systems – voltage systems with directly grounded star point	Use is possible without restrictions.
IT systems – voltage systems with non-grounded star point	Operation with an electronics cover of size 1 in IT system design is permitted (...-513-....)! For devices with electronics cover of size 2, mount an insulating bushing according to chapter "Installing the insulating bushing" (→ 🗎 29). • For use in IT systems, SEW-EURODRIVE recommends using insulation monitors with pulse-code measurement. Using such devices prevents false tripping of the insulation monitor due to the earth capacitance of the inverter. • The EMC limit values for interference emission are not specified for IT systems. The EMC limits for interference emission specified in the product manual, chapter "Technical data" do not apply to IT system designs.
Voltage systems with grounded outer conductor	Use is prohibited.

Mounting of insulating bushing (only with electronics cover size 2)

The electronics covers of size 2 are compatible with IT systems only if you mount an insulating bushing. When ordering the electronics cover, SEW-EURODRIVE supplies the insulating bushing as a single item in an accessory bag, provided it has been selected separately. The insulating bushing is not included in the delivery as standard. Alternatively, you can order the insulating bushing separately as an accessory (1, 5 or 10 pieces) later:

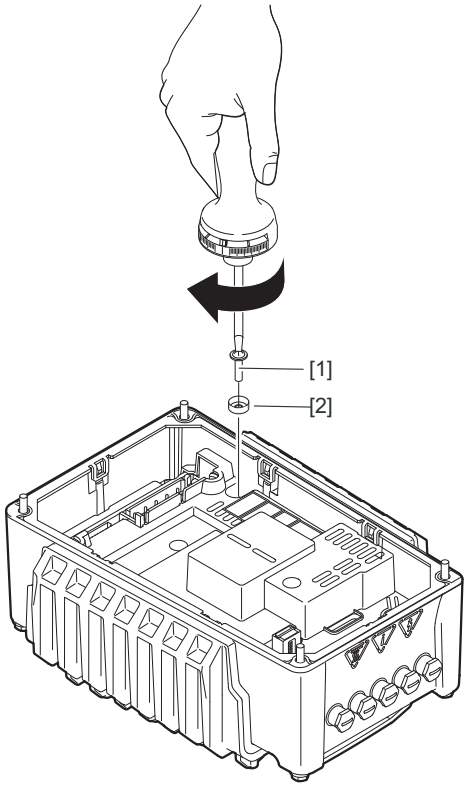
Image of insulating socket	Contents	Part number
	1 pc.	28284437
	5 pc.	28284445
	10 pc.	28284453

Mounting

When electrically installing a device with an electronics cover of size 2 in IT systems, mount the insulating bushing in the electronics cover as follows:

1. Observe the notes in chapter "Preliminary work regarding inspection and maintenance".
2. Loosen the 4 screws of the electronics cover and remove it.

3. Loosen the screw [1] of the electronics cover.
4. Screw the screw [1] with the insulating bushing [2] into the electronics cover. Tighten the screw with a tightening torque of 1.4 to 1.6 Nm.



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5. Place the electronics cover onto the connection box and fasten the electronics cover.
   ⇨ Insert/screw in the screws and tighten them in a diametrically opposed sequence step by step with a tightening torque of 9.5 Nm.

5.1.2 Connecting supply system cables

Observe the following information when connecting the supply system cables:

- The nominal voltage and frequency of the device must correspond with the data of the supply system.
- Dimension the cable cross section according to the input current I_{line} for rated power, see **product manual** > chapter "Technical data".
- Install safety equipment F11/F12/F13 for line fuses at the beginning of the supply system cable behind the supply bus junction, see chapter "Connection diagram".

  Dimension the safety equipment according to the cable cross section.
- When selecting the fuse, observe the information in the **product manual** > chapter "Technical data".
- Use only copper conductors with a permitted minimum temperature of 75 °C as connection cables.

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5.1.3 Permitted cable cross section of terminals

Line terminals X1

Observe the permitted cable cross sections for installation:

Line terminals X1	Without conductor end sleeve	With conductor end sleeve (with or without plastic collar)
Connection cross section	0.5 mm^2 to 6 mm^2	0.5 mm^2 to 6 mm^2
Stripping length	13 mm – 15 mm	

Terminals X2_B for motor, brake and temperature sensor

(Only for MMF32.. design from 03/2026)

Observe the permitted cable cross sections for installation:

Terminals X2_B for motor, brake and temperature sensor	Without conductor end sleeve	With conductor end sleeve
Connection cross section		
for motor and brake	0.25 mm^2 to 4.0 mm^2	
for temperature sensor	0.14 mm^2 to 2.5 mm^2	
Stripping length		
for motor and brake	10 mm – 12 mm	
for temperature sensor	8 mm – 10 mm	

Terminals X2_A for motor, brake and temperature sensor

Observe the permitted cable cross sections for installation:

Terminals X2_A for motor, brake and temperature sensor	Without conductor end sleeve	With conductor end sleeve
Connection cross section	0.08 mm^2 to 2.5 mm^2	0.25 mm^2 to 2.5 mm^2
Stripping length	8 mm – 9 mm	

Terminals X3 for braking resistor

Observe the permitted cable cross sections for installation:

Terminals X3 for braking resistor	Without conductor end sleeve	With conductor end sleeve (with or without plastic collar)
Connection cross section	0.08 mm^2 – 4.0 mm^2	0.25 mm^2 – 2.5 mm^2

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Terminals X3 for braking resistor	Without conductor end sleeve	With conductor end sleeve (with or without plastic collar)
Stripping length	8 mm – 9 mm	

Control terminals X9

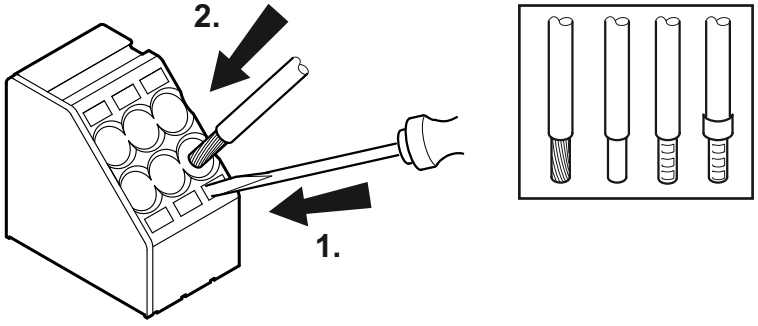
Observe the permitted cable cross sections for installation:

Control terminals X9	Without conductor end sleeve	With conductor end sleeve (without plastic collar)	With conductor end sleeve (with plastic collar)
Connection cross section	0.08 mm^2 – 2.5 mm^2	0.25 mm^2 – 2.5 mm^2 [1)]	0.25 mm^2 – 1.5 mm^2
Stripping length	5 mm – 6 mm		

[1)] 2.5 mm^2 only in combination with quadratically crimping (e.g. with WAGO® Variocrimp crimping tool)

5.1.4 Activating line terminals X1

Adhere to the following sequence when actuating the line terminals X1:



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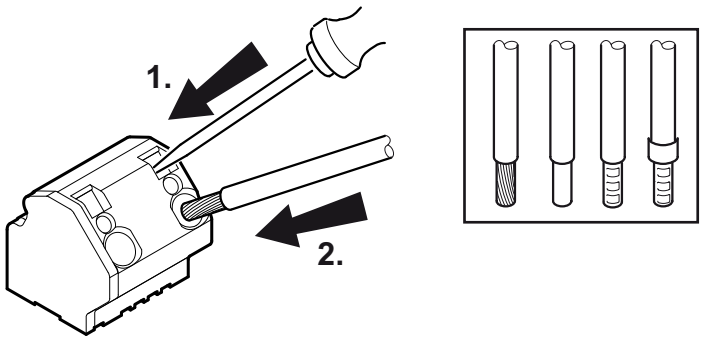
5.1.5 Activating terminals X3 for the braking resistor

Adhere to the following sequence when actuating the X3 terminals for the braking resistor:



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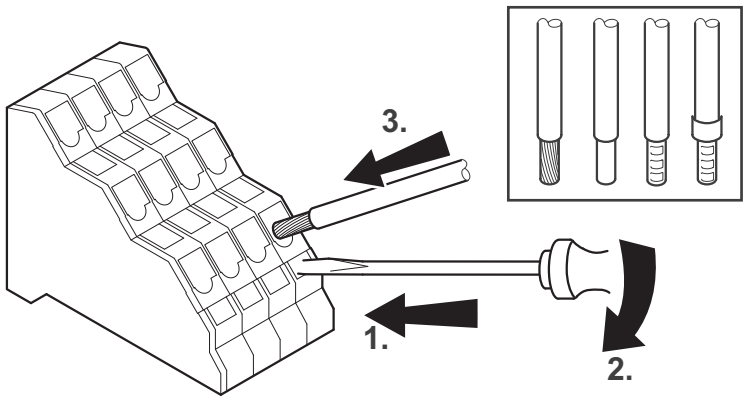
5.1.6 Activating control terminals X9

Observe the following sequence when actuating the X9 control terminals:



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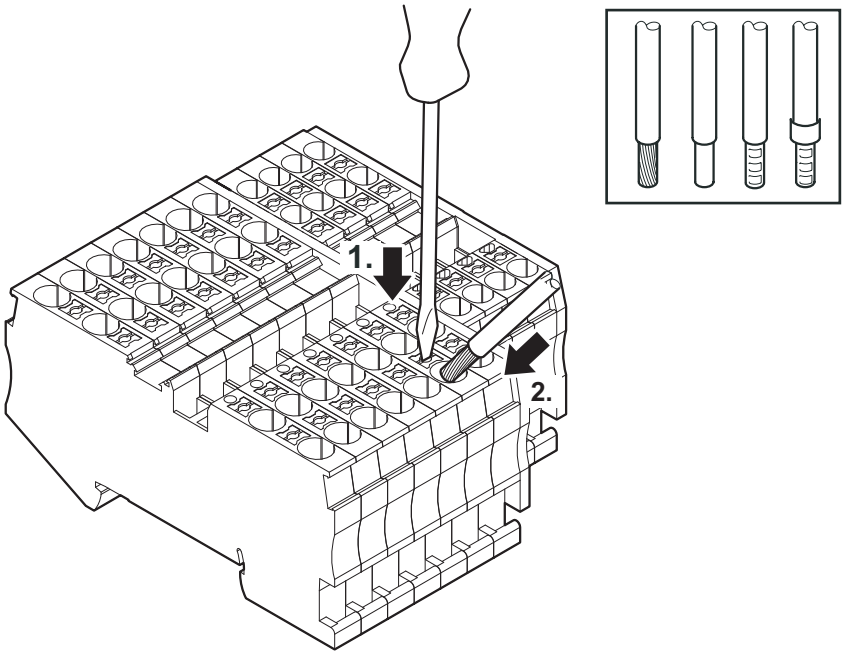
5.1.7 Activating terminals X2_B for motor, brake and temperature sensor

Adhere to the following sequence when you activate the terminals X2_B for motor, brake and temperature sensor:

- Terminals X2_B in MMF32 design



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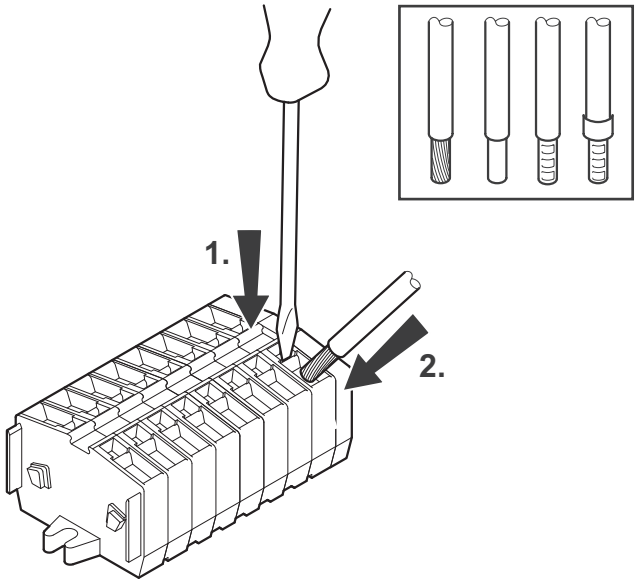
5.1.8 Activating terminals X2_A for motor, brake and temperature sensor

Adhere to the following sequence when you activate the terminals X2_A for motor, brake and temperature sensor:

- Terminals X2_A in designs MMF1. and MMF31



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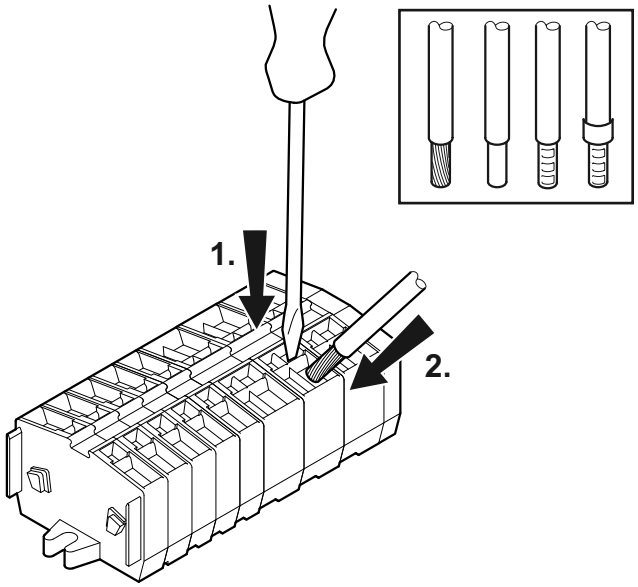
- Terminals X2_A in design MMF32



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5.1.9 Selecting the residual current device

The inverter can cause a direct current in the PE conductor.

Proceed as follows to select the residual current device:

1. If using a residual current device is not mandatory according to the standards, SEW-EURODRIVE recommends not using a residual current device.
2. ⚠ **WARNING!** No protection against electric shock if an incorrect type of residual current device is used. Severe or fatal injuries.
   If a residual current device (residual current device RCD or residual current monitor RCM) is provided, use an all-current-sensitive RCD or RCM of type B.
3. If a residual current device is required, select the residual current device according to the requirements for protecting persons, fire protection or system protection. Observe the tripping characteristic, the deceleration and the rated tripping current of the residual current device during selection.
4. During project planning, note that leakage currents which are as low as possible occur in the system for operational reasons.
5. If the operational leakage currents are too high, you can distribute the current supply among several RCDs.

5.1.10 Using the line contactor

Proceed as follows when using the line contractor:

1. Use only a contactor of utilization category AC-3 (EN 60947-4-1) as a line contactor.
2. **NOTICE!** Failing to observe the minimum switch-off time of the line contactor can cause material damage. Irreparable damage to the inverter or unforeseen malfunctions.
   After switching off the voltage supply, keep it switched off for at least 10 s.
   ⇨ Do not switch the voltage supply on or off at the line contactor more than once per minute.

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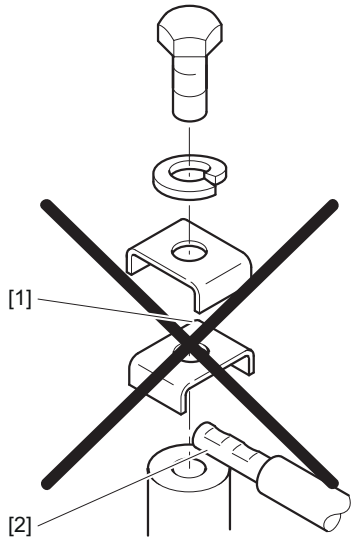
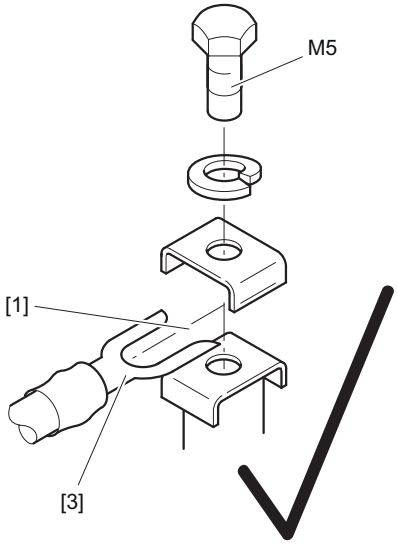
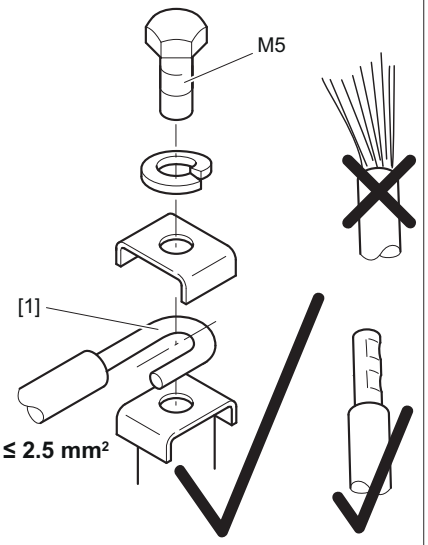
5.1.11 Notes on PE connection

1. Install the PE connection cable to the connection box as follows (screw tightening torque: 2.0 – 2.4 Nm).
2. ⚠ **WARNING!** Electric shock due to incorrect connection of PE Severe or fatal injuries.
   Observe the following notes for the PE connection.

Non-permitted mounting	**Recommendation:** **Mounting with forked cable lug[1)]** **Permitted for all cross sections**	**Mounting with solid connecting wire or litz wire with conductor end sleeve[1)]** **Permitted for cross sections up to maximum 2.5 mm²**
		

1) Use the specified material for the assembly that is included in the accessory bag.

[1] Install the PE connection cable between both U-shaped mounting panels.

[2] Incorrect installation sequence

[3] Forked cable lug suitable for M5 PE screws

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Leakage currents

During normal operation, leakage currents ≥ 3.5 mA may occur. In order to fulfill EN 61800-5-1, observe the following information:

- The ground connection (PE) must be installed in such a way that it meets the requirements for systems with high leakage currents.
- This usually means
  - installing a PE connection cable with a minimum cross section of 10 mm^2 (copper conductor)
  - or installing a second PE connection cable in parallel to the protective earth. The cross section of the second PE connection cable must be at least as large as the cross section of the PE.

    According to DIN EN 61800-5-1, the second PE connection is not required if the line connection is equipped with a connector for industrial applications (according to IEC 60309) and if the supply system cable has a cross section of ≥ 2.5 mm^2.

INFORMATION

According to the IEC 60309-1 standard > chapter "General requirements for connectors, sockets and couplings for industrial applications", the M23 circular connectors from TE Connectivity - Intercontec products of the 723 series comply with connectors for industrial applications.

5.1.12 Installation with protective separation

The electronics cover meets all requirements for protective separation of power and electronics connections in accordance with EN 61800-5-1. The connected signal circuits and the DC 24 V voltage supply must meet the requirements according to SELV (**S**afety **E**xtra **L**ow **V**oltage) or PELV (**P**rotective **E**xtra **L**ow **V**oltage) to ensure protective separation. The installation must meet the requirements for protective separation.

5.1.13 Protection devices

- The units come equipped with integrated protection devices against overload and short circuit.
- The power contactor of the supply system cable must be realized through external overload devices.
- The relevant standards must be observed concerning the cable cross section, the voltage drop, and the type of routing that is used.

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5.1.14 Installation above 1000 m asl

The devices can be used at altitudes above 1000 m above sea level up to 3800 m above sea level under the following marginal conditions. The maximum altitude is limited due to the decreased dielectric strength at lower air density.

- The nominal motor current I_N is reduced due to the reduced cooling above 1000 m, see **product manual** > chapter "Technical data".
- Above 2000 m above sea level, the air and creepage distances are only sufficient for overvoltage category II. If the installation requires overvoltage category III, you will have to install additional external overvoltage protection to limit overvoltage peaks to 1.5 kV phase-to-phase and 2.5 kV phase-to-ground.
- If safe electrical disconnection is required, it must be implemented outside the device at altitudes of more than 2000 m above sea level (safe electrical disconnection in accordance with EN 61800-5-1).
- At installation altitudes between 2000 m and 3800 m above sea level, measures must be taken that reduce the line side overvoltage from category III to category II for the entire system.

5.1.15 UL-compliant installation

INFORMATION

Due to UL requirements, the following chapter is always printed in English and in some cases in French, regardless of the language of this documentation.

Observe the following notes for UL-compliant installation:

The devices are for use only in industrial machinery NFPA 79 applications.

For use in a Pollution Degree 1 or Pollution Degree 2 environmental only.

Field Wiring Power Terminals

- Use 75 °C copper wire only.
- Tighten terminals to 17.7 – 21.24 in-lbs (screw connect terminals only).

Short Circuit Current Rating

Suitable for use on a circuit capable of delivering not more than 65,000 rms symmetrical amperes (models with maintenance switch not more than 5,000 rms) when protected by when protected by 600 V maximum non-semiconductor fuses (Class CA, CB, CD, CF, G, J, K-1, K-5, RK1, RK5, T) or when protected by 500 V maximum inverse time circuit breakers having an interrupting rating not less than 65 kA rms symmetrical amperes..

Suitable for motor group installation on a circuit capable of delivering not more than 65,000 rms symmetrical amperes (models with maintenance switch not more than 5,000 rms) when protected by 600 V maximum non-semiconductor fuses (Class CA, CB, CD, CF, G, J, K-1 , K-5, RK1, RK5, T) or when protected by 500 V maximum inverse time circuit breakers having an interrupting rating not less than 65 kA rms symmetrical amperes.

The max. voltage is limited to 500 V.

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Branch Circuit Protection

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.

WARNING - The opening of the branch-circuit protective device may be an indication that a fault current has been interrupted. To reduce the risk of fire or electric shock, current-carrying parts and other components of the controller should be examined and replaced if damaged. If burnout of the current element of an overload relay occurs, the complete overload relay must be replaced.

ATTENTION - LE DÉCLENCHEMENT DU DISPOSITIF DE PROTECTION DU CIRCUIT DE DÉRIVATION PEUT ÊTRE DÛ À UNE COUPURE QUI RÉSULTE D'UN COURANT DE DÉFAUT. POUR LIMITER LE RISQUE D'INCENDIE OU DE CHOC ÉLECTRIQUE, EXAMINER LES PIÈCES PORTEUSES DE COURANT ET LES AUTRES ÉLÉMENTS DU CONTRÔLEUR ET LES REMPLACER S'ILS SONT ENDOMMAGÉS. EN CAS DE GRILLAGE DE L'ÉLÉMENT TRAVERSÉ PAR LE COURANT DANS UN RELAIS DE SURCHARGE, LE RELAIS TOUT ENTIER DOIT ÊTRE REMPLACÉ.

For maximum branch circuit protection see table below.

SCCR: 65 kA/500 V 5 kA/500V (devices with maintenance switch) when protected by	
Non-semiconductor fuses (currents are maximum values)	Inverse time circuit breakers (currents are maximum values)
40 A max./600 V	40 A max./500 V min.

Motor Overload Protection

The devices are provided with load and speed-sensitive overload protection and thermal memory retention upon shutdown or power loss.

The trip current is adjusted to 150% of the rated motor current.

Multi Motor Application

Coordination of branch-circuit short-circuit protective device and output tap conductors shall be considered. Output circuit conductors sized smaller than the branch circuit conductors shall comply with single motor tap rules of Article 430 of the NEC.

Surrounding Air Temperature Rating

The devices are suitable for an ambient temperature of 40 °C, max. 60 °C with de-rated output current. To determine the output current rating at temperatures above 40 °C, the output current should be de-rated by 3 % per K between 40 °C and 60 °C.

Wiring Diagrams

For wiring diagrams, refer to chapter "Electrical Installation".

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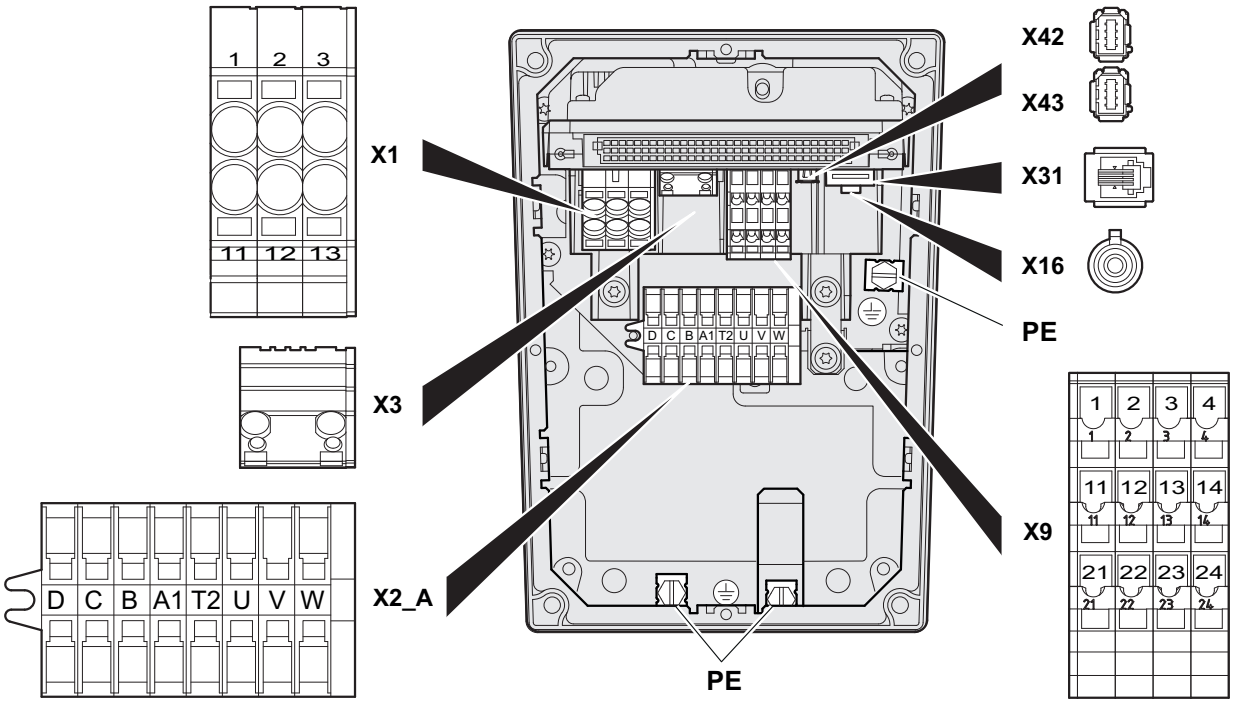
5.2 Terminal assignment of MOVIMOT® flexible DFC

Attach units without a connector to the terminals as follows:

1. ⚠ **WARNING!** Electric shock caused by dangerous voltages in the connection box. Severe or fatal injuries.
   De-energize the device. Pay attention to the 5 safety rules in chapter "Carrying out electrical work safely". Afterwards, wait 5 minutes.
2. ⚠ **WARNING!** Risk of burns due to hot surfaces. Severe injuries.
   Let the device cool sufficiently before touching it.
3. Undo the screws of the electronics cover. Remove the electronics cover.
4. Route the cables through the cable glands into the connection box.
5. If terminal X3 for connecting the braking resistor is occupied with an optional internal braking resistor and the capacity of this braking resistor is insufficient, you can alternatively connect an external braking resistor as follows:
   - ⇨ Undo the connections of the internal braking resistor.
   - ⇨ Insulate and fix the connections of the internal braking resistor. Ensure that the connections are electrically isolated from all other components.
   - ⇨ Connect the external braking resistor. When doing this, pay attention to the installation instructions of the unit and the external braking resistor.
6. Connect the device according to the following "terminal assignment" (→ 🗎 41).

5.2.1 Design MMF1., MMF31

The following figure shows the terminals of MOVIMOT® flexible MMF1.., MMF31../ DFC:



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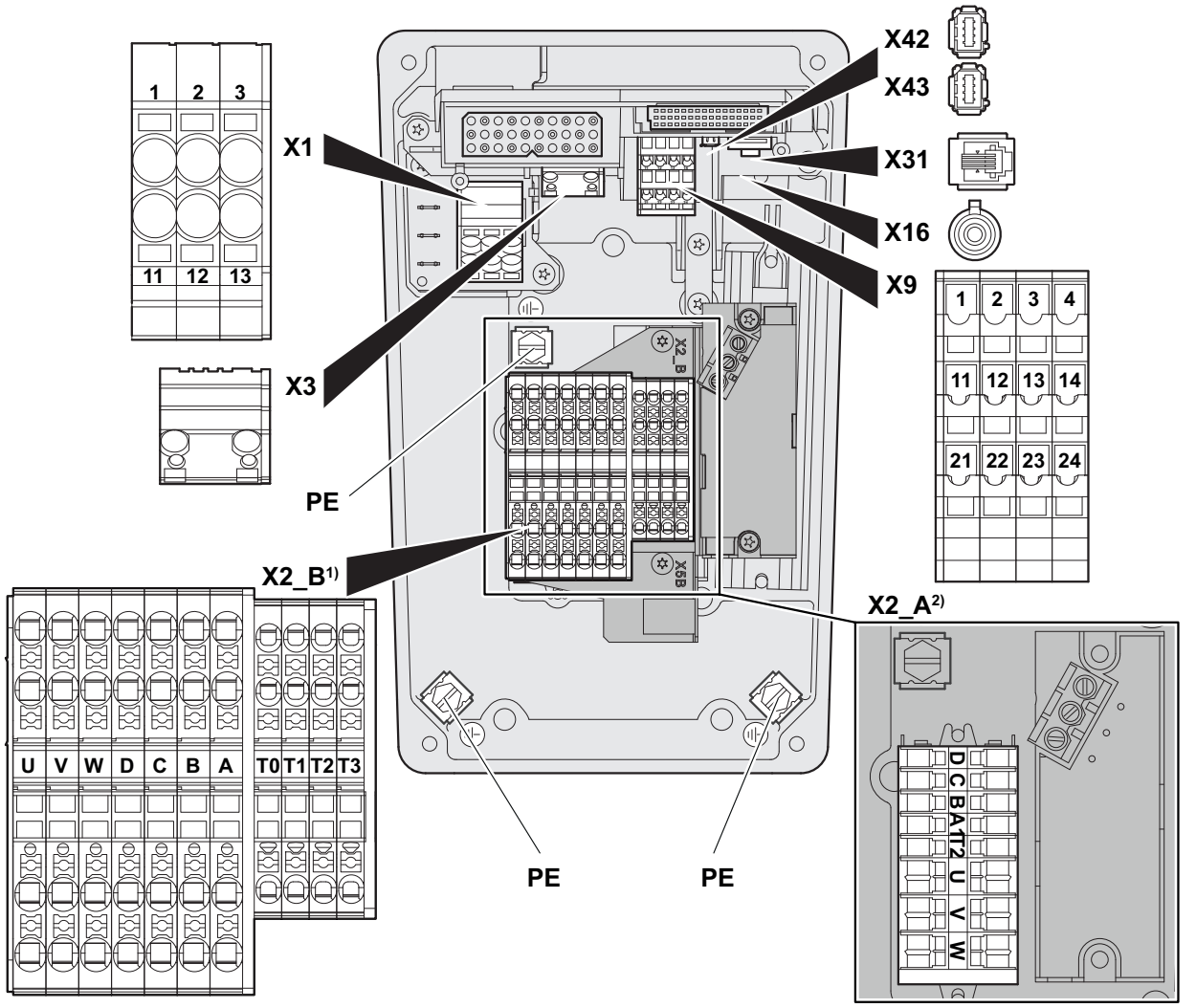
5.2.2 Design MMF32

The following figure shows the terminals of MOVIMOT® flexible MMF32../DFC:



1) The MMF32.. design available from 03/2026 on will be equipped with terminal X2_**B**.
2) The MMF32.. design available until 02/2026 will be equipped with terminal X2_**A**.

5.2.3 Assignment

The following table shows the terminal assignment of MOVIMOT® flexible DFC:

Terminal	No.	Marking	Function	
X1 **line terminals**	1	Brown	L1	Line connection, phase L1 – IN
	2	Black	L2	Line connection, phase L2 – IN
	3	Gray	L3	Line connection, phase L3 – IN
	11	Brown	L1	Line connection, phase L1 – OUT
	12	Black	L2	Line connection, phase L2 – OUT
	13	Gray	L3	Line connection, phase L3 – OUT
⏚	–	–	PE	Protective earth connection

Terminal	No.	Marking	Function	
X3 braking resistor terminals	1	–	BW	Braking resistor connection
	2	–	BW	Braking resistor connection
X9 control terminals	1	Yellow	F_STO_P1	Input STO+
	2	Yellow	F_STO_P1	Input STO+ (to loop through)
	3	–	0V24_out	0V24 reference potential for DC 24 V auxiliary output/digital inputs
	4	–	24V_out	DC 24 V auxiliary output (only for internal voltage supply for non-safety-related STO activation)
	11	Yellow	F_STO_M	Input STO_ground
	12	Yellow	F_STO_M	Input STO_ground (to loop through)
	13	–	24V_in	DC 24 V input
	14	–	24V_in	DC 24 V input (to loop through)
	21	Yellow	F_STO_P2	Input STO+
	22	Yellow	F_STO_P2	Input STO+ (to loop through)
	23	–	0V24_in	0V24 reference potential
	24	–	0V24_in	0V24 reference potential (to loop through)
X42 fieldbus interface for port 1	1	–	TX+	Transmit line +
	2	–	TX-	Transmit line -
	3	–	RX+	Receive line +
	6	–	RX-	Receive line -
X43 fieldbus interface for port 2	1	–	TX+	Transmit line +
	2	–	TX-	Transmit line -
	3	–	RX+	Receive line +
	6	–	RX-	Receive line -
X31 engineering interface	1	–	0V24_OUT	0V24 reference potential for DC 24 V auxiliary output
	2	–	CAN_L	CAN Low connection
	3	–	CAN_H	CAN High connection
	4	–	24V_OUT	DC 24 V auxiliary output
X16 MOVILINK® DDI interface	1	–	DDI	MOVILINK® DDI supply/communication
	2	–	DDI_GND	MOVILINK® DDI reference potential

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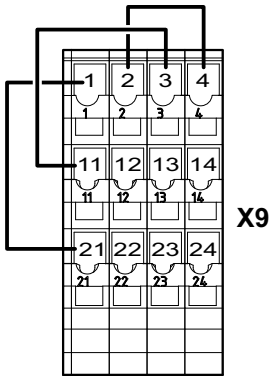
The following figure shows the factory-installed jumpers at the X9 terminals:



9007221264582283

These jumpers are not present in the following designs:

- Designs with connectors with STO function
- Designs with CS..A safety option

For further information, refer to the product manual > chapter "Project planning for functional safety" and chapter "Connection variants for functional safety".

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Assignment of terminal X2_B with MMF..CO.. design

For motors with digital interface (MOVILINK® DDI interface).
As an alternative, also for motors without digital interface (MOVILINK®-DDI interface), but then without connecting a motor temperature sensor.

Terminal	No.	Marking	Connection Depending on the brake control	
			Brake control /B for AC brakes 100 – 525 V.	**Brake control /BES for DC brakes 24 V.**
X2_B terminals for motor and brake For MMF...**CO** design For motors with digital interface (MOVILINK® DDI)	D	White	**Connection of brake 14** • Brake coil: White • Hybrid cable: Violet (D)	**Connection of brake +** • BK, BZ brake coil: Red • BP brake coil: Yellow • Hybrid cable: Violet (D)
	C	White	**Connection of brake 13** • Brake coil: Red • Hybrid cable: Pink (C)	**Reserved** • Hybrid cable: Pink (C)
	B	White	**Connection of brake 15** • Brake coil: Blue • Hybrid cable: Orange (B)	**Reserved** • Hybrid cable: Orange (B)
	A	White	Reserved • Hybrid cable: Yellow (A)	**Connection of brake -** • BK, BZ brake coil: Blue • BP brake coil: Yellow • Hybrid cable: Yellow (A)
	T0 – T3	White	Reserved	
	U	Gray	**Motor connection, phase U**	
	V	Gray	**Motor connection, phase V**	
	W	Gray	**Motor connection, phase W**	

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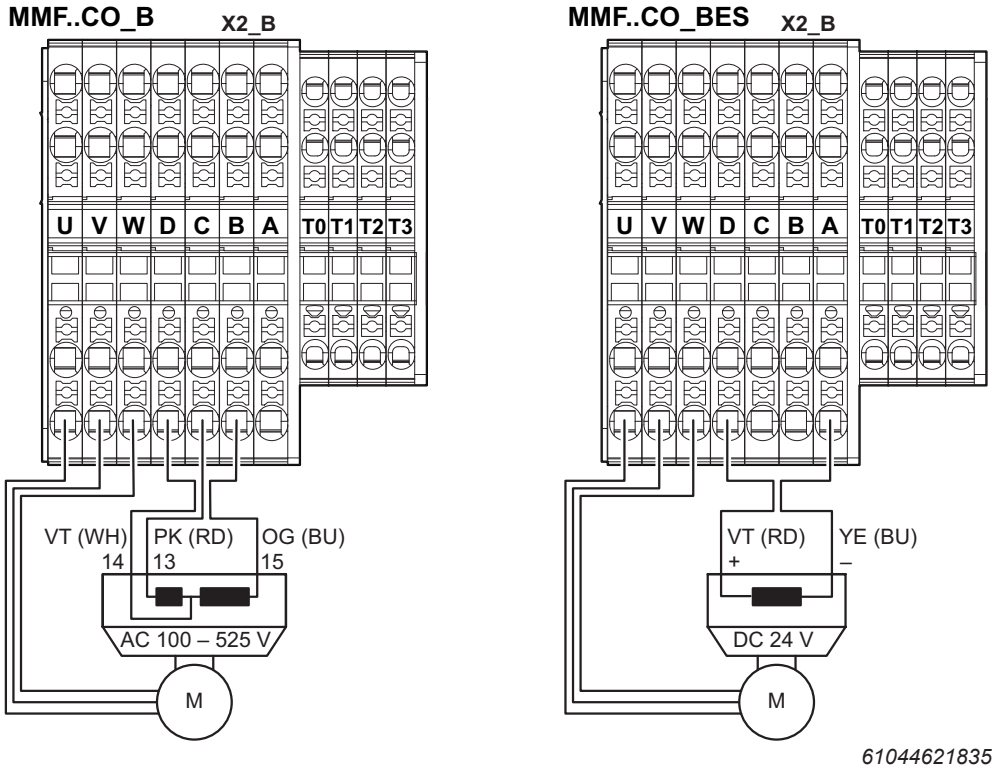
Wiring diagrams

The following figures show the connection options for motors with digital interface (MOVILINK®DDI interface).



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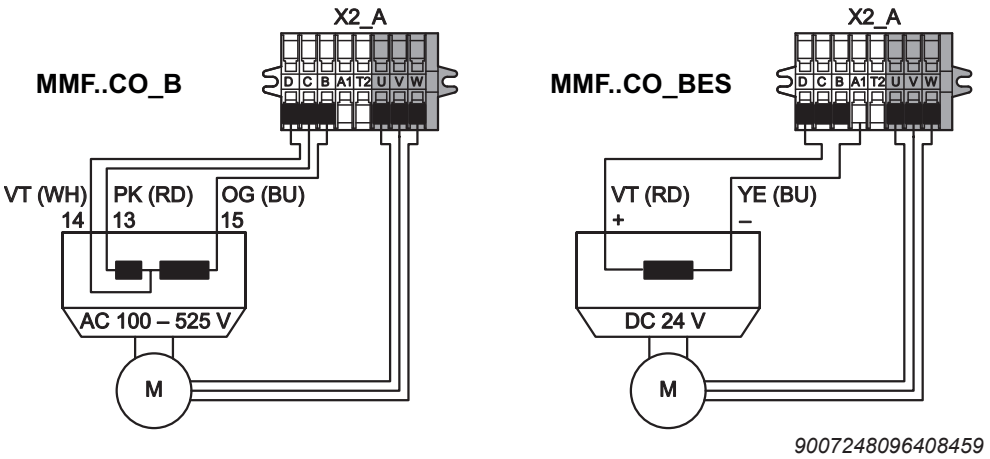
Assignment of terminal X2_A with MMF..CO.. design

For motors with digital interface (MOVILINK® DDI interface).
As an alternative, also for motors without digital interface (MOVILINK®-DDI interface), but then without connecting a motor temperature sensor.

Terminal	No.	Marking	Connection Depending on the brake control	
			Brake control /B for AC brakes 100 – 525 V.	**Brake control /BES for DC brakes 24 V.**
X2_A Terminals for motor and brake For MMF...**CO** design For motors with digital interface (MOVILINK® DDI)	D	White	**Connection of brake 14** • Brake coil: White • Hybrid cable: Violet (D)	**Connection of brake +** • BK, BZ brake coil: Red • BP brake coil: Yellow • Hybrid cable: Violet (D)
	C	White	**Connection of brake 13** • Brake coil: Red • Hybrid cable: Pink (C)	**Reserved** • Hybrid cable: Pink (C)
	B	White	**Connection of brake 15** • Brake coil: Blue • Hybrid cable: Orange (B)	**Reserved** • Hybrid cable: Orange (B)
	A1	White	**Reserved** • Hybrid cable: Yellow (A)	**Connection of brake -** • BK, BZ brake coil: Blue • BP brake coil: Yellow • Hybrid cable: Yellow (A)
	T2	White	Reserved	
	U	Gray	**Motor connection, phase U**	
	V	Gray	**Motor connection, phase V**	
	W	Gray	**Motor connection, phase W**	

Wiring diagrams

The following figures show the connection options for motors with digital interface (MOVILINK®DDI interface).



9007248096408459

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Assignment of terminal X2_B with MMF..DI.. design

For motors without digital interface (MOVILINK® DDI interface)

Terminal	No.	Marking	Connection depending on the brake control	
			Brake control /B for AC brakes 100 – 525 V.	**/BES brake control for DC brakes 24 V.**
X2_B terminals for motor and brake For MMF...**DI** design For motors without digital interface (MOVILINK® DDI)	D	White	**Connection of brake 14** White	**Brake connection 14** Accelerator coil: White
	C	White	**Connection of brake 13** rot	**Connection of brake +** • BK, BZ brake coil: Red • BP brake coil: Yellow
	B	White	**Connection of brake 15** Blue	**Connection of brake -** • BK, BZ brake coil: Blue • BP brake coil: Yellow
	A	White	Reserved	
	T0	White	**Temperature sensor connection (Temp +)**	
	T1	White	**Auxiliary terminal for series connection of temperature sensors** when a maximum of 3 motors are connected. Refer to the product manual > chapter "Connection diagrams for MMF32 group drive".	
	T2	White	**Auxiliary terminal for series connection of temperature sensors** when a maximum of 3 motors are connected. Refer to the product manual > chapter "Connection diagrams for MMF32 group drive".	
	T3	White	**Temperature sensor connection (Temp -)**	
	U	Gray	**Motor connection, phase U**	
	V	Gray	**Motor connection, phase V**	
	W	Gray	**Motor connection, phase W**	

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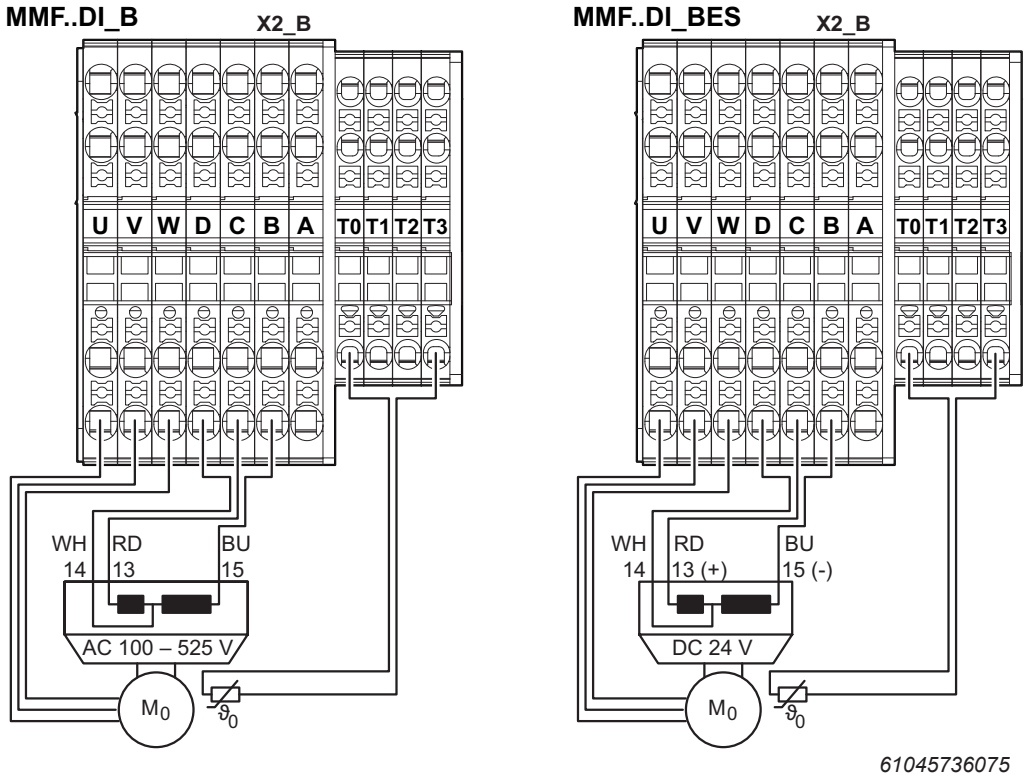
Wiring diagrams

The following figures show the connection options for motors without digital interface (MOVILINK®DDI interface).



61045736075

The connection diagrams of 2 or 3 motors can be found in the product manual > chapter "Connection diagrams for MMF32 group drive".

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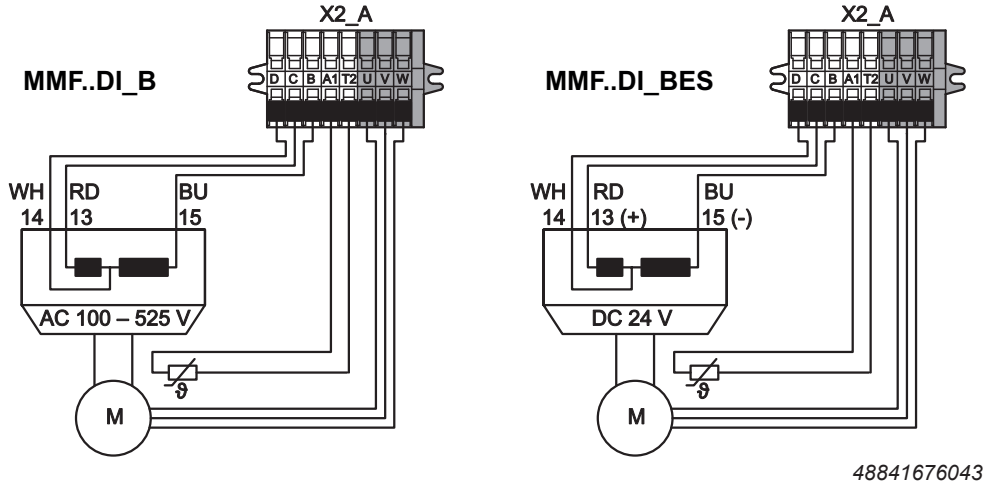
Assignment of terminal X2_A with MMF..DI.. design

For motors without digital interface (MOVILINK® DDI interface)

Terminal	No.	Marking	Connection depending on the brake control	
			Brake control /B for AC brakes 100 – 525 V.	**/BES brake control for DC brakes 24 V.**
X2_A Terminals for motor and brake For MMF...**DI** design For motors without digital interface (MOVILINK® DDI)	D	White	**Connection of brake 14** White	**Brake connection 14** Accelerator coil: White
	C	White	**Connection of brake 13** Red	**Connection of brake +** • BK, BZ brake coil: Red • BP brake coil: Yellow
	B	White	**Connection of brake 15** Blue	**Connection of brake -** • BK, BZ brake coil: Blue • BP brake coil: Yellow
	A1	White	**Temperature sensor connection (Temp +)**	
	T2	White	**Temperature sensor connection (Temp -)**	
	U	Gray	**Motor connection, phase U**	
	V	Gray	**Motor connection, phase V**	
	W	Gray	**Motor connection, phase W**	

Wiring diagrams

The following figures show the connection options for motors without digital interface (MOVILINK®DDI interface).



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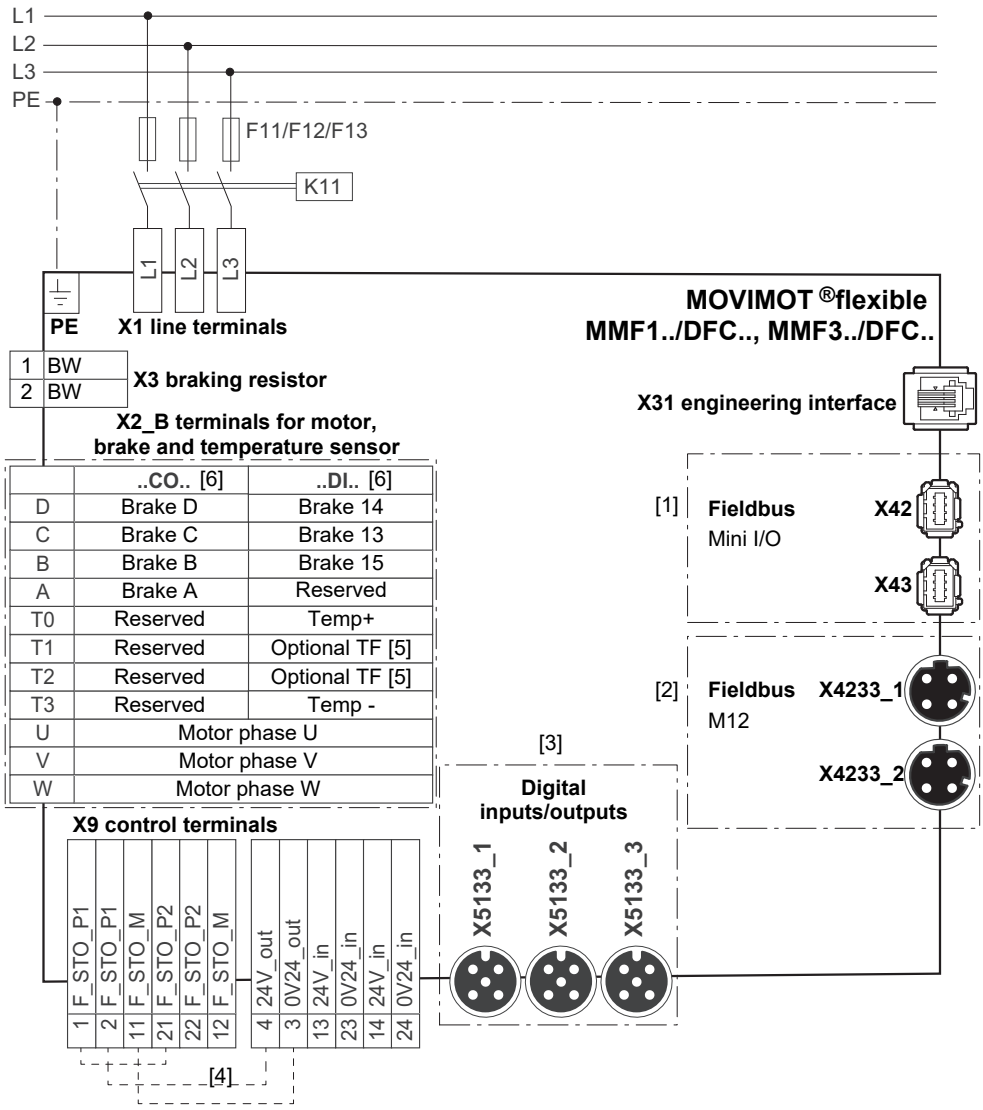
5.3 Connection diagram MOVIMOT® flexible DFC

The following figure shows the connections of the device:



[1] Without function for electronics cover in connection configuration DFC.0..
[2] Only for electronics cover in connection configuration DFC.0..
[3] Only for electronics cover in connection configuration DFC.0.. and DFC.1..
[4] Jumpers installed at the factory for designs without connectors with STO function. For further information, refer to chapter "Connection variants of the STO safety sub-function" in the product manual.
[5] Optional connection for series connection of motor temperature sensors when a maximum of 3 motors are connected. For further connection diagrams, refer to chapter "Connection diagrams for MMF32 group drive" in the product manual
[6] Connection unit option, see chapter "Type designation of MOVIMOT® flexible DFC" (→ 🗎 13)

For the terminal assignment, refer to chapter "Terminal assignment of MOVIMOT® flexible DFC" (→ 🗎 40).

For the positions of the connectors, refer to chapter "Connectors" > "MMF1 design" (→ 🗎 67), "MMF31 design" (→ 🗎 72), "MMF32 design" (→ 🗎 77), "DFC electronics cover" (→ 🗎 82).

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For further information regarding the brake control, refer to the product manual > chapter "Technical data" > "Brake control".

5.4 Cable routing and cable shielding

5.4.1 Installation with separately routed Ethernet cable

Notes on cable routing and shielding – Recommended cable routing

Note the following points for cable routing and cable shielding:

- Cable selection
  - When selecting cables, observe the recommended connection cables in the product manual > chapter "Technical data" > "Connection cables".
  - You can use unshielded connection cables as line connection cables.
- Cable shielding
  - Connect the shields of the cables to the metal housing of the unit using the shield clamps of the accessory bag. To do so, expose the shield in the area of the shield contact surface.
  - As an alternative, you can use optionally available EMC cable glands to connect the shield of cables, see "EMC cable glands" chapter.
- External braking resistor
  - Also observe the notes in chapter "Terminal assignment ...".
- Observe the permitted bending radii of the cables for cable routing.

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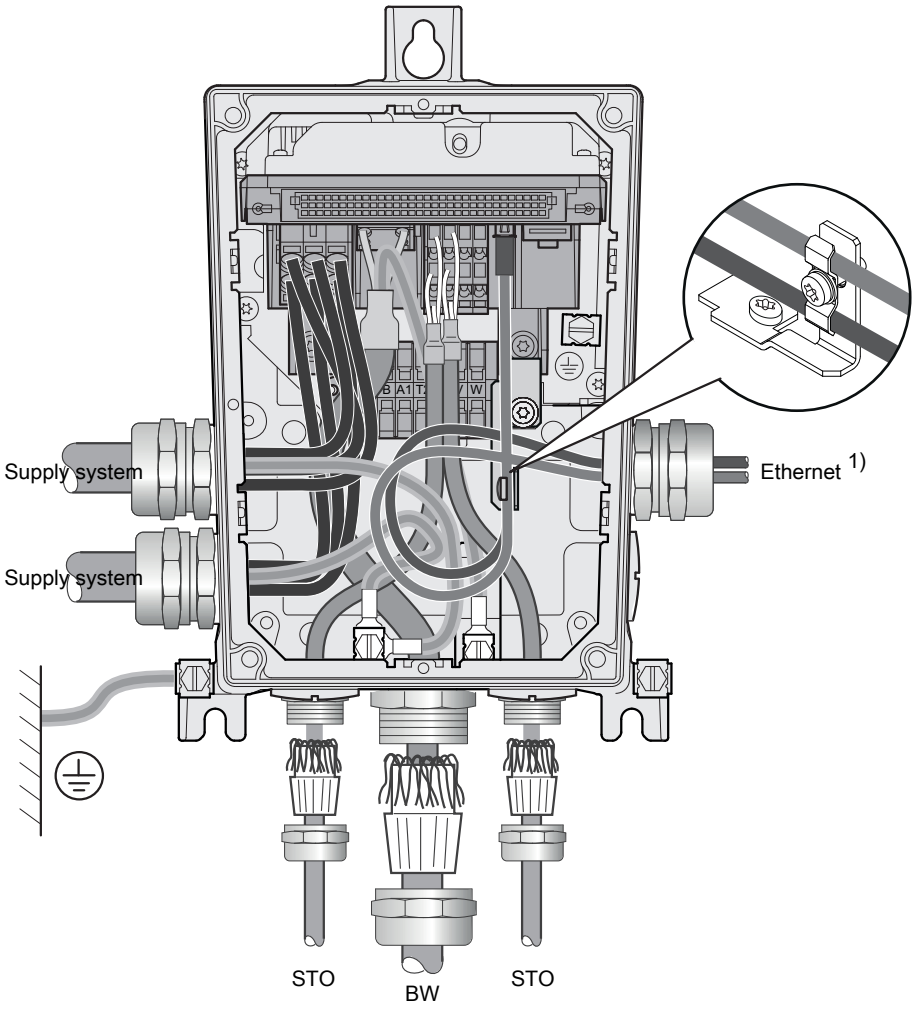
Cable routing MMF1. design

The following figure shows the cable routing of the device without motor connection:



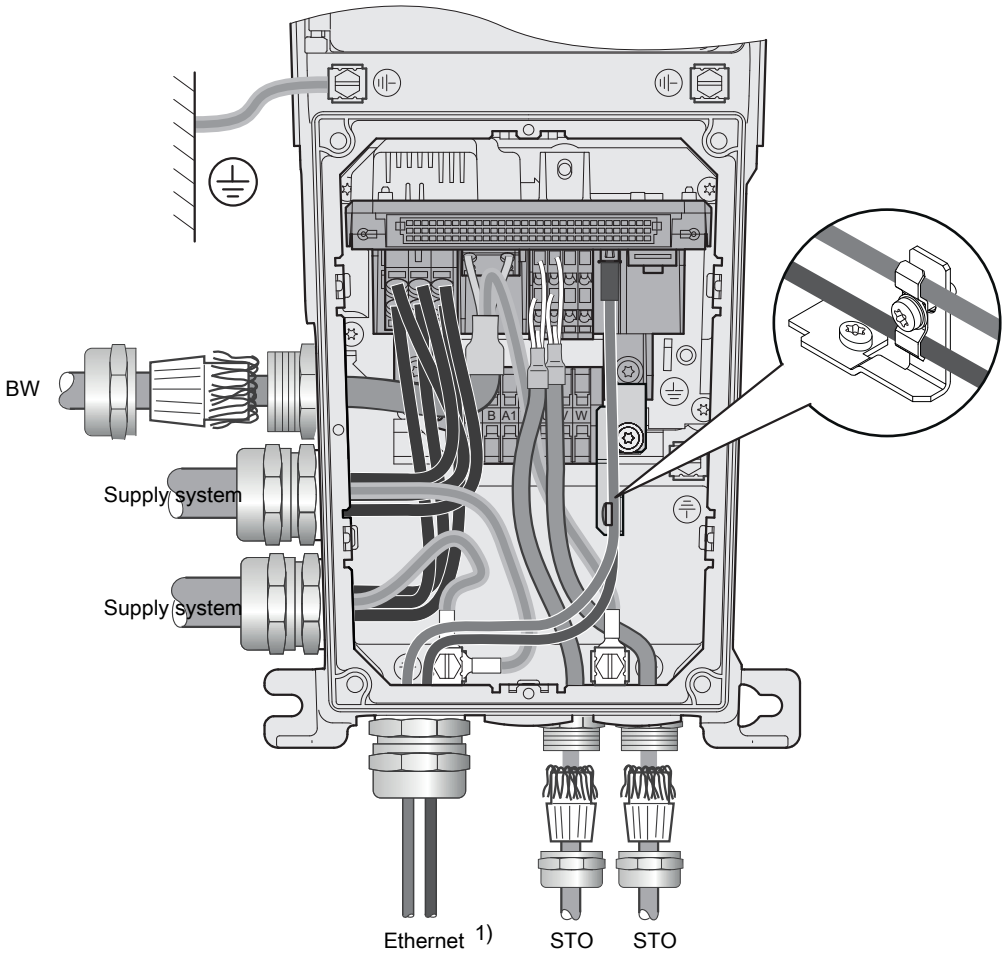
18014429229419019

1) Ethernet connection depends on the connection configuration of the electronics cover.

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

Cable routing MMF31 design

The following figure shows the cable routing of the device without motor connection:



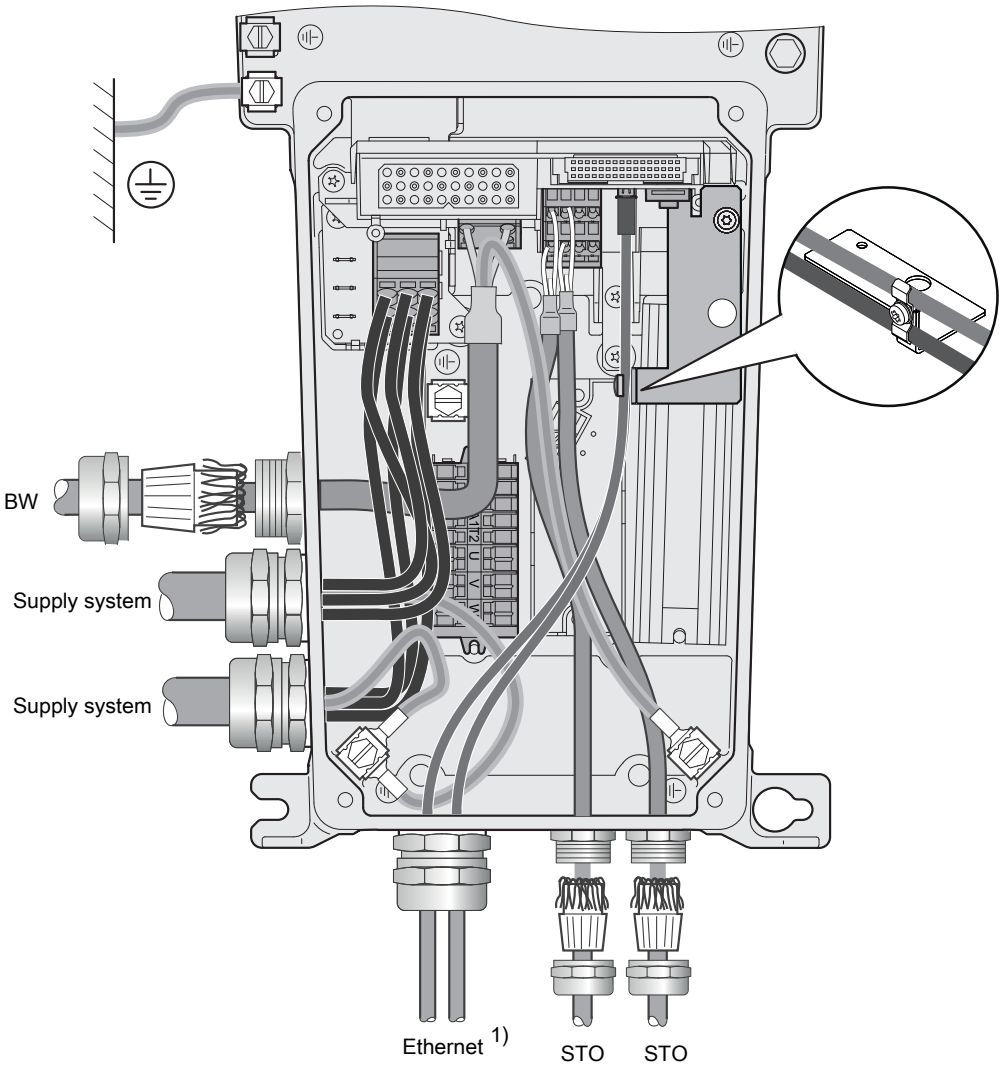
18014429229413899

1) Ethernet connection depends on the connection configuration of the electronics cover.

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

Cable routing MMF32 design

The following figure shows the cable routing of the device without motor connection:



18014432845217675

1) Ethernet connection depends on the connection configuration of the electronics cover.

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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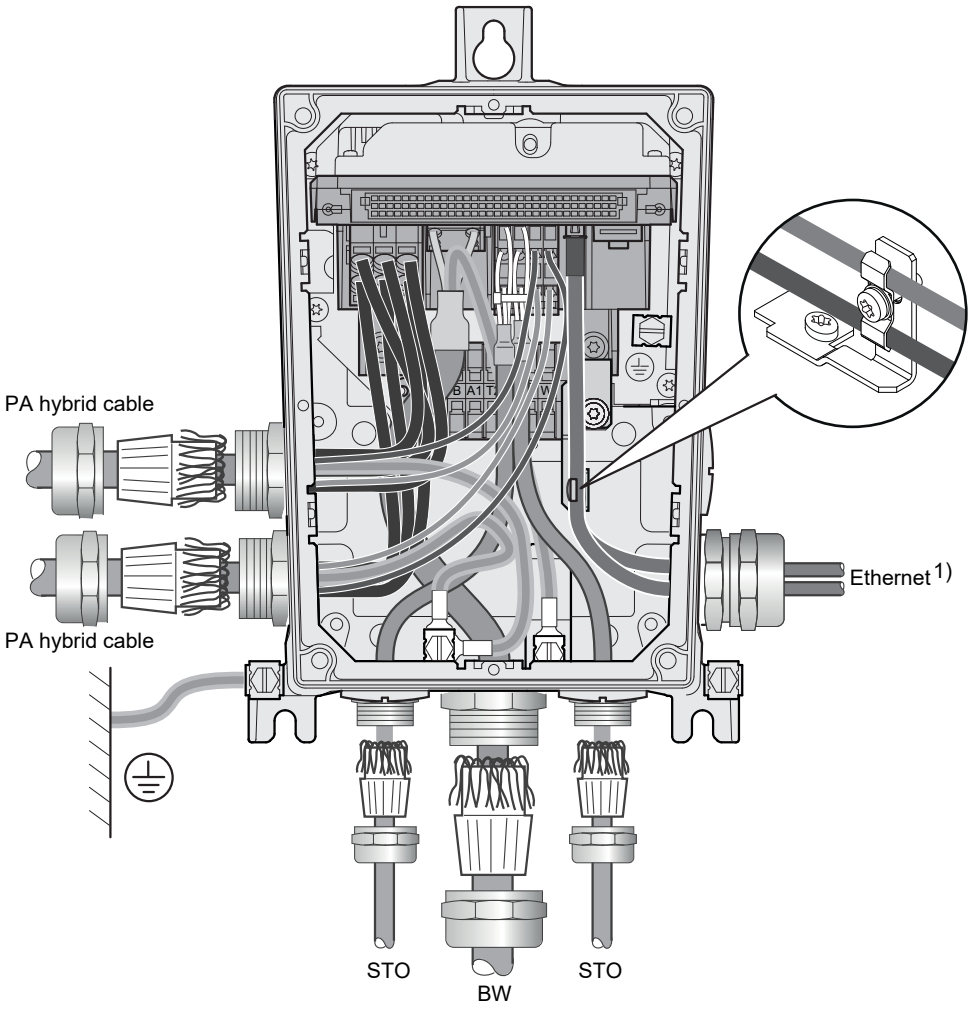
5.4.2 Installation with PA hybrid cable

PA hybrid cable routing, MMF1. design

The following figure shows the cable routing of the device without motor connection:



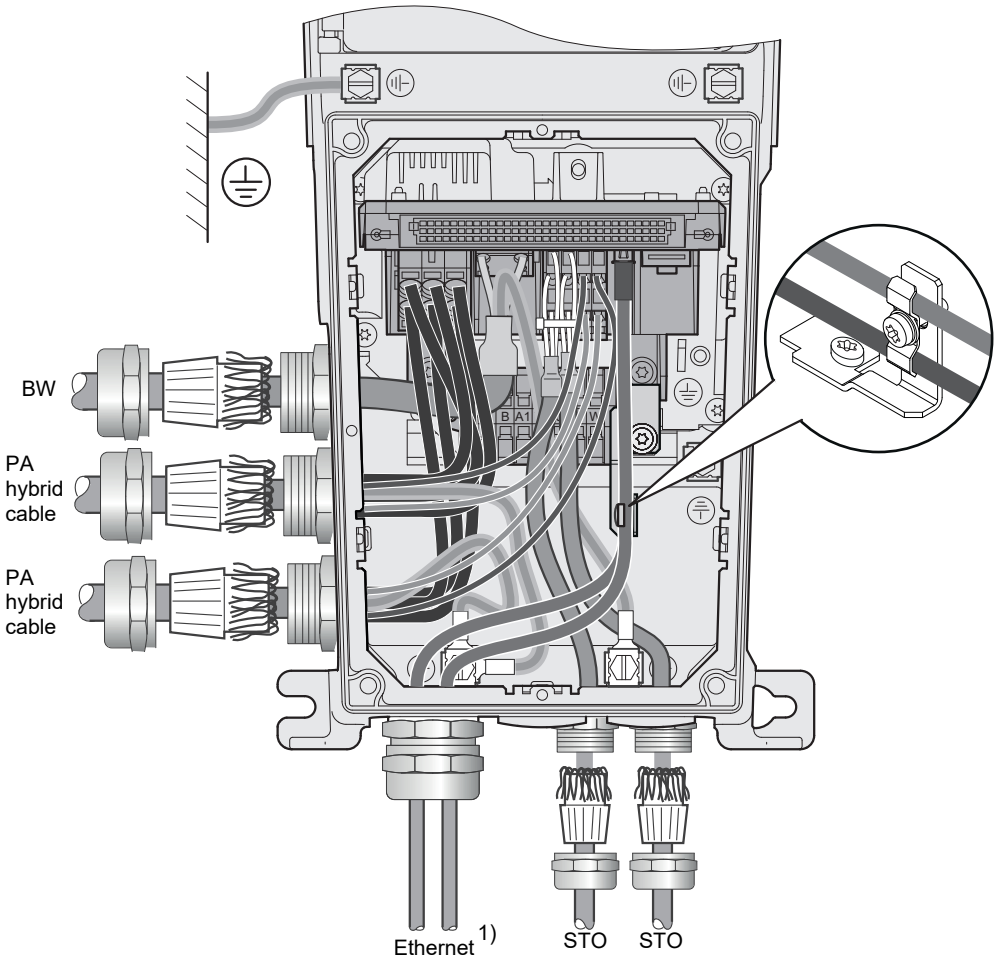
9007232994950027

1) Ethernet connection depends on the connection configuration of the electronics cover

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

PA hybrid cable routing, MMF31 design

The following figure shows the cable routing of the device without motor connection:



9007232995385867

1) Ethernet connection depends on the connection configuration of the electronics cover

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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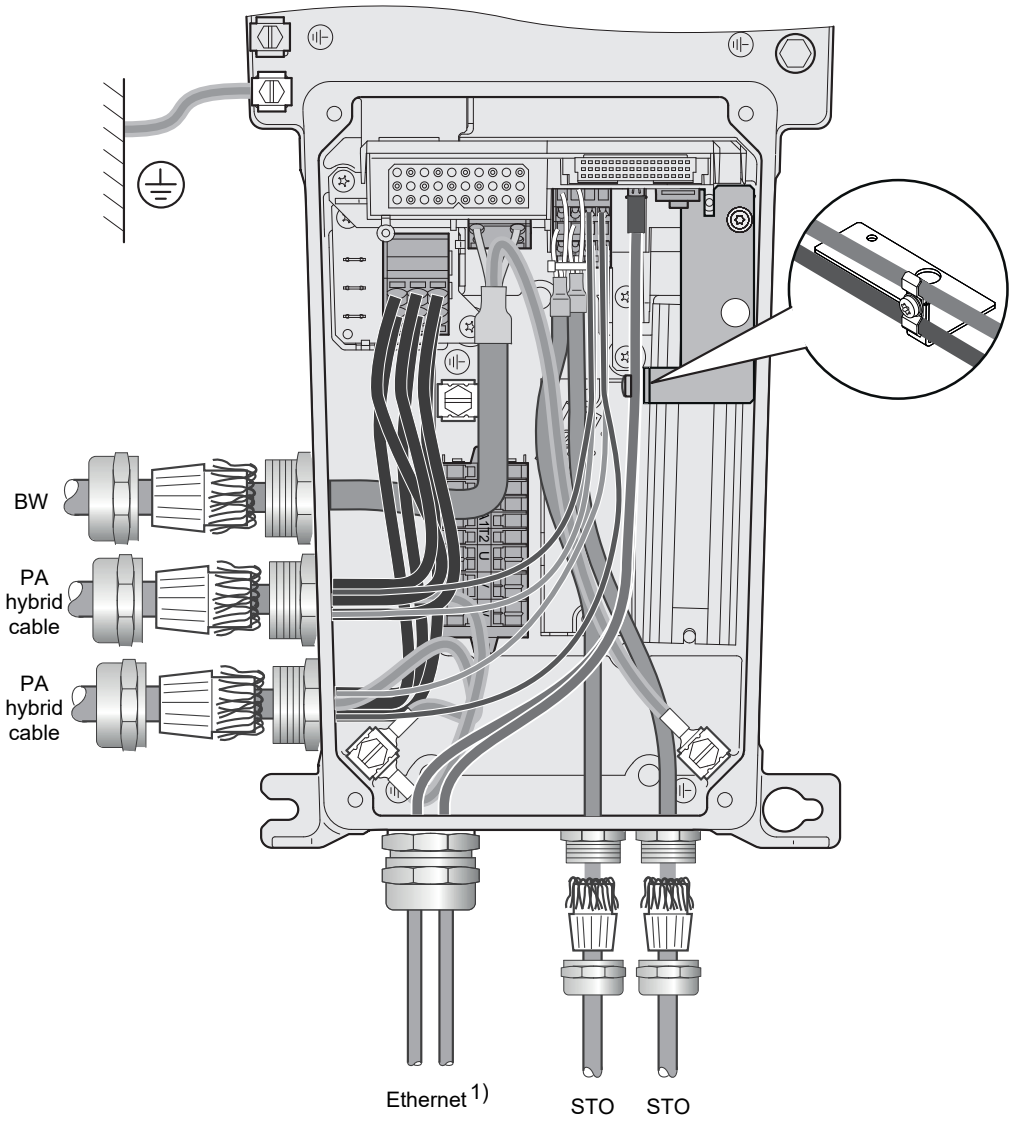
PA hybrid cable routing, MMF32 design

The following figure shows the cable routing of the device without motor connection:



18014432845259659

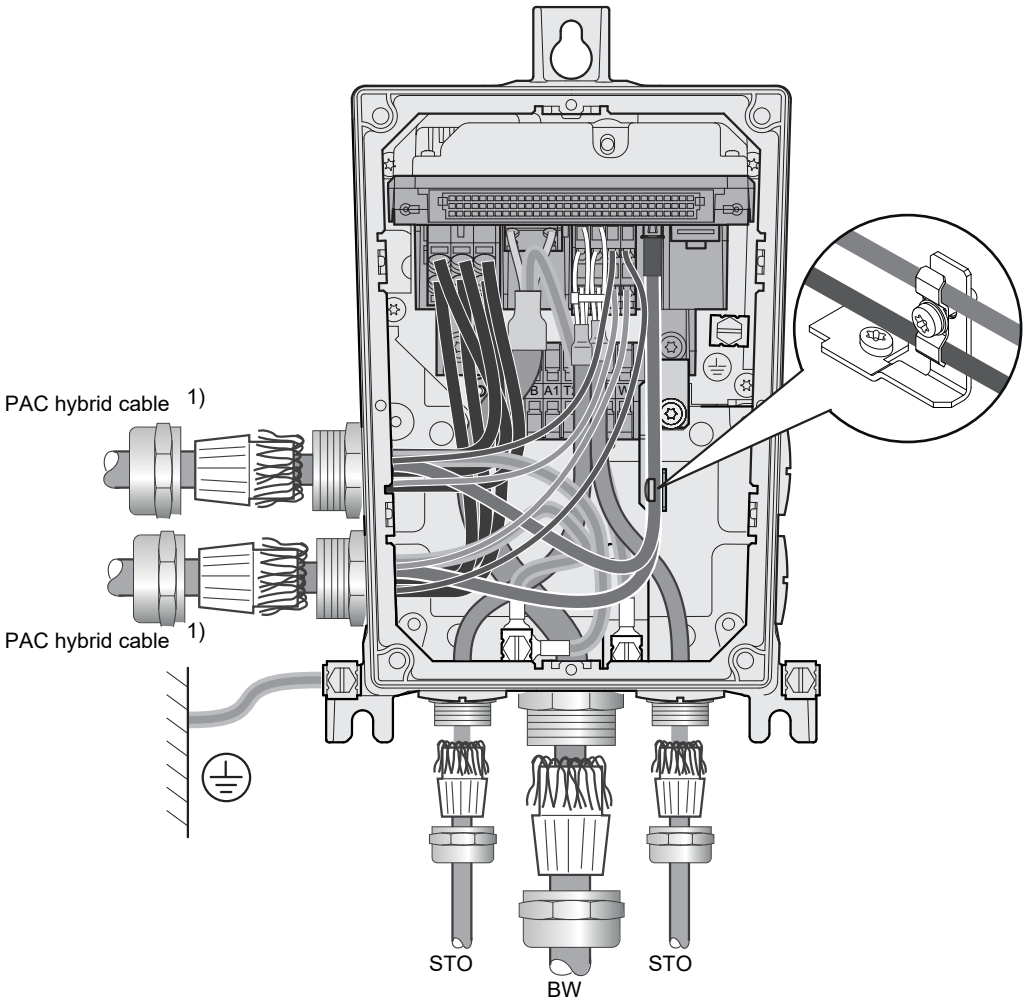
1) Ethernet connection depends on the connection configuration of the electronics cover

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

5.4.3 Installation with PAC hybrid cable

PAC hybrid cable routing, MMF1. design

The following figure shows the cable routing of the device without motor connection:



9007232997677963

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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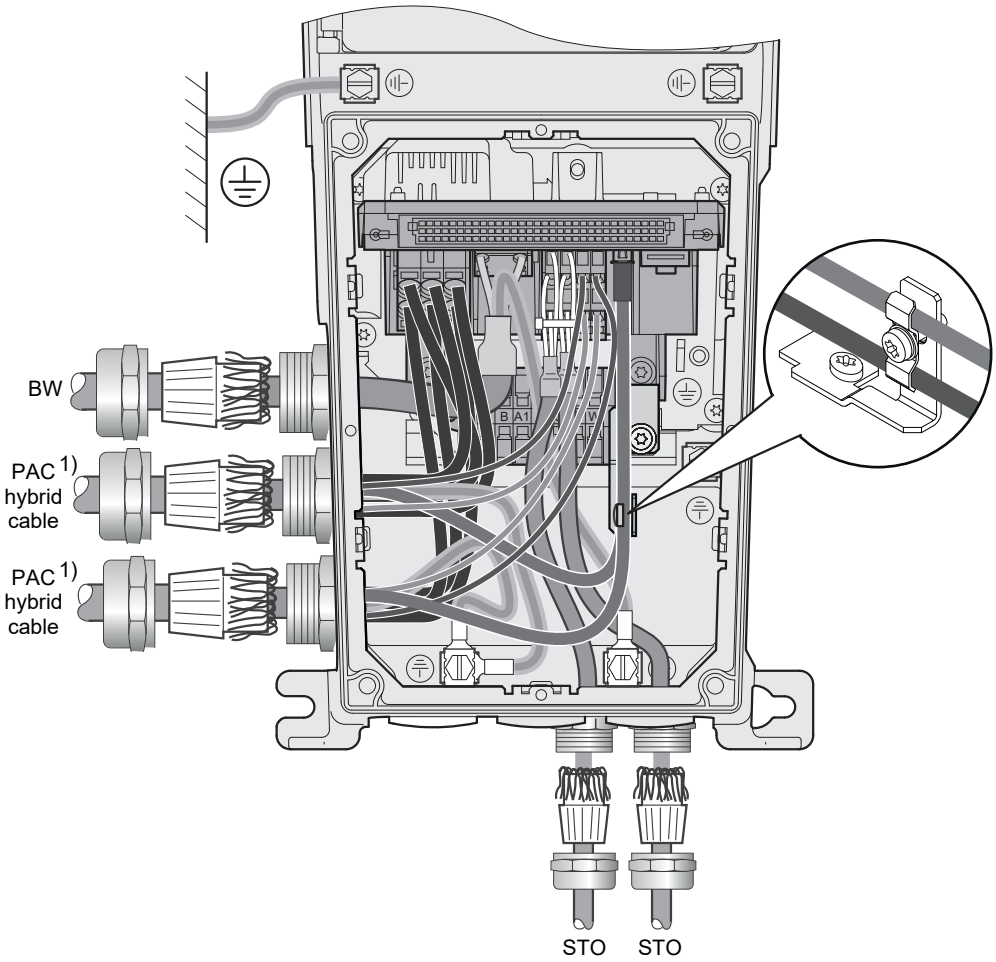
PAC hybrid cable routing, MMF31 design

The following figure shows the cable routing of the device without motor connection:



9007232997946251

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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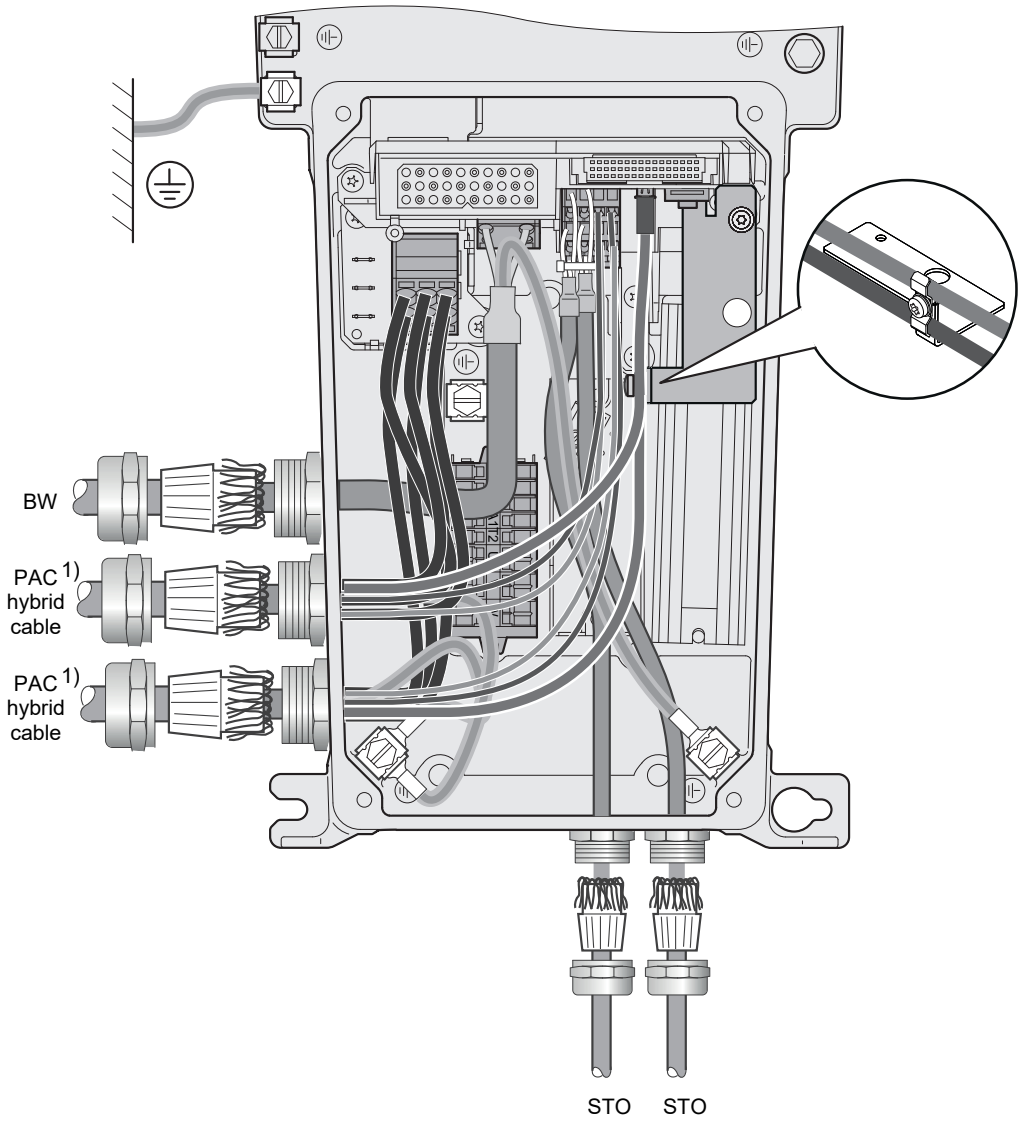
PAC hybrid cable routing, MMF32 design

The following figure shows the cable routing of the device without motor connection:



18014432845329035

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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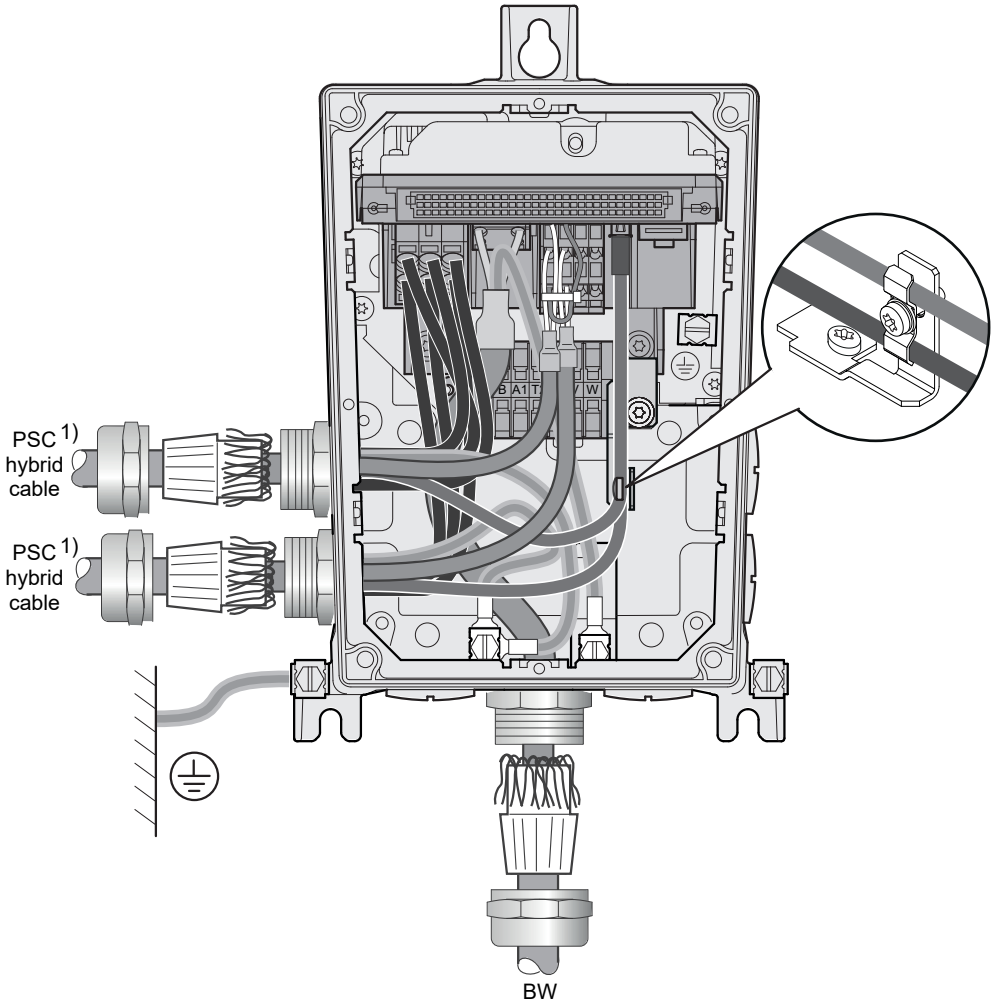
5.4.4 Installation with PSC hybrid cable

PSC hybrid cable routing, MMF1. design

The following figure shows the cable routing of the device without motor connection:



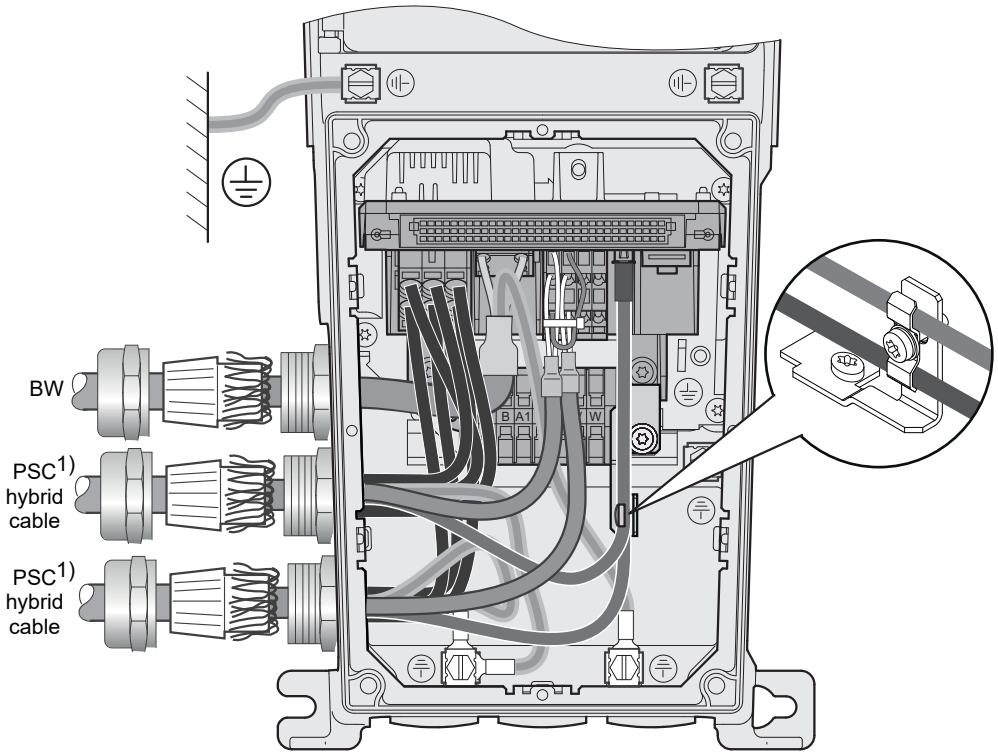
9007232997763467

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

PSC hybrid cable routing, MMF31 design

The following figure shows the cable routing of the device without motor connection:



9007232997960971

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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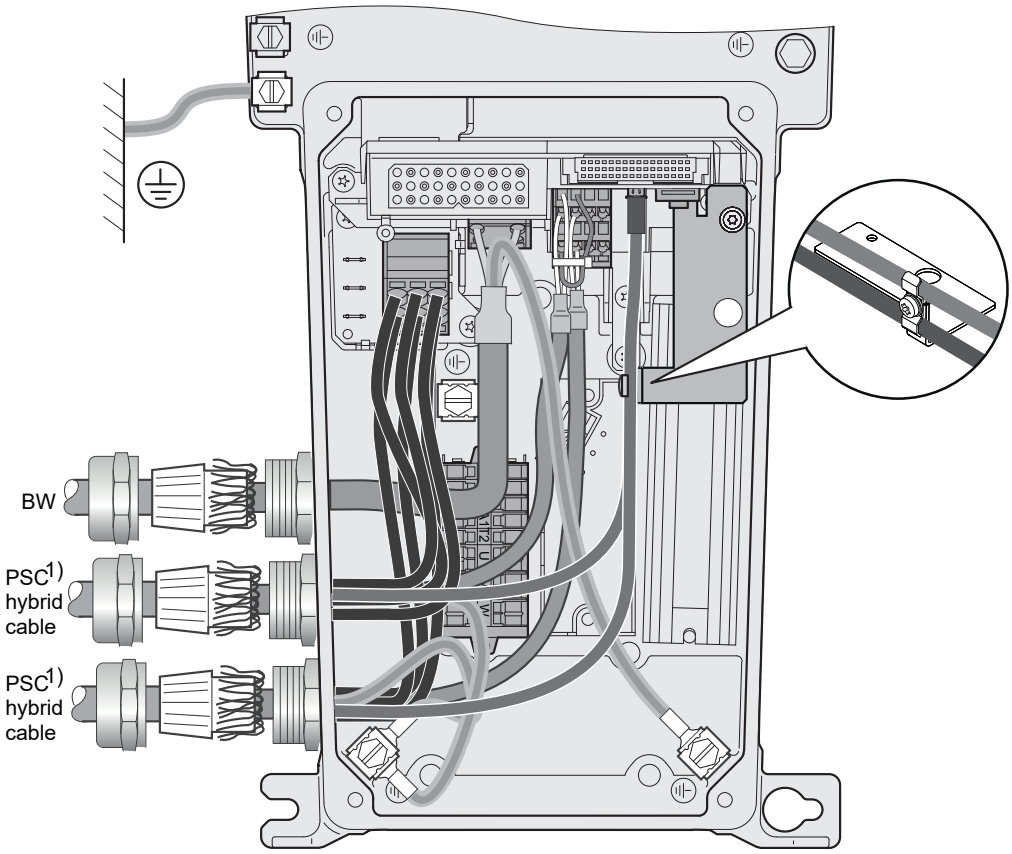
PSC hybrid cable routing, MMF32 design

The following figure shows the cable routing of the device without motor connection:



18014432845376907

1) Only in combination with electronics cover DFC.1.. or DSI.1..

For the cable routing of the motor connection, refer to chapter "Cable routing and cable shielding" > "Motor connection" > "Motor connection without DDI" (→ 🗎 64), "Motor connection with DDI" (→ 🗎 65).

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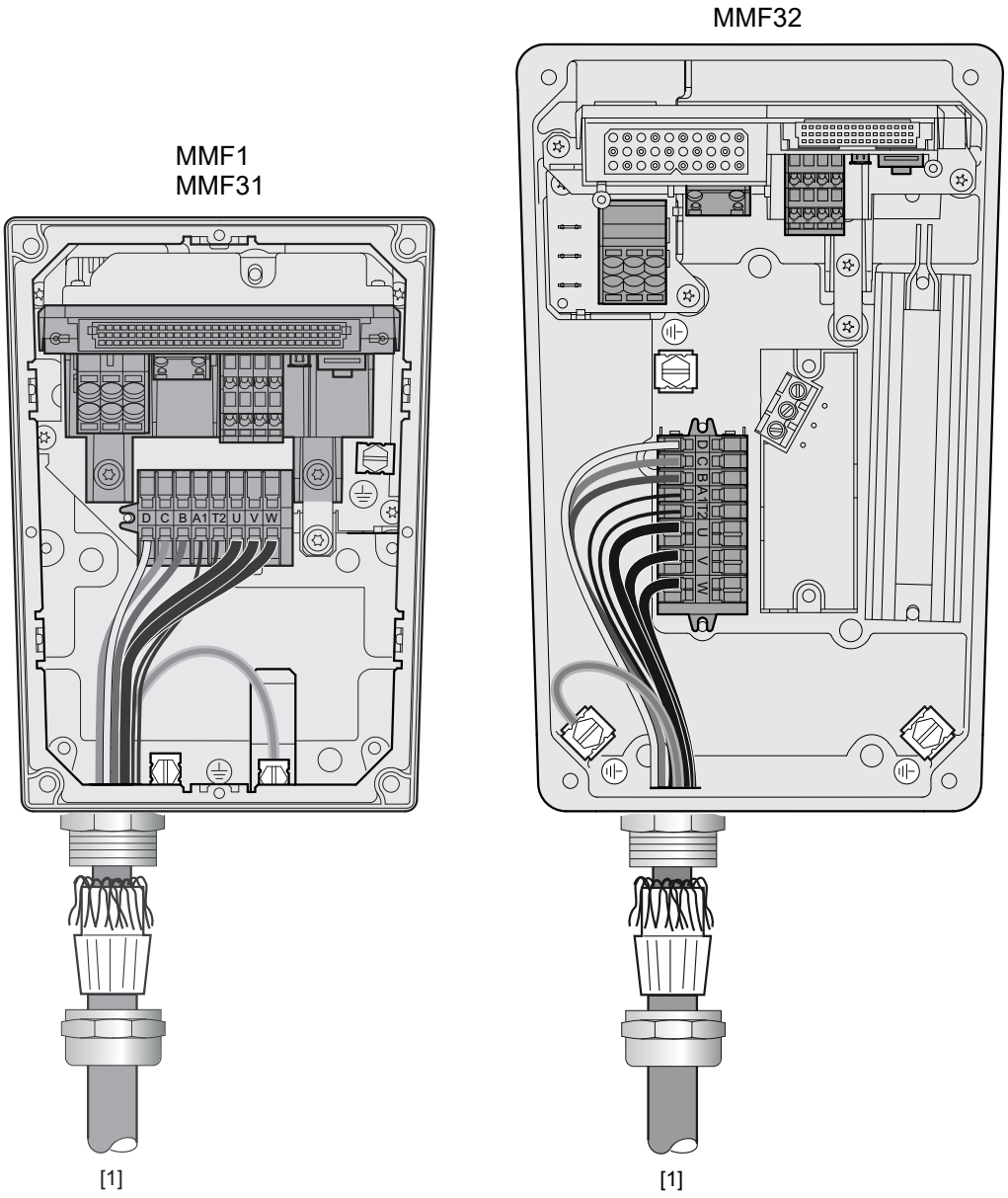
5.4.5 Motor connection

Motor connection for motors without digital interface

(Connection unit with /DI option)

The following figure shows the motor connection with hybrid cable for motors without digital interface:

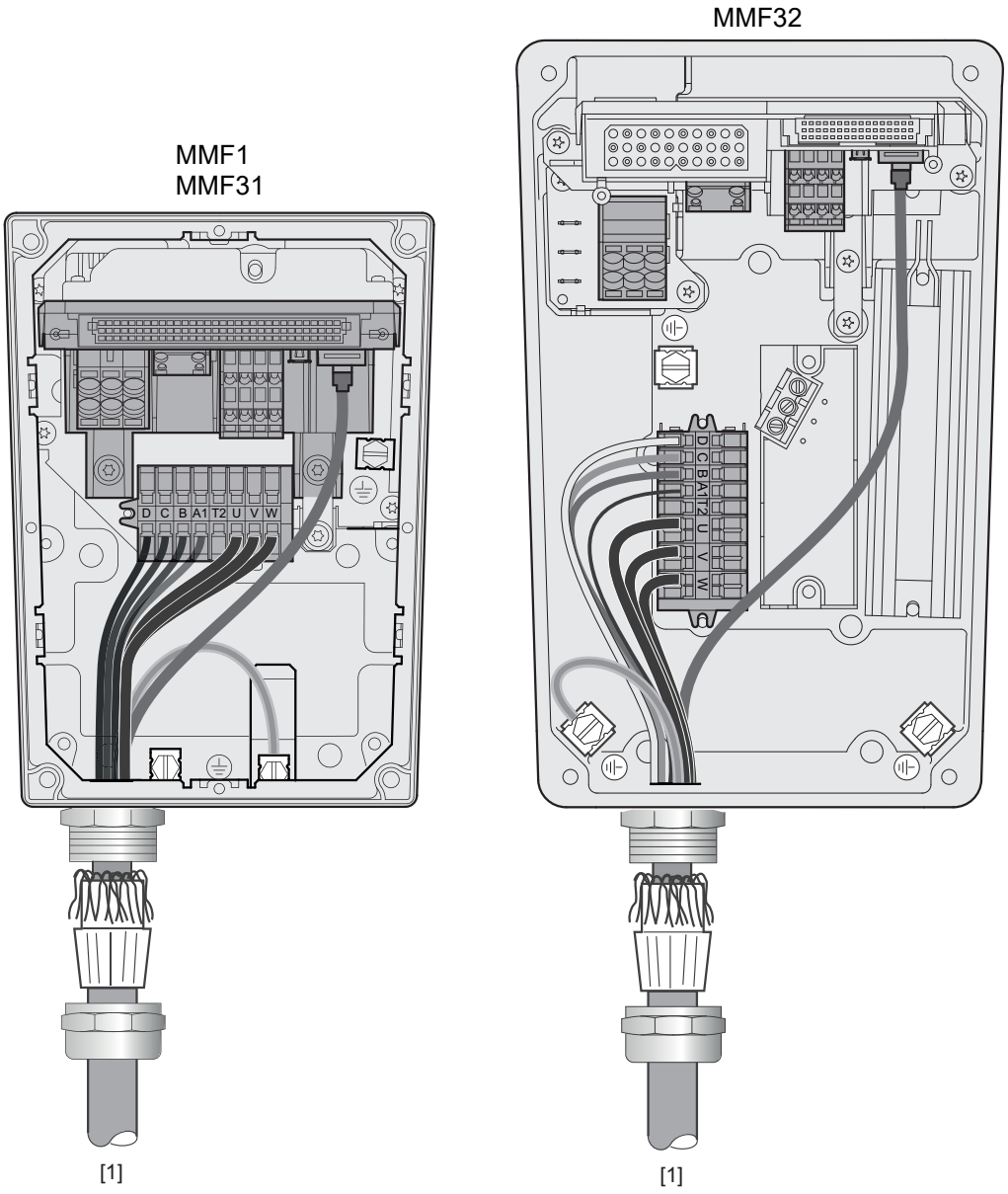


[1] Motor connection for motors without digital interface

Motor connection for motors with digital interface (MOVILINK® DDI)

(Connection unit with /CO option)

The following figure shows the motor connection with hybrid cable for motors with digital interface:

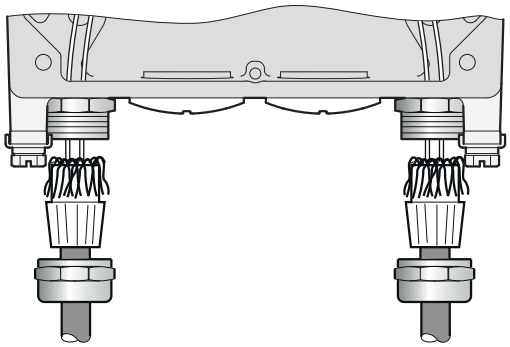


[1] Motor connection for motors with digital interface (MOVILINK® DDI)

5.5 EMC cable glands

5.5.1 Cable shielding

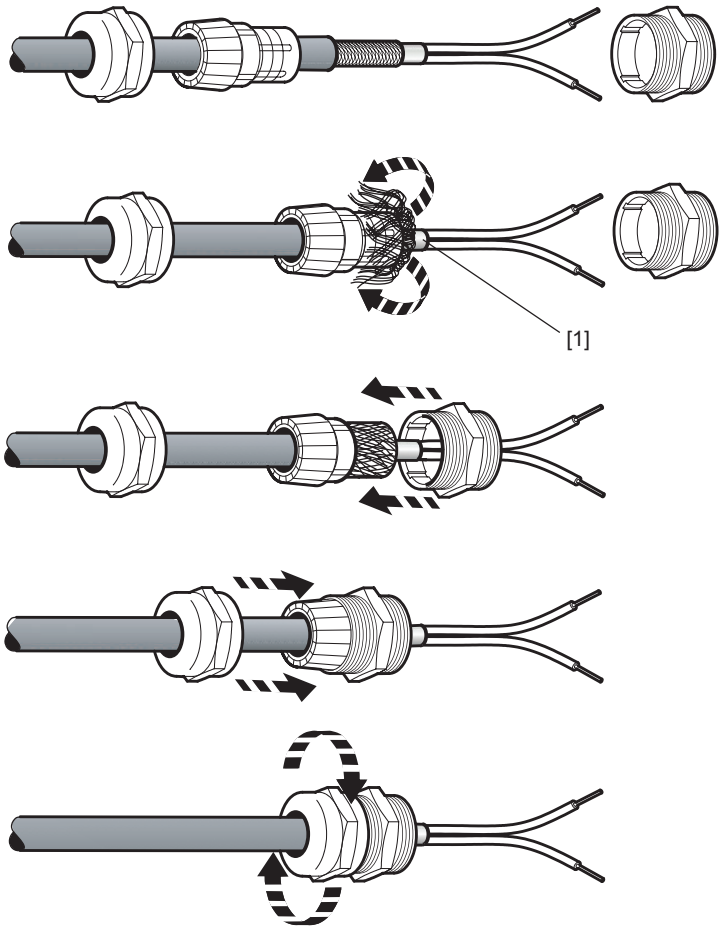
For shielded cables, it is best to use EMC cable glands to connect the shield. EMC cable glands are available as option.



25216680843

5.5.2 Assembly of EMC cable glands

Assemble the EMC cable glands supplied by SEW-EURODRIVE according to the following figure:



18014401170670731

[1] Cut off insulation foil and fold it back.

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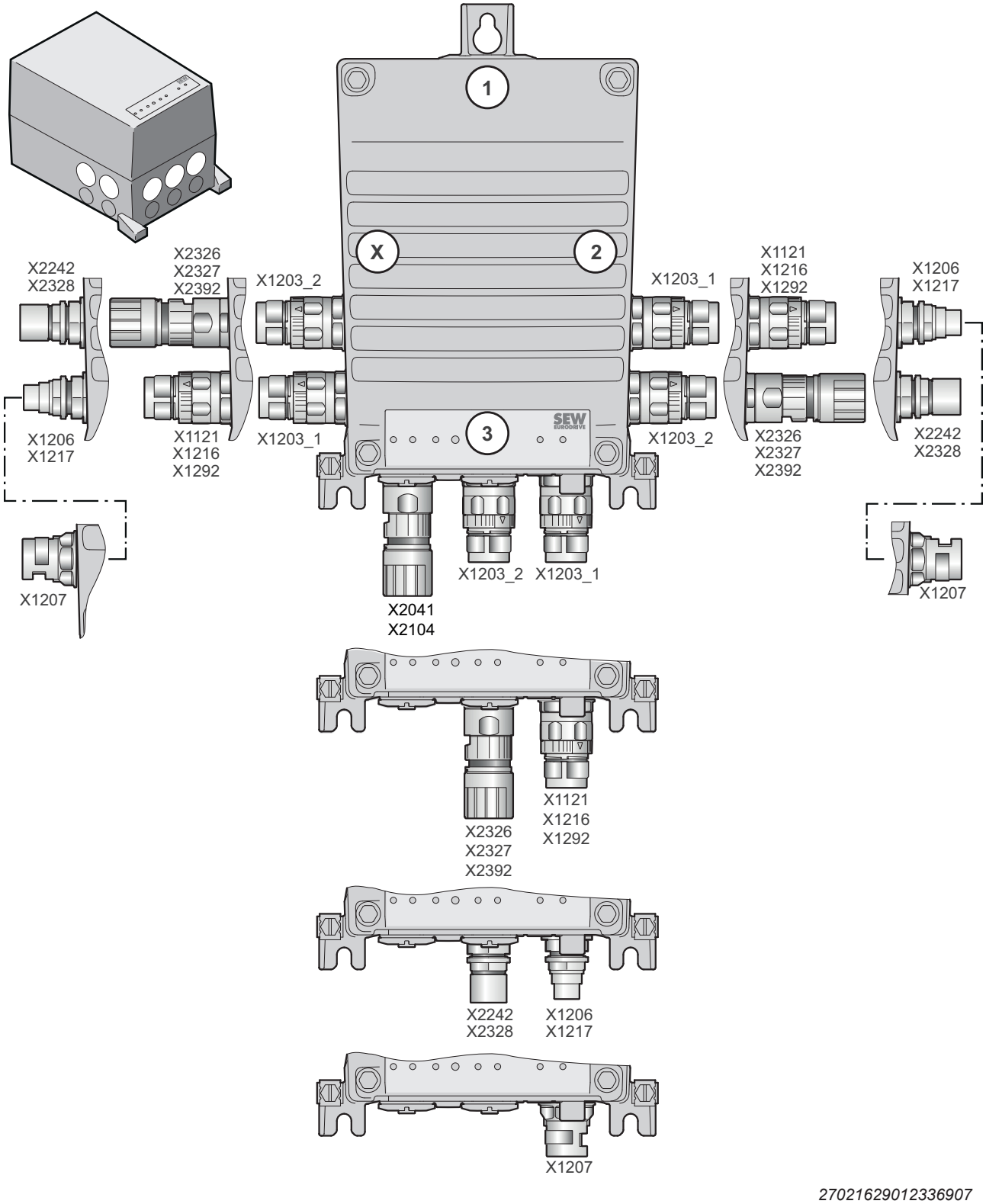
5.6 Connector

5.6.1 Connector positions MMF1../DFC.. and MMF1../DSI.. design

Cable entries M25

The following figure shows possible connector positions:



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Connector				Not together at a position with the connector socket:
Designation	**Coding ring/ color**	**Function**	**Position**	
X1203_1	Black	"AC 400 V connection"[1)]	X, 2 or 3	• X1121 • X1206 • X1207 • X1216 • X1217 • X1292
X1203_2	Black	"AC 400 V connection"	X, 2 or 3	• X2242 • X2326 • X2327 • X2328 • X2392
X1206	–	"AC 400 V connection (IN)"[2)]	X, 2 or 3	• X1203_1 • X1121 • X1207 • X1216 • X1217 • X1292
X2242	–	"AC 400 V connection (OUT)"	X, 2 or 3	• X1203_2 • X2326 • X2327 • X2328 • X2392
X1207	Black	"AC 400 V connection"	X, 2 or 3	• X1203_1 • X1121 • X1206 • X1216 • X1217 • X1292
X1216	Black/green	"PA hybrid connection (IN)"[3)] AC 400 V, DC 24 V backup voltage	X, 2 or 3	• X1203_1 • X1121 • X1206 • X1207 • X1217 • X1292
X2327	Black/green	"Hybrid connection PA (OUT)" AC 400 V, DC 24 V backup voltage	X, 2 or 3	• X1203_2 • X2242 • X2326 • X2328 • X2392

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Connector				Not together at a position with the connector socket:
Designation	**Coding ring/ color**	**Function**	**Position**	
X1217	–	"PA hybrid connection (IN)"[4)] AC 400 V and DC 24 V backup voltage	X, 2 or 3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1292
X2328	–	"Hybrid connection PA (OUT)" AC 400 V and DC 24 V backup voltage	X, 2 or 3	• X1203_2 • X2242 • X2326 • X2327 • X2392
X1121	Gray/green	"PAC hybrid connection (IN)"[5)] AC 400 V, DC 24 V backup voltageand Ethernet	X, 2 or 3	• X1203_1 • X1206 • X1207 • X1216 • X1217 • X1292
X2326	Gray/green	"Hybrid connection PAC (OUT)" AC 400 V, DC 24 V backup voltage and Ethernet	X, 2 or 3	• X1203_2 • X2242 • X2327 • X2328 • X2392
X1292	Gray/yellow	"Hybrid connection PSC (IN)" AC 400 V, STO and Ethernet	3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1217
X2392	Gray/yellow	"Hybrid connection PSC (OUT)" AC 400 V, STO Ethernet	3	• X1203_2 • X2242 • X2326 • X2327 • X2328
X2041	Brown	"Connection for motors without digital interface"	3	• X2104

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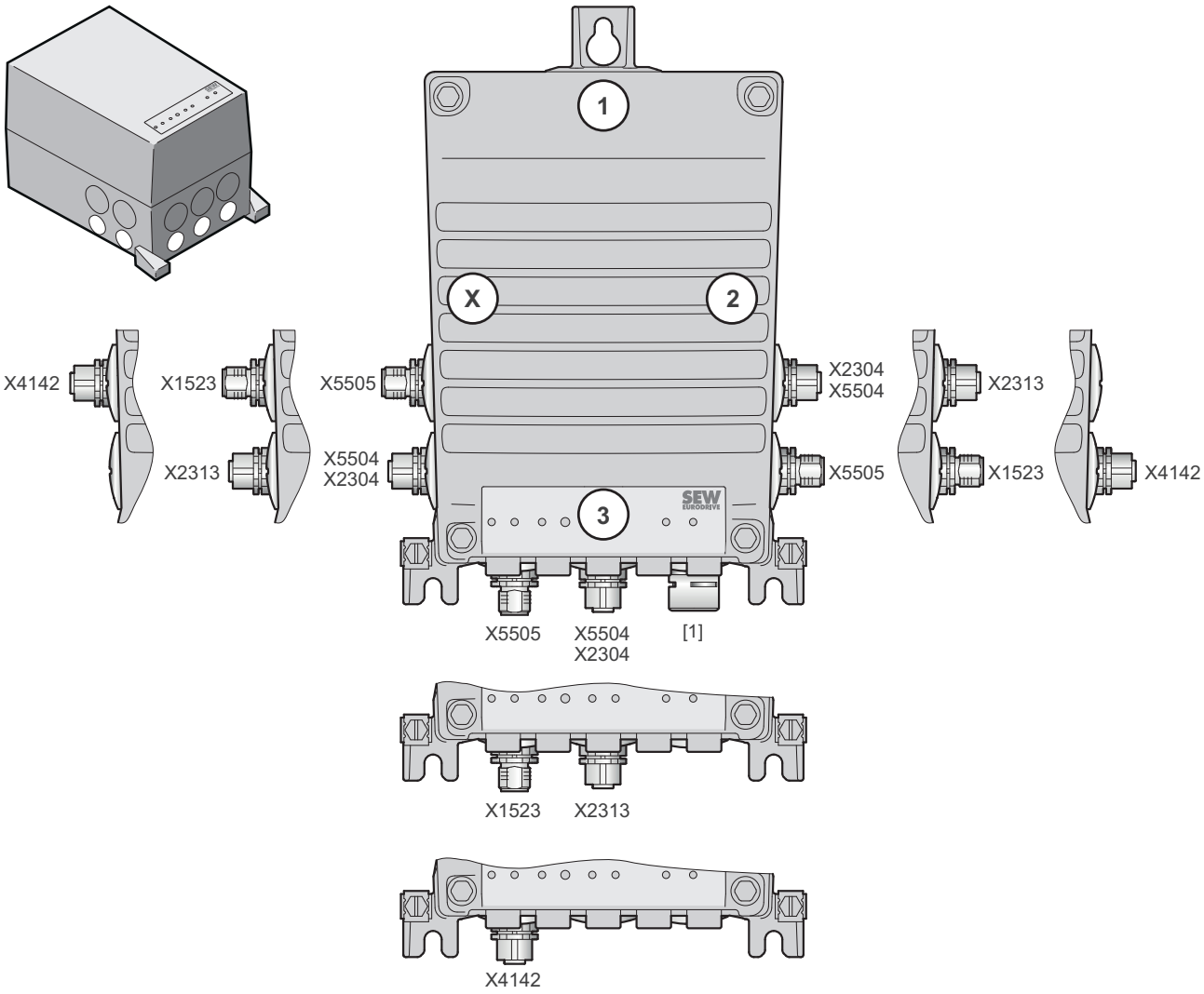
Connector				Not together at a position with the connector socket:
Designation	Coding ring/ color	Function	Position	
X2104	–	"Connection for motors with digital interface" (MOVILINK® DDI)	3	• X2041

1) X1203_1 connectors can also be ordered separately (i.e. without connector X1203_2).
2) X1206 connectors can also be ordered separately (i.e. without connector X2242).
3) X1216 connectors can also be ordered separately (i.e. without connector X2327).
4) X2317 connectors can also be ordered separately (i.e. without connector X2328).
5) X1121 connectors can also be ordered separately (i.e. without connector X2326).

Cable entries M16

The following figure shows possible connector positions:



Connector				Not together at a position with the connector:
Designation	Coding ring/ color	Function	Position	
X5504	Yellow	"STO" (3-core connection)	X, 2, or 3	• X2304 • X2313

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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X5505[1)]	Yellow	"STO" (3-core connection)	X, 2, or 3	• X1523 • X4142
X2304	–	"Connection of external braking resistor"	X, 2, or 3	• X2313 • X5504
X2313	Light gray	"DC 24 V backup voltage – output"	X, 2, or 3	• X2304 • X5504
X4142	Red	"Engineering interface"	X, 2, or 3	• X1523 • X5505
–	–	[1] Optional pressure compensation	3	–

1) The X5505 connector is only available to order in conjunction with X5504.

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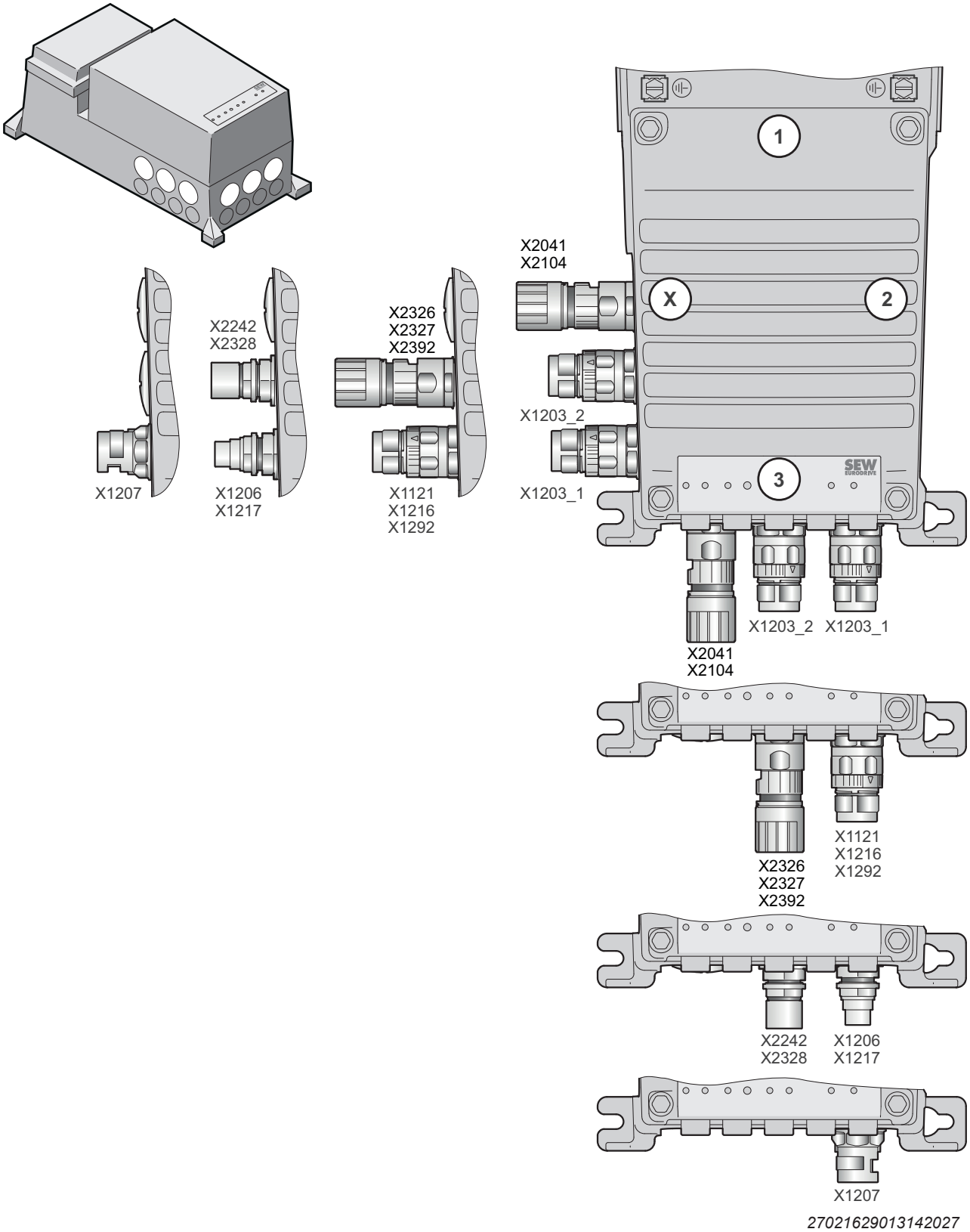
5.6.2 Connector positions of MMF31../DFC.. and MMF31../DSI.. designs

Cable entries M25

The following figure shows possible connector positions:



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Connector				Not together at a position with the connector socket:
Designation	**Coding ring/ color**	**Function**	**Position**	
X1203_1	Black	"AC 400 V connection"[1)]	X or 3	• X1216 • X1121 • X1206 • X1207 • X1217 • X1292
X1203_2	Black	"AC 400 V connection"	X or 3	• X2242 • X2326 • X2327 • X2328 • X2392
X1206	–	"AC 400 V connection (IN)"[2)]	X or 3	• X1203_1 • X1121 • X1207 • X1216 • X1217 • X1292
X2242	–	"AC 400 V connection (OUT)"	X or 3	• X1203_2 • X2326 • X2327 • X2328 • X2392
X1207	Black	"AC 400 V connection"	X or 3	• X1203_1 • X1121 • X1206 • X1216 • X1217 • X1292
X1216	Black/green	"PA hybrid connection (IN)"[3)] AC 400 V and DC 24 V backup voltage	X or 3	• X1203_1 • X1121 • X1206 • X1207 • X1217 • X1292
X2327	Black/green	"Hybrid connection PA (OUT)" AC 400 V, DC 24 V backup voltage	X or 3	• X1203_2 • X2242 • X2326 • X2328 • X2392

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Connector				Not together at a position with the connector socket:
Designation	**Coding ring/ color**	**Function**	**Position**	
X1217	–	"PA hybrid connection (IN)"[4] AC 400 V and DC 24 V backup voltage	X or 3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1292
X2328	–	"Hybrid connection PA (OUT)" AC 400 V and DC 24 V backup voltage	X or 3	• X1203_2 • X2242 • X2326 • X2327 • X2392
X1121	Gray/green	"PAC hybrid connection (IN)"[5] AC 400 V, DC 24 V backup voltage and Ethernet	X or 3	• X1203_1 • X1206 • X1207 • X1216 • X1217 • X1292
X2326	Gray/green	"Hybrid connection PAC (OUT)" AC 400 V, DC 24 V backup voltage and Ethernet[4]	X or 3	• X1203_2 • X2242 • X2327 • X2328 • X2392
X1292	Gray/yellow	"Hybrid connection PSC (IN)" AC 400 V, STO and Ethernet	3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1217
X2392	Gray/yellow	"Hybrid connection PSC (OUT)" AC 400 V, STO Ethernet	3	• X1203_2 • X2242 • X2326 • X2327 • X2328
X2041	Brown	"Connection for motors without digital interface"	X or 3	• X2104

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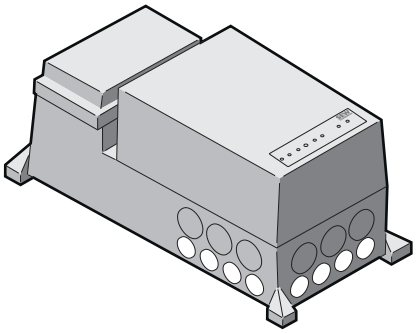
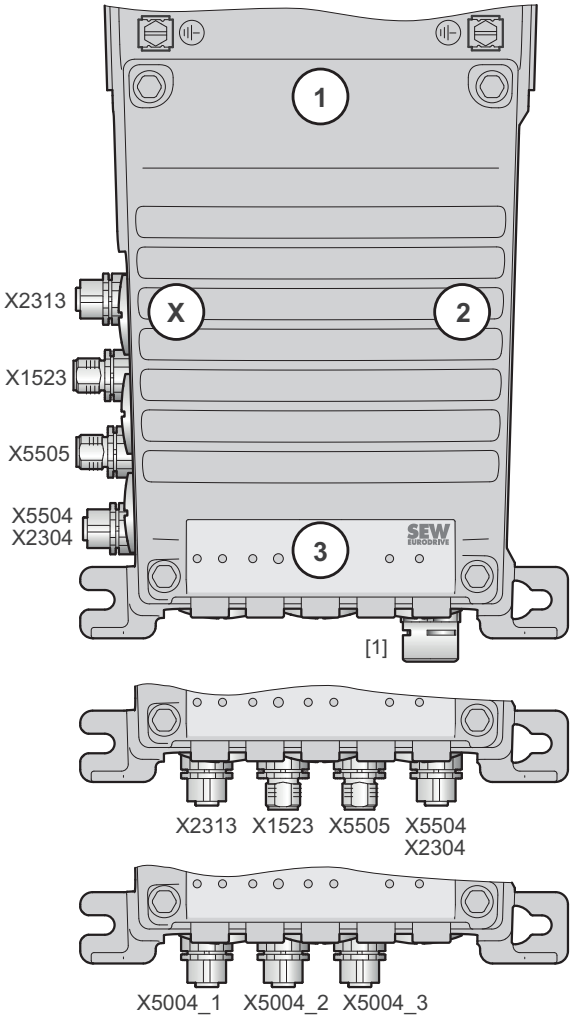
Connector				Not together at a position with the connector socket:
Designation	**Coding ring/ color**	**Function**	**Position**	
X2104	–	"Connection for motors with digital interface" (MOVILINK® DDI)	X or 3	• X2041

1) X1203_1 connectors can also be ordered separately (i.e. without connector X1203_2).
2) X1206 connectors can also be ordered separately (i.e. without connector X2242).
3) X1216 connectors can also be ordered separately (i.e. without connector X2327).
4) X2317 connectors can also be ordered separately (i.e. without connector X2328).
5) X1121 connectors can also be ordered separately (i.e. without connector X2326).

Cable entries M16

The following figure shows possible connector positions:





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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X5504	Yellow	"STO" (3-wire connection)	X or 3	• X2304 • Optional pressure compensation
X5505[1)]	Yellow	"STO" (3-wire connection)	X or 3	• X5004_3
X2304	–	"Connection of external braking resistor"	X, 2, or 3	• X5504 • Optional pressure compensation
X5004_1	Black	"Digital inputs"[2)] (Option /ODI)	3	• X2313
X5004_2	Black	"Digital inputs" (option /ODI)	3	• X1523
X5004_3	Black	"Digital inputs" (option /ODI)	3	• X5505
X1523	Light gray	"DC 24 V backup voltage – input"[3)]	X or 3	• X5004_2
X2313	Light gray	"DC 24 V backup voltage – output"	X or 3	• X5004_1
–	–	[1] Optional pressure compensation	3	• X2304 • X5504

1) The X5505 connector is only available to order in conjunction with X5504.
2) The connectors X5004_1, X5004_2, and X5004_3 can only be ordered as a bundle.
3) Connector X1523 can also be ordered separately (i.e. without connector X2313).

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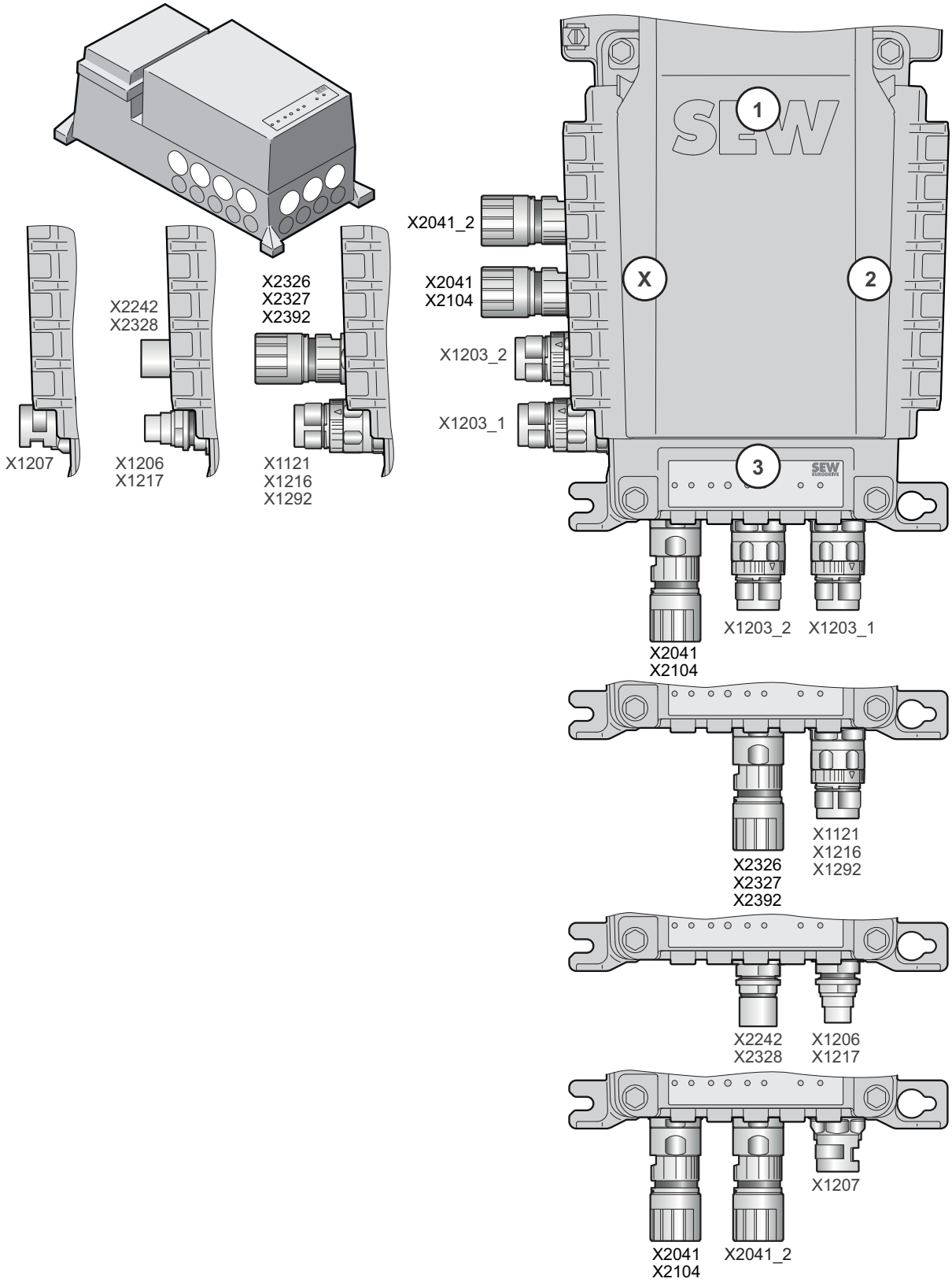
5.6.3 Connector positions of MMF32../DFC.. and MMF32../DSI.. designs

Cable entries M25

The following figure shows possible connector positions:



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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X1203_1	Black	"AC 400 V connection"[1)]	X or 3	• X1121 • X1206 • X1207 • X1216 • X1217 • X1292
X1203_2	Black	"AC 400 V connection"	X or 3	• X2041_2 • X2242 • X2326 • X2327 • X2328 • X2392
X1206	–	"AC 400 V connection (IN)"[2)]	X or 3	• X1203_1 • X1121 • X1207 • X1216 • X1217 • X1292
X2242	–	"AC 400 V connection (OUT)"	X or 3	• X1203_2 • X2326 • X2327 • X2328 • X2392 • X2041_2
X1207	Black	"AC 400 V connection"	X or 3	• X1203_1 • X1121 • X1206 • X1216 • X1217 • X1292
X1216	Black/green	"PA hybrid connection (IN)"[3)] AC 400 V, DC 24 V backup voltage	X or 3	• X1203_1 • X1121 • X1206 • X1207 • X1217 • X1292

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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X2327	Black/green	"Hybrid connection PA (OUT)" AC 400 V, DC 24 V backup voltage	X or 3	• X1203_2 • X2242 • X2326 • X2328 • X2392 • X2041_2
X1217	–	"PA hybrid connection (IN)"[4] AC 400 V and DC 24 V backup voltage	X or 3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1292
X2328	–	"Hybrid connection PA (OUT)" AC 400 V and DC 24 V backup voltage	X or 3	• X1203_2 • X2242 • X2326 • X2327 • X2392 • X2041_2
X1121	Gray/green	"PAC hybrid connection (IN)"[5] AC 400 V, DC 24 V backup voltage and Ethernet	X or 3	• X1203_1 • X1206 • X1207 • X1216 • X1217 • X1292
X2326	Gray/green	"Hybrid connection PAC (OUT)" AC 400 V, DC 24 V backup voltage and Ethernet	X or 3	• X1203_2 • X2242 • X2327 • X2328 • X2392 • X2041_2
X1292	Gray/yellow	"Hybrid connection PSC (IN)" AC 400 V, STO and Ethernet	3	• X1203_1 • X1121 • X1206 • X1207 • X1216 • X1217

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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X2392	Gray/yellow	"Hybrid connection PSC (OUT)" AC 400 V, STO Ethernet	3	• X1203_2 • X2242 • X2326 • X2327 • X2328 • X2041_2
X2041	Brown	"Connection for motors without digital interface"	X or 3	• X2104
X2041_2[6)]	Brown	"Connection for motors without digital interface"	X or 3	Only with position 3: • X1203_2 • X2326 • X2327 • X2392 • X2242 • X2328
X2104	–	"Connection for motors with digital interface" (MOVILINK® DDI)	X or 3	• X2041

1) Connector X1203_1 can also be ordered separately (i.e. without connector X1203_2).
2) X1206 connectors can also be ordered separately (i.e. without X2242 connector).
3) X1216 connectors can also be ordered separately (i.e. without X2327 connector).
4) Connector X2317 can also be ordered separately (i.e. without connector X2328).
5) Connector X1121 can also be ordered separately (i.e. without connector X2326).
6) Only in conjunction with X2041. The the temperature probe are connected in series.

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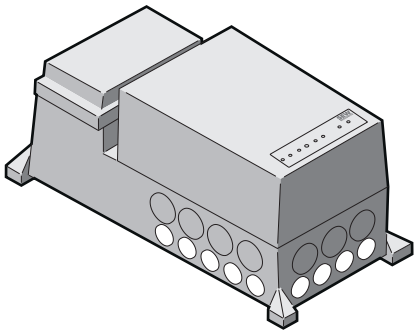
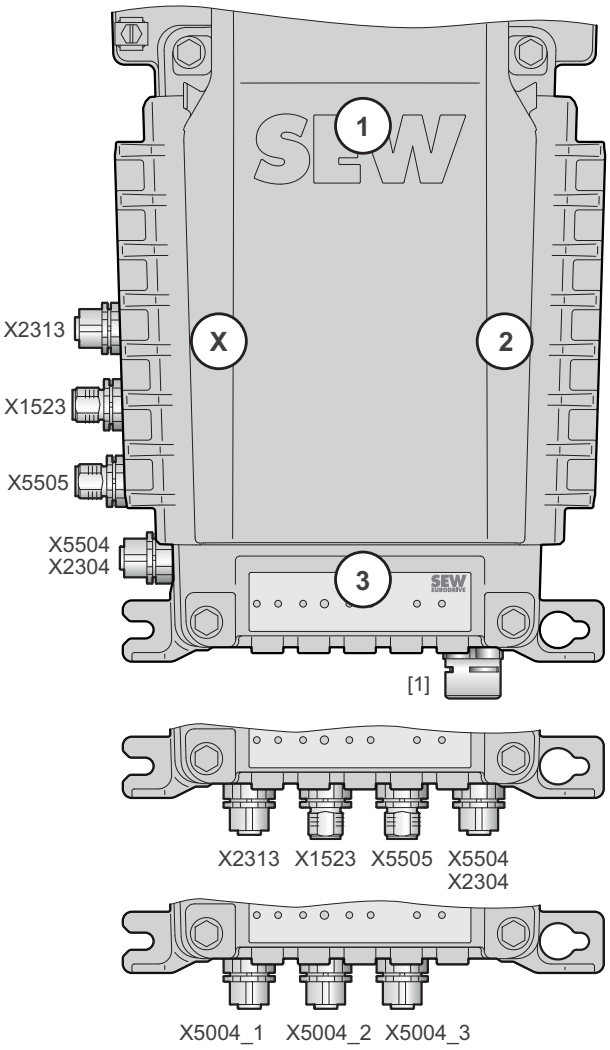
Cable entries M16

The following figure shows possible connector positions:





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Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X5504	Yellow	"STO" (3-wire connection)	X or 3	• X2304 • Optional pressure compensation
X5505[1)]	Yellow	"STO" (3-wire connection)	X or 3	• X5004_3
X2304	–	"Connection of external braking resistor"	X, 2, or 3	• X5504 • Optional pressure compensation
X5004_1	Black	"Digital inputs"[2)] (Option /ODI)	3	• X2313

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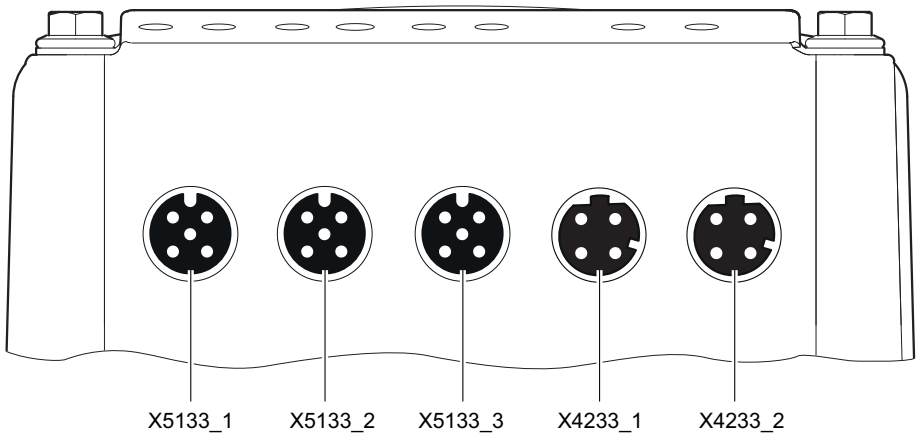
Connector				Not together at a position with the connector:
Designation	**Coding ring/ color**	**Function**	**Position**	
X5004_2	Black	"Digital inputs" (option /ODI)	3	• X1523
X5004_3	Black	"Digital inputs" (option /ODI)	3	• X5505
X1523	Light gray	"DC 24 V backup voltage – input"[3]	X or 3	• X5004_2
X2313	Light gray	"DC 24 V backup voltage – output"	X or 3	• X5004_1
–	–	[1] Optional pressure compensation	3	• X2304 • X5504

1) The X5505 connector is only available to order in conjunction with X5504.
2) The connectors X5004_1, X5004_2, and X5004_3 can only be ordered as a bundle.
3) Connector X1523 can also be ordered separately (i.e. without connector X2313).

5.6.4 Connector positions at the DFC.. electronics cover

The following figure shows an example of the connector positions:



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Connector	Function
X5133_1[1]	"Digital inputs DI01 and DI02"
X5133_2[1]	"Digital inputs DI03 and DI04"
X5133_3[1]	"Digital inputs/outputs DIO01 and DIO02"
X4233_1[2]	"Fieldbus/Ethernet interface, port 1"
X4233_2[2]	"Fieldbus/Ethernet interface, port 2"

1) Only for electronics cover in connection configuration DFC.0.. and DFC.1..
2) Only for electronics cover in connection configuration DFC.0..

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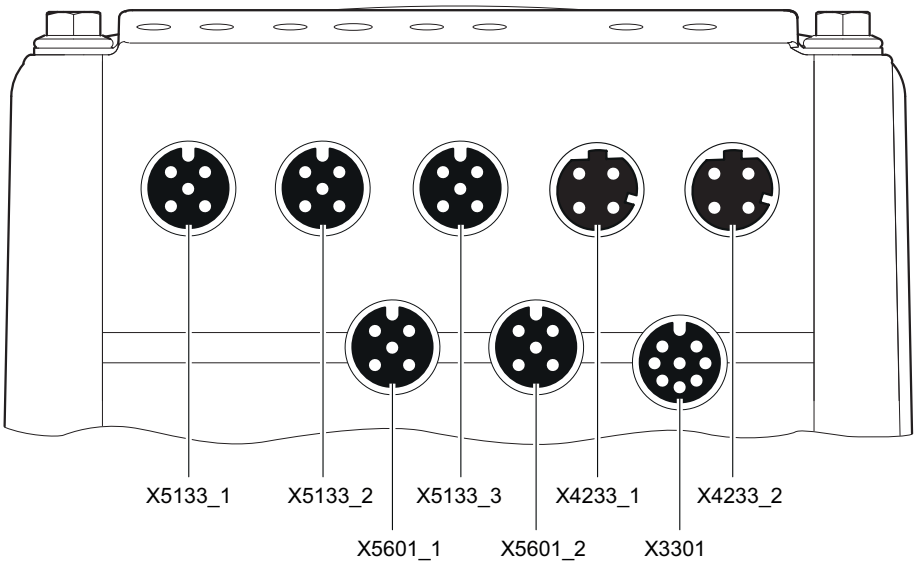
5.6.5 Connector positions of DFC electronics cover with safe digital inputs

The following figure shows an example of the connector positions:



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Connector	Function
X5133_1[1)]	"Digital inputs DI01 and DI02"
X5133_2[2)]	"Digital inputs DI03 and DI04"
X5133_3[1)]	"Digital inputs/outputs DIO01 and DIO02"
X4233_1[1)]	"Fieldbus/Ethernet interface, IN"
X4233_2[2)]	"Fieldbus/Ethernet interface, OUT"
X5601_1	"Safe digital inputs F-DI00 and F-DI01"
X5601_2	"Safe digital inputs F-DI02 and F-DI03"
X3301	"Safe digital inputs for EI7C FS built-in encoder"

1) Only for electronics cover in configuration DFC.0.. and DFC.1

2) Only for electronics cover in connection configuration DFC.0.. and DFC.1

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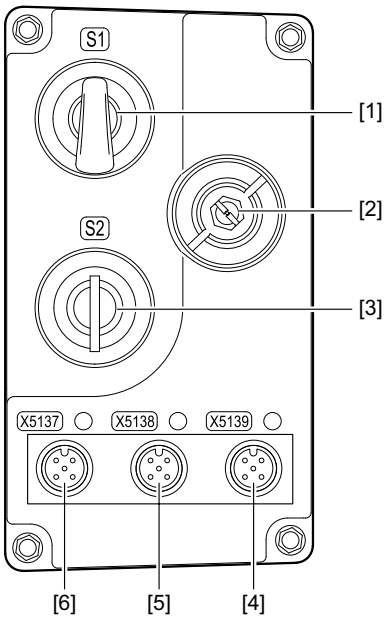
5.6.6 Connector positions on the front module with integrated local control

The following figure shows the front module of the MMF3.S1 decentralized inverter:



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[1] S1 "Selector switch direction of rotation" (→ 🗎 103)
[2] X31 "Engineering interface (RJ10)"
(underneath the screw plug)
[3] S2 "Key switch local mode" (→ 🗎 103)
with 2 positions: 0/1
[4] X5139 "Digital input DI07"
[5] X5138 "Digital input DI06"
[6] X5137 "Digital input DI05"

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5.6.7 STO jumper plug (three-pin)

⚠ WARNING

Safe disconnection of the device is not possible when the jumper plug is used.

Severe or fatal injuries.

- Only use the jumper plug if the device is not used to fulfill any safety function.

⚠ WARNING

Disabling of the safety-related disconnection of further devices due to parasitic voltages when using an STO jumper plug.

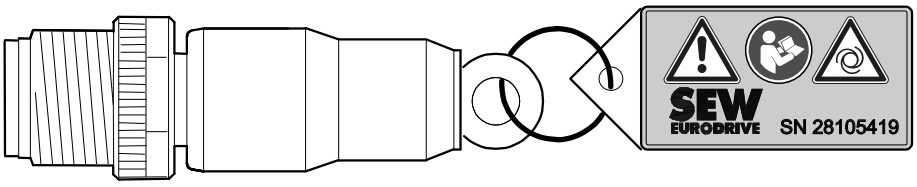
Severe or fatal injuries.

- Only use the STO jumper plug when all incoming and outgoing STO connections have been removed from the device.

A printed red tag is attached to the STO jumper plug.

The STO jumper plug can be connected to the STO connector X5504 of the device. The STO jumper plug deactivates the safety functions of the device.

The following figure shows the STO jumper plug with the printed **red** tag, part number 28105419:



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5.7 PC connection

Connect the PC to the drive unit before you start the engineering software MOVISUITE®.

You have several options to connect a PC to the device.

Observe the information in the **product manual** > chapter "Electrical installation" > "PC connection" including the subchapters.

6 Startup

6.1 Startup information

Perform the following steps before startup:

1. ⚠ **WARNING!** Electric shock caused by dangerous voltages in the connection box. Severe or fatal injuries.
   De-energize the device. Pay attention to the 5 safety rules in chapter "Carrying out electrical work safely". Afterwards, wait 5 minutes.
2. ⚠ **WARNING!** Risk of burns due to hot surfaces. Severe injuries.
   Let the device cool sufficiently before touching it.
3. **NOTICE!** Failing to observe the minimum switch-off time of the line contactor can cause material damage. Irreparable damage to the inverter or unforeseen malfunctions.
   After switching off the voltage supply, keep it switched off for at least 10 s.
   ⇨ Do not switch the voltage supply on or off at the line contactor more than once per minute.
4. Secure the output shaft of permanently excited motors against rotation. You thereby avoid an electric shock from the regenerative operation during the rotation of the shaft.
5. ⚠ **WARNING!** Faulty device behavior due to incorrect device setting. Severe or fatal injuries.
   Observe the following information.
   ⇨ Always have the installation carried out by trained specialists.
   ⇨ Only use settings that are correct for the function.
6. Install the protective covers of the system according to the instructions. This will avoid injuries.
   ⇨ Never start the device if the protective covers are not installed.
7. If necessary, remove the paint protection film from the LED displays.
8. If necessary, remove the paint protection film from the nameplates.
9. Product variants with a customer-specific parameter set ex works (.../P...) can start up automatically.

INFORMATION

Premagnetization of an asynchronous motor without brake can cause an alignment process and thus a rotor movement.

6.1.1 Lifting applications

Perform the following additional steps before starting up the lifting applications:

1. ⚠ **WARNING!** Danger from falling hoist. Severe or fatal injuries.
   Observe the following information.
   ⇨ Do not use the device alone as a safety device for the lifting application.
   ⇨ Use additional monitoring systems or mechanical protection devices as a safety device.

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2. ⚠ **WARNING!** Danger from falling hoist. Severe or fatal injuries.
   Do not use the "Release brake/deactivate DynaStop® for FCB01" function in lifting devices or applications with loads that may potentially fall down. Disable the function as follows:
   - ⇨ Deactivate the function of DIP switch S1/2 via parameter *Functions* > *Inputs/outputs* > *Basic device* > *DIP switch functions* > *Release brake/deactivate DynaStop® for FCB01 – enable* > *Deactivation* = **"1"** (yes).
   - ⇨ Disable the function via parameter *Functions* > *Drive functions* > *FCB01 Output stage inhibit* > *Release brake/deactivate DynaStop® for FCB01 – enable* = **"0"** (No).
3. ⚠ **WARNING!** The DynaStop® electrodynamic retarding function does not allow for a definite stop at a position. Severe or fatal injuries.
   Observe the following information.
   - ⇨ Do not use drive units with DynaStop® in lifting applications.
   - ⇨ When using DynaStop® on ascending/descending sections or vertical conveyors without freely suspended loads, comply with the basic safety and health requirements (e.g. EC Machinery Directive 2006/42/EC).
   - ⇨ The behavior of the DynaStop® function must be taken into account for the risk assessment of the application that determines the required safety measures.
4. In the MOVISUITE® engineering software, configure the parameters according to the lifting application requirements and its safety assessment.
   - ⇨ Set the parameter *Functions* > *Drive functions* > *FCB01 Output stage inhibit* > *Apply brake with STO* = "1" (Yes).
   - ⇨ Set the parameter *Functions* > *Drive functions* > *FCB01 Output stage inhibit* > *Activate with DynaStop®* according to the requirements of the application. Observe the notes in chapter "DynaStop® in conjunction with STO".
5. Check the setting of the parameter *Drive train* > *Drive train DTx* > *Controller* > *Motor behavior* > *Hoist preload* in the MOVISUITE® engineering software. Set the parameter in accordance with the lifting application requirements.
   - ⇨ The *Hoist preload* parameter influences the integrator behavior of the speed controller in its initial value reentering control. The following settings are available:
   - ⇨ "Off" (= default): The integrator always starts with the value "0".
     Adjustment is made to an existing load torque.
   - ⇨ "Save": The integrator value that was present at the time of opening the speed control loop is retained. If the load torque has not changed, no adjustment is necessary when closing the speed control loop.
   - ⇨ "Initialization value": With the "Torque preload" parameter, you can specify the load torque to the speed controller as the initial value in the range -1000% – 1000% of the nominal motor torque. You can set this parameter during startup or optimization of the drive. As an alternative, you can use a local setpoint or a channel of the process data buffer for this purpose. If the direction of rotation is positive in the stroke direction, enter a positive value and vice versa.
6. Set the parameter *Functions* > *Monitoring functions* > *Control functions* > *Speed monitoring* > *Delay time* according to the requirements of the application. SEW-EURODRIVE recommends setting the *Delay time* parameter to a value ≤ 100 ms.

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Lifting application without encoder

V/f

SEW-EURODRIVE recommends that you do not use the drive unit in lifting applications with V/f control mode.

VFC^{PLUS}

SEW-EURODRIVE recommends the following settings and control behavior for using the drive unit in lifting applications with the **VFC**^{PLUS} control mode (without encoder):

Parameter settings:

- For vertical drives, use the setpoint/stop function (FCB05 - speed control). *Functions* > *Drive functions* > *FCB 05 Speed control* > *Stop by setpoint function* > *Activation* = **"1"** (Yes).
  - Set the parameter *Functions* > *Drive functions* > *FCB 05 Speed control* > *Stop by setpoint function* > *Stop setpoint* so that the resulting motor speed is ≥ 1.5 × nominal slip of the motor.
  - As an alternative, set the parameter *Functions* > *Drive functions* > *FCB 05 Speed control* > *Minimum speed* so that the resulting motor speed is ≥ 1.5 × nominal slip of the motor.
- Set the parameter *Drive train* > *Drive train ASx* > *Controller* > *Control behavior* > *Flying start* = **"0"** (Off).
- Set the parameter *Drive train* > *Drive train ASx* > *Controller* > *Control behavior* > *Flux optimization* = **"0"** (Off).
- Set the parameter *Drive train* > *Optimization ASx* > *VFCplus* > *Boost* = **10%**.

Control behavior:

- Design the control in such a way that a direction of rotation reversal is only possible in an idle state (with the brake applied).
- If you want to change the direction of rotation without an idle state, use a drive with encoder.
- Control the drive at a setpoint speed that corresponds to a speed ≥ 1.5 × nominal slip of the motor.

ELSM®

SEW-EURODRIVE recommends the following settings and control behavior for using the drive unit in lifting applications with the **ELSM®** control mode:

Parameter settings:

- For vertical drives, use the setpoint/stop function (FCB05 - speed control). *Functions* > *Drive functions* > *FCB 05 Speed control* > *Stop by setpoint function* > *Activation* = **"1"** (Yes).
  - Set the parameter *Functions* > *Drive functions* > *FCB 05 Speed control* > *Stop by setpoint function* > *Stop setpoint* so that the resulting motor speed is above the transition speed (2% of the nominal speed of the motor in operation).
  - As an alternative, set the parameter *Functions* > *Drive functions* > *FCB 05 Speed control* > *Minimum speed* so that the resulting motor speed is above the transition speed (2% of the nominal speed of the motor in operation).

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- Set the parameter *Drive train* > *Drive train ASx* > *Controller* > *Control behavior* > *Flying start* = **"1"** (On).
- Set the parameter *Functions* > *Monitoring functions* > *Limit values* > *Application limits* > *Torque* ≥ 150% of the nominal motor torque.

Control behavior:

- Design the control in such a way that a direction of rotation reversal is only possible in an idle state (with the brake applied).
- If you want to change the direction of rotation without an idle state, use a drive with encoder.
- Control the drive at a setpoint speed that corresponds to a speed above the transition speed (2% of the nominal speed of the motor in operation).

6.2 Startup requirements

Startup is only required when you need to change the factory set parameterization.

In this case, the following conditions apply to startup:

- You have installed the device correctly both mechanically and electrically.
- You have performed a correct project planning for the device.
- Safety measures prevent accidental startup of devices.
- Safety measures prevent danger to people and machines.

Required hardware components:

- PC or laptop according to the product manual > chapter "PC connection" (→ 🗎 85).
- Interface cable and, if applicable, interface adapter according to product manual > chapter "PC connection"

Required software:

- MOVISUITE® engineering software from SEW-EURODRIVE

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6.3 DIP switch

6.3.1 Overview

NOTICE

Damage to the DIP switches caused by unsuitable tools.

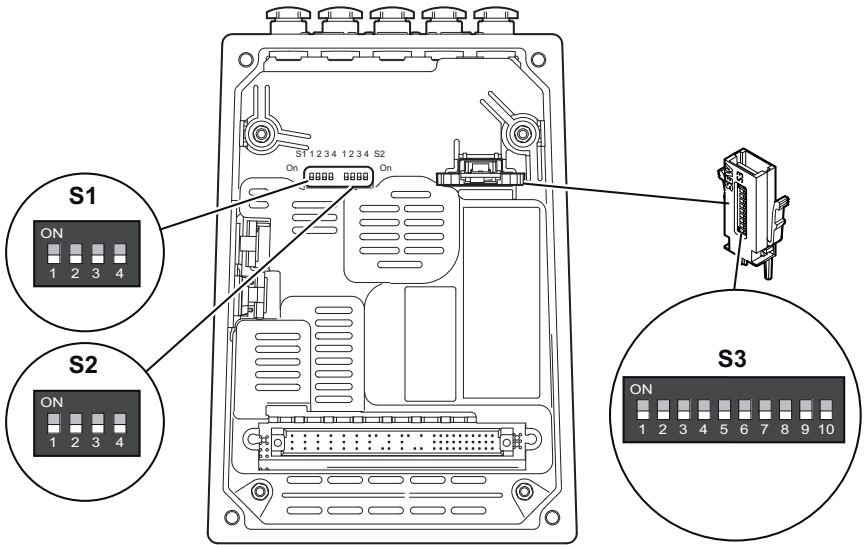
Damage to property.

- Set the DIP switches only using suitable tools, such as a slotted screwdriver with a blade width of ≤ 3 mm.
- The force used for setting the DIP switches must not exceed 5 N.

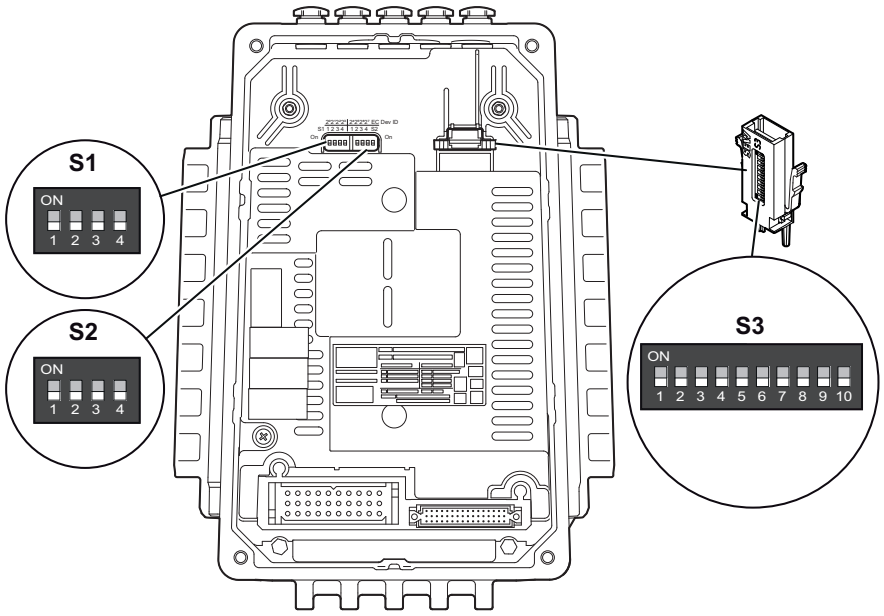
DIP switch overview

The following figure shows the DIP switches of the device:

MMF1.
MMF31



MMF32



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DIP switch S1 (PROFINET, EtherNet/IP™, Modbus TCP)

The following table shows the functions of DIP switch S1:

DIP switch	S1			
	1	2	3	4
Meaning	Direction of rotation reversal	Release brake/ deactivate DynaStop® with FCB01 – enable	Speed monitoring deactivation	Reserved
ON	On	On	Speed monitoring off	On
OFF	**Off**[1]	**Off**[1]	**Speed monitoring On**[2]	**Off**[1]

1) The factory settings are shown in boldface.
2) Factory settings are indicated in bold.

You must not alter the factory setting of the S1/4 DIP switch = OFF.

DIP switch S2 (PROFINET, EtherNet/IP™, Modbus TCP)

The following table shows the functions of DIP switch S2:

DIP switch	S2			
	1	2	3	4
Meaning	Reserved	Reserved	Reserved	Reserved
ON	–	–	–	–
OFF	–	**–**	**–**	**–**

Do not alter the factory setting of DIP switches S2/1 through S2/4 = OFF.

DIP switch S1 (POWERLINK)

The following table shows the functions of DIP switch S1:

DIP switch	S1			
	1	2	3	4
	Binary coding POWERLINK device address			
	Bit 2^0	Bit 2^1	Bit 2^2	Bit 2^3
ON	1	1	**1**	1
OFF	**0**	**0**	0	**0**

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DIP switch S2 (POWERLINK)

The following table shows the functions of DIP switch S2:

DIP switch	S2			
	1	2	3	4
	Binary coding POWERLINK device address			
	Bit 2^4	Bit 2^5	Bit 2^6	Bit 2^7
ON	1	1	1	1
OFF	**0**	**0**	**0**	**0**

DIP switch S3

Use the DIP switch S3 to perform startup of the drive train for motors without digital interface. Motor assignment depends on the nominal output current of the electronics cover via the DIP switches S3/3 and S3/4.

Startup via DIP switch S3 is only effective if the following requirements are met when using the memory module:

- The drive train has not been started up using MOVISUITE® or CBG...
- The drive train has not been started up via digital interface (DDI).
- The connected motor is not quipped with a digital interface (DDI).

The following table shows the functions of DIP switch S3:

DIP switch	S3									
	1	2	3	4	5	6	7	8	9	10
Meaning	**Brake type**	**Motor connection type[1)]**	**Binary coding**							
			Motor assignment		**Motor protection**		**Motor series**			
			2^0	2^1	2^0	2^1	2^0	2^1	2^2	2^3
ON	Optional brake	△	1	1	1	1	1	1	1	1
OFF	**Standard brake**	人	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

1) If the motor connection type is changed via DIP switch S3/2, the motor connection type via DIP switch D3/3 and S3/4 must be checked and adapted if necessary.

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6.3.2 Description of the DIP switches

DIP switch S1/1: Direction of rotation reversal (PROFINET, EtherNet/IP™, Modbus TCP)

INFORMATION

The direction of rotation is reversed depending on the setting of the DIP switch and of the parameter drive train 1 > Controller > *Direction of rotation reversal*. If both settings are active, the speed setpoint is not inverted (logical XOR).

You can reverse the direction of rotation of the drive using this DIP switch.

- OFF (S1/1 = OFF): The drive turns clockwise for a positive setpoint and counterclockwise for a negative setpoint.
- ON (S1/1 = ON): The drive turns counterclockwise for a positive setpoint and clockwise for a negative setpoint.

DIP switch S1/2: Releasing the brake / deactivating DynaStop® with FCB01 – enable (PROFINET, EtherNet/IP™, Modbus TCP)

⚠ WARNING

Risk from falling loads.

This can result in severe or fatal injuries.

- Do not enable the function "Releasing the brake / deactivating DynaStop®" for hoist applications and applications with potentially falling loads.

INFORMATION

If the function of this DIP switch is deactivated via parameter access, the last active setting of the relevant parameter is maintained.

Use this DIP switch to enable the function "Releasing the brake / deactivating DynaStop® with FCB 01" even when the drive is disabled.

- OFF (S1/2 = OFF): The function "Releasing the brake / deactivating DynaStop® with FCB 01" is inhibited.
- ON (S1/2 = ON): The function "Releasing the brake / deactivating DynaStop® with FCB 01" is enabled.

  When the function block FCB 01 is active, you can release the brake or deactivate DynaStop® using a digital input or an actuated process data bit.

INFORMATION

You can find more information on deactivating DynaStop® without a drive release in the product manual > chapter "Operation".

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DIP switch S1/3: Disabling speed monitoring (PROFINET, EtherNet/IP™, Modbus TCP)

INFORMATION

If the function of this DIP switch is deactivated via parameter access, the last active setting of the relevant parameter is maintained.

This DIP switch is used to disable speed monitoring.

- Speed monitoring OFF (S1/3 = ON): Speed monitoring is not active.
- Speed monitoring ON (S1/3 = OFF): Speed monitoring is active.

  Speed monitoring is used to protect the drive in case of blockage.

  When speed monitoring is active and the drive operates at the current limit for longer than 1 second (factory settings), the drive unit triggers the fault "Speed monitoring". The drive unit signals the fault, for example via the "DRIVE" status LED. The current limit must be reached permanently for the duration of the delay time before the monitoring function trips.

DIP switches S1/1 through S1/4 and S2/1 through S2/4 (POWERLINK)

Use DIP switches S1/1 through S1/4 and S2/1 through S2/4 to set the POWERLINK address of the drive unit in binary notation.

Example address 17:

DIP switch	Setting	Calculation	
S1/1	ON	$2^0 \times 1 =$	**1**
S1/2	OFF	$2^1 \times 0 =$	0
S1/3	OFF	$2^2 \times 0 =$	0
S1/4	OFF	$2^3 \times 0 =$	0
S2/1	ON	$2^4 \times 1 =$	**16**
S2/2	OFF	$2^5 \times 0 =$	0
S2/3	OFF	$2^6 \times 0 =$	0
S2/4	OFF	$2^7 \times 0 =$	0
		POWERLINK address:	**17**

DIP switch S3/1: Brake type

Use this DIP switch to select the brake type of the motor.

- **OFF (S3/1 = OFF): Use this setting to select the standard brake.**

  This setting corresponds to the brake type that is automatically assigned to the motor type.[1)]
- ON (S3/1 = ON): Use this setting to select the optional brake.

  This setting corresponds to the brake type that is optionally assigned to the motor type.

If no brake specified in the "motor selection tables" matches the brake in the existing motor, start up the drive train using the MOVISUITE® engineering software. Startup via DIP switch S3 is not possible.

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1) See chapter "Detailed motor selection table for startup via DIP switch S3".

DIP switch S3/2: Motor connection type

You can select the connection type of asynchronous motors at this DIP switch. When selecting synchronous motors, the switch does not have any function.

- **OFF (S3/2 = OFF): Use this setting to select the connection type of asynchronous motors** ⅄.
- ON (S3/2 = ON): Use this setting to select the connection type of asynchronous motors △.

If the motor connection type is changed via DIP switch S3/2, the motor connection type via DIP switch D3/3 and S3/4 must be checked and adapted if necessary, see chapter "Detailed motor selection table for startup via DIP switch S3".

DIP switch S3/3 – S3/4: Motor assignment

Use these DIP switches to select the relative motor power in relation to inverter power. The selection depends on the selected motor series, motor connection type, and the nominal output current of the electronics cover.

S3/3	S3/4	Motor assignment
0	**0**	**Adjusted**
1	0	1 stage smaller
0	1	2 stages smaller
1	1	3 stages smaller

DIP switch S3/5 – S3/6: Motor protection

Use these DIP switches to select the temperature sensor type for thermal protection of the motor.

S3/5	S3/6	Motor protection
		Temperature sensor type
0	**0**	**No temperature sensor/thermal protection model**[1)]
1	0	PK (PT1000)
0	1	TF
1	1	TH

1) If no suitable temperature sensor type can be selected, select "No temperature sensor/thermal motor protection without temperature sensor". With DRN.. or DR2S.. motors, a thermal motor protection model without temperature sensor is activated. See product manual > chapter "Configuration of the drive unit" > "Drive selection .." > "Thermal motor protection without temperature sensor". Temperature protection of the motor is not active for other motors!

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DIP switch S3/7 – S3/10: Motor series

Use these DIP switches to select the motor series (motor type).

Motor series	S3/7	S3/8	S3/9	S3/10	Motor series	
					Motor type	Nominal voltage Nominal frequency
0	**0**	**0**	**0**	**0**	**DRN.. 4-pole**	**230 V/400 V 50 Hz**
1	1	0	0	0	DRN.. 4-pole	266 V/460 V 60 Hz
2	0	1	0	0	DRN.. 4-pole	Wide-range voltage 50/60 Hz
3	1	1	0	0	DR2S.. 4-pole	230 V/400 V 50 Hz
4	0	0	1	0	DR2S.. 4-pole	266 V/460 V 60 Hz
5	1	0	1	0	DR2S.. 4-pole	Wide-range voltage 50/60 Hz
6	0	1	1	0	MOVIGEAR® classic	400 V 133 Hz
7	1	1	1	0	CM3C 2000 min^{-1}	400 V 133 Hz
8	0	0	0	1	CM3C 3000 min^{-1}	400 V 200 Hz
9	1	0	0	1	CM3C [1] 4500 min^{-1}	400 V 300 Hz
10	0	1	0	1	CMP 2000 min^{-1}	400 V 167 Hz
11	1	1	0	1	CMP 3000 min^{-1}	400 V 150/250 Hz
12	0	0	1	1	CMP [1] 4500 min^{-1}	400 V 225/375 Hz
13	1	0	1	1	DR2C.. 2000 min^{-1}	400 V –
14	0	1	1	1	DR2C.. 3000 min^{-1}	400 V –
15	1	1	1	1	Reserved	

1) Only for MMF32..

Nominal voltage range for wide-range voltage motors			
50 Hz		60 Hz	
△	⅄	△	⅄
220 – 240 V	380 – 420 V	254 – 277 V	440 – 480 V

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6.4 Startup with MOVISUITE® engineering software

The inverters are started up using the MOVISUITE® engineering software from SEW-EURODRIVE.

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The motor is started up in drive train 1.

When using a motor from SEW-EURODRIVE, select the motor type from the catalog or enter the nameplate. You can perform the startup for motors and encoders from SEW-EURODRIVE with an electronic nameplate based on the data contained there.

When using a third-party motor, enter the corresponding nominal motor data. SEW-EURODRIVE recommends performing a motor parameter measurement using the FCB 25 for third-party motors.

The engineering software can be operated intuitively and is not described further in this document.

6.5 Startup with the CBG21A keypad

Using the CBG21A keypad, startup can be performed intuitively guided by the symbols and functions of the color display.

Further information can be found in the **product manual** > chapter "Startup" > "Startup with the CBG21A keypad", including the sub-chapters.

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6.6 Process data assignment > MOVIKIT® function module "5PD Velocity"

In the standard design, the device is delivered with the MOVIKIT® function module "5PD Velocity Drive".

In automatic mode, the device is controlled using the following process data configuration:

PO	Function		PI	Function
PO1	Control word		PI1	Status word
PO2	Speed setpoint		PI2	Actual speed/output current[1)]
PO3	Acceleration		PI3	Drive status/drive fault
PO4	Deceleration		PI4	Actual torque
PO5	Digital outputs		PI5	Digital inputs

1) Configurable

For further information on the operating principle and process data scaling of the MOVIKIT® function module "5PD Velocity Drive", refer to the "MOVIKIT® Positioning/ Velocity Drive" manual or the MOVISUITE® startup software.

6.7 Deactivating DynaStop® for the startup procedure

6.7.1 Important information about deactivating DynaStop® (option /DSP)

⚠ WARNING

Removing the electronics cover will deactivate DynaStop®.

Severe or fatal injuries.

- If deactivation is not permitted for the plant, you will need to initiate additional measures (e.g. mechanical disconnection).

⚠ WARNING

Electric shock due to regenerative energy created by moving system or machine. The regenerative energy can cause dangerous voltages at the terminals or connectors, even when the supply voltage is disconnected.

Severe or fatal injuries.

- Never touch the wiring space with wiring board and connector.
- If you cannot rule out that the wiring space is touched, provide for suitable protection covers.

NOTICE

Damage to the connector plug between connection unit and electronics cover due to regenerative energy created by movement of the system or machine.

Damage to property.

- To prevent the connection plug from being damaged (destroyed contacts), you must remove the electronics cover completely in order to deactivate DynaStop®!

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6.7.2 Steps to deactivate DynaStop®

INFORMATION

For further information on the DynaStop® function, refer to chapter "Operation" in the product manual and the documentation of the connected drive unit.

Disabling DynaStop® by removing the electronics cover

Deactivate the DynaStop® function as follows:

1. Observe chapter "Startup information" (→ 🗎 86).
2. Observe chapter "Important information about deactivating DynaStop®" (→ 🗎 98).
3. De-energize all of the components and safeguard them with an external switch-off device to prevent unintentional activation of the voltage supply.
4. Remove the electronics cover completely.

The DynaStop® function is deactivated as a result. The system/machine can be moved mechanically observing the notes in chapter "Important notes on disabling DynaStop" (→ 🗎 98).

Disabling DynaStop® using the control signal

Alternatively, the DynaStop® function can also be deactivated using a control signal (process data or digital input). When doing this, observe the instructions in the product manual > chapter "Operation" > "Deactivating DynaStop® with FCB01".

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7 Operation

7.1 Maintenance switch

7.1.1 Load disconnectors /D11 and /M11

⚠ WARNING

Electric shock due to dangerous voltages at the line terminals.

The switch disconnector disconnects the electronics cover from the voltage supply. Voltage is still present at the terminals of the device.

- A correct installation includes that terminals of the device are protected against contact.
- Secure the device against unintended reconnection of the voltage supply.
- Wait for at least the following time before removing the electronics cover: **5 minutes**

NOTICE

Premature aging of the switch contacts.

- Do not operate the switch disconnector under load.

The switch disconnector of the device serves to interrupt the voltage supply of the electronics cover. The control unit of the decentralized inverter will remain supplied after the switch disconnector is opened only if the optional, external DC 24 V backup voltage is connected.

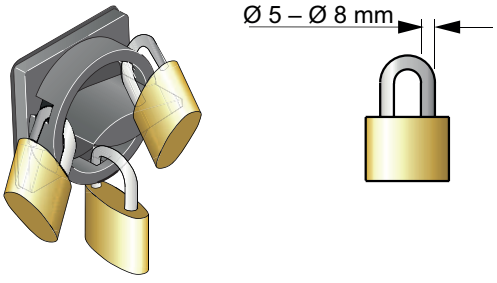
The feedback contact (NC contact) of the switch disconnector affects the digital input DI08. You can query the switch disconnector status at the digital input DI08 when the DC 24 V backup voltage is connected to the device.

INFORMATION

The M11 load disconnector remains in the "TRIP" position after an overcurrent trip.

To switch the device on again, set the switching position to "0". Only then can the power be switched on again.

The switch disconnector can be secured with 3 locks.



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7.1.2 Load disconnector /R01 at the inverter output

⚠ WARNING

Electric shock due to mixing up the load disconnector and its function.

Severe or fatal injuries.

- Before opening the device, check the type designation on the nameplate to see which load disconnector is installed in the device.
  - The optional load disconnectors **/D11** and **/M11** disconnect the 400 V power supply between the power terminals X1 and the electronics cover.
  - The optional load disconnector **/R01** at the inverter output disconnects the connection between the inverter output of the electronics cover (power output stage) and the motor connection terminals X2_A (terminals U, V, W).
- Before opening the device, check that the voltage supply to the device has been switched off using external measures.

NOTICE

Unexpected drive functions by using the load disconnector /R01 at the inverter output.

Possible damage to property.

- Do not use the load disconnector /R01 at the inverter output with the following motors and options:
  - Brakemotors
  - Option /DSP (DynaStop®)
  - Option /BES (24 V brake control)

NOTICE

Damage to the power semiconductors or increased wear of the switching contacts.

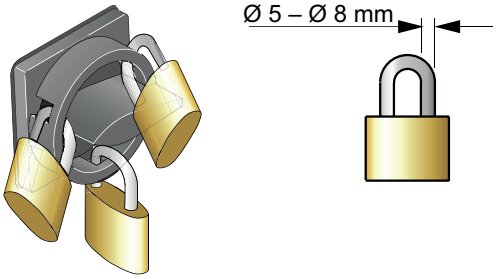
Possible damage to property.

- Only operate the load disconnector /R01 at the inverter output when the output stage is disabled.

The load disconnector /R01 at the inverter output of MOVIMOT® flexible MMF3... is used to interrupt the connection between the inverter output of the electronics cover (power output stage) and the motor connection terminals X2_A (terminals U, V, W). The leading feedback contact (normally closed contact) of the load disconnector /R01

at the inverter output acts on digital input DI08 (output stage inhibit) of the unit. This means that the output stage is inhibited when the load disconnector is actuated. You can query the switching state of the load disconnector via the state of digital input DI08.

The switch disconnector can be secured with 3 locks.



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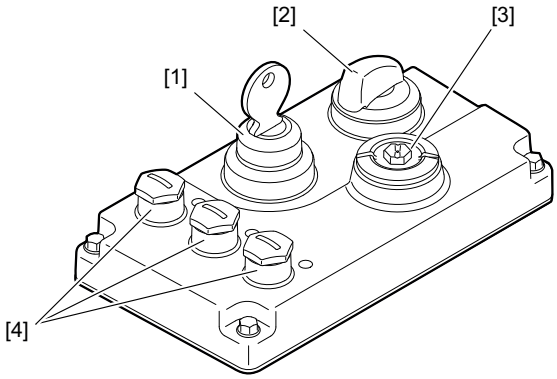
7.2 Front module with integrated local control

The following figure shows the front module with integrated local control:



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[1] "S2 key switch" (→ 🗎 103)
[2] "S1 selector switch direction of rotation" (→ 🗎 103)
[3] "Engineering interface (RJ10, under the screw plug)"
[4] "Connector digital inputs"

The front module is used for local mode at one speed. Local mode is implemented via the firmware function "Prioritized terminal control".

Optionally, you can switch between 2 setpoint speeds by using an additional digital input.

In local mode, the digital inputs DI05 – DI07 control the drive in manual mode. Therefore, in manual mode, no sensors can be evaluated via the digital inputs DI05 – DI07. The feedback contact of the key switch (DI08) indicates whether the decentralized inverter is in automatic or manual mode.

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The following table shows the function of the digital inputs depending on the position of S2 key switch:

S2 key switch position	Operating mode	Function of the digital inputs				Transmission of DIs via process data
		DI08	DI07	DI06	DI05	
0	Automatic mode	Prioritized terminal control inactive	Sensor	Sensor	Sensor	Yes
1	Manual mode	Prioritized terminal control active	0	Counter-clockwise rotation	Clockwise rotation	Yes

7.3 S2 key switch

The S2 key switch is used to activate local mode.

- 0 = Automatic mode
- 1 = Local mode

The S2 key switch can be removed in any position.

The feedback contact of the S2 key switch is digital input DI08.

7.4 S1 selector switch direction of rotation

In local mode, you can set the direction of rotation of the drive using the S1 direction of rotation selector switch.

- Switch position left = counterclockwise rotation (CCW)
- Switch position right = clockwise rotation (CW)

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7.5 DynaStop®

7.5.1 Functional description

⚠ WARNING

The DynaStop® electrodynamic retarding function does not allow for a definite stop at a position.

Severe or fatal injuries.

- DynaStop® must not be used for hoists.
- When using DynaStop® on ascending/descending sections or vertical conveyors without freely suspended loads, you must comply with the basic safety and health requirements (e.g. EC Machinery Directive 2006/42/EC).
- The behavior of the DynaStop® function must be taken into account for the risk assessment of the application that determines the required safety measures.

NOTICE

Activating the FCB01 Output stage inhibit while the drive unit is running will activate DynaStop®. This can cause high torque loads, which may damage the drive unit and the application.

Possible damage to property.

- Activate the FCB01 output stage inhibit only when the speed is "0".

The DynaStop® function allows a speed-dependent torque to be generated that acts against the rotational movement.

Within the permitted operating range, this torque prevents an excessive acceleration of the motor shaft by an external force (e.g. lowering at inclining tracks).

7.5.2 DynaStop® torques

INFORMATION

The possible DynaStop® torques can be found in the product manual of the connected drive unit MOVIGEAR® classic.

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8 Service

NOTICE

Improper work on the devices can result in damage.

Damage to property.

- Make sure that the devices from SEW-EURODRIVE are repaired by qualified specialists only.
- Consult SEW-EURODRIVE SERVICE.

8.1 Resetting error messages

⚠ WARNING

Removing the source of the malfunction or performing a reset can result in an automatic restart of the connected drives.

Severe or fatal injuries.

- Prevent the system from performing an unintentional startup.

Acknowledge an error message by:

- Switching the supply system off and on again.
- Using the controller/PLC: Send "reset command".

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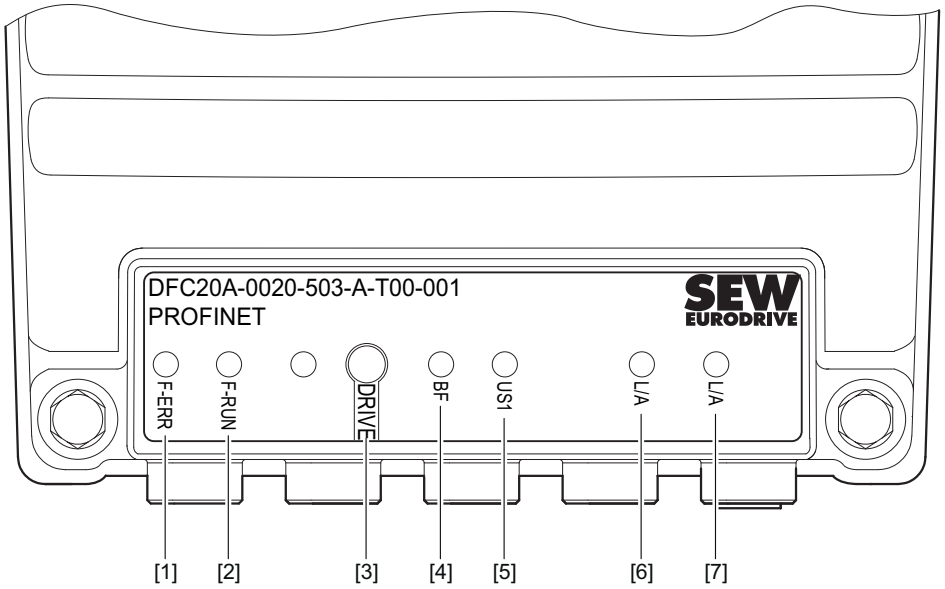
8.2 Status and operating displays

8.2.1 Overview of the LEDs for PROFINET IO

The following figure shows an example of the LEDs of the PROFINET IO design:



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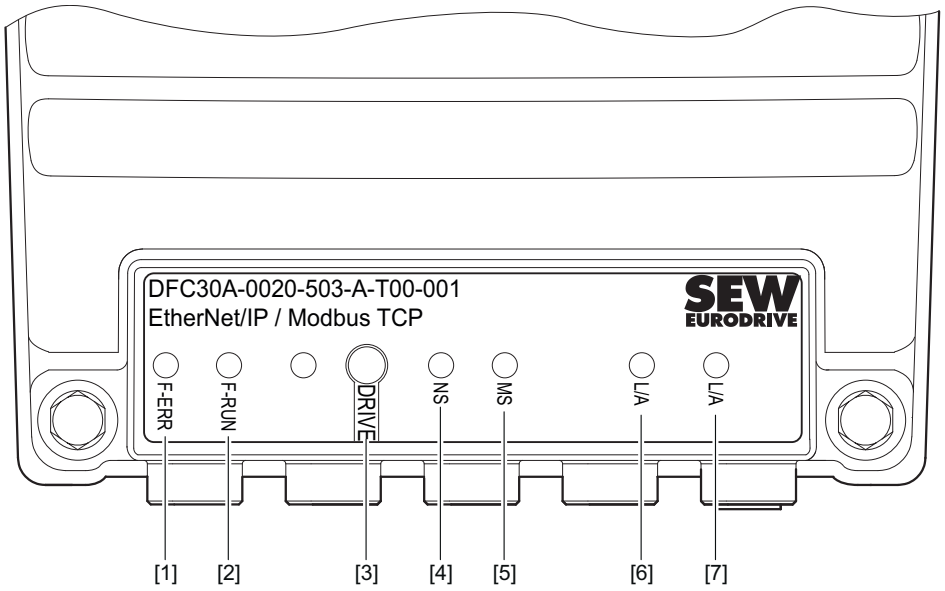
[1] "F-ERR" LED
[2] "F-RUN" LED
[3] "DRIVE" status LED
[4] "BF" LED
[5] "US1" LED
[6] LED "L/A" Port 1
[7] LED "L/A" Port 2

8.2.2 Overview of the LEDs for EtherNet/IP™, Modbus TCP

The following figure shows an example the LEDs of the EtherNet/IP™, Modbus TCP design:



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[1] "F-ERR" LED
[2] "F-RUN" LED
[3] "DRIVE" status LED
[4] "NS" LED
[5] "MS" LED
[6] LED "L/A" Port 1
[7] LED "L/A" Port 2

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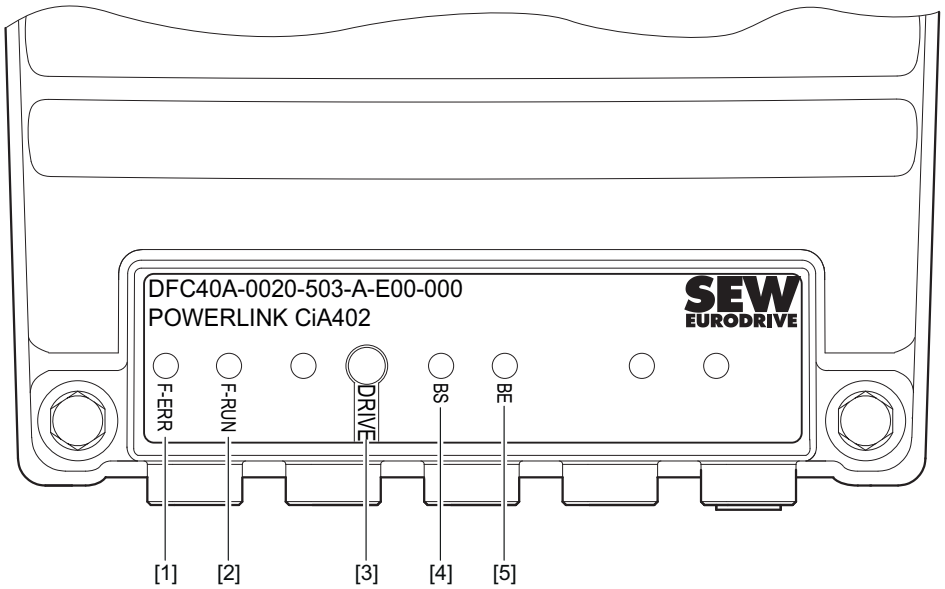
8.2.3 Overview of the LEDs for POWERLINK

The following figure shows an example of the LEDs of the POWERLINK design:



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[1] "F-ERR" LED
[2] "F-RUN" LED
[3] "DRIVE" status LED
[4] "BS" LED
[5] "BE" LED

8.2.4 General LEDs

"F-ERR" LED

INFORMATION

The "flashing sequence" state means that both LEDs of the assembly alternately flash in yellow or green. The LED color is alternately assigned to the LEDs, e.g. the "F-RUN" LED flashes green, the "F-ERR" LED flashes yellow, and vice versa.

The following table describes the display functions of the "F-ERR" LED:

Status	Meaning
Flashing sequence	Device identification for safety key ID query
Red **Illuminated**	Critical error, cannot be acknowledged
Red **Flashing (0.5 Hz)**	• Error can be acknowledged • Error outside the device, cabling system error, internal memory data error • Response to limit value violation active
Yellow **Flashing (2 Hz)**	• Error suppression (muting) active • Emergency mode active
Yellow **Illuminated**	Warning: Error connection basic device

Status	Meaning
Green **Flashing (0.5 Hz)**	Error in the "Parameterization" operating state: • Error in parameterization • No parameterization exists • Current parameter set not consistent with the safety key • Inconsistent parameterization
Green **Illuminated**	Fault-free operation
Off	Device off

"F-RUN" LED

INFORMATION

The "flashing sequence" state means that both LEDs of the assembly alternately flash in yellow or green. The LED color is alternately assigned to the LEDs, e.g. the "F-RUN" LED flashes green, the "F-ERR" LED flashes yellow, and vice versa.

The following table describes the display functions of the "F-RUN" LED:

Status	Meaning
Flashing sequence	Device identification for safety key ID query
Red **Flashing (0.5 Hz)**	Device identification for parameterization
Red **Flashing (2 Hz)**	Firmware update, do not switch the device off
Red **Illuminated**	Critical error (cannot be acknowledged)
Yellow **Illuminated**	STO safety subfunction is active
Yellow **Flashing (0.5 Hz)**	Device in operating state with one or more of the following constraints: • The assembly controls inverters • Test mode • Referencing active
Green **Flashing (0.5 Hz)**	Acceptance of the assembly has not yet taken place
Green **Flashing (2 Hz)**	• Device booting up or initializing • Device in parameterization state
Green **Illuminated**	Device in operating state and parameter set approved
Off	Device off

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"DRIVE" status LED

The following table describes the display functions of the "DRIVE" LED:

LED	Operating status/ Error code	Suberror code	Meaning	Measure
– **Off**	Not ready for operation		Line voltage absent.	Power on the line voltage.
Yellow **Flashing very rapidly, 4 Hz**	Not ready for operation		Initialization phase	Wait until initialization is complete.
Green/yellow **Flashing with changing colors, 0.5 Hz** **(1 × green, 1 × yellow)**	Ready for operation, but device inhibited.		The "STO" signal is active.	Deactivate the "STO" signal.
Yellow **Flashing slowly, 0.5 Hz**	Ready for operation, but manual mode/ local mode, device inhibited.		Line voltage is OK.	–
Yellow **Flashes rapidly, 2 Hz**	Ready		Deactivating DynaStop® without drive enable active.	–
Yellow **Steady light**	Ready for operation, but device inhibited.		Line voltage is OK. The output stage is inhibited.	–
Green **Flashing slowly, 0.5 Hz**	Device enabled, but condition manual operation/local mode		The output stage is enabled. The motor is in operation.	–
Green **Flashing very rapidly, 4 Hz**	Device enabled, but current limit active.		The drive is at the current limit.	Reduce the load.
Green **Steady light**	Device enabled.		The output stage is enabled. The motor is in operation.	–
Yellow/red **Flashing with changing colors, 1 Hz** **(2 × yellow, 2 × red)**	Ready		A displaying error is present. The output stage is inhibited.	Refer to chapter "Error description" in the product manual for possible measures.
Green/red **Flashing with changing colors, 1 Hz** **(2 × green, 2 × red)**	Ready		A displaying error is present. The output stage is enabled. The motor is in operation.	Refer to chapter "Error description" in the product manual for possible measures.

LED	Operating status/		Meaning	Measure
	Error code	Suberror code		
Red **Flashing, 1 Hz**	3	1	Ground error	Refer to chapter "Error description" in the product manual for possible measures.
	4	1	Brake chopper error	
	6	1	Line error	
	7	1	DC link error	
	8	1, 2, 3	Speed monitoring error	
	9	1, 2, 5, 6, 9, 10	Control mode error	
	10	1, 3 – 11	Data Flexibility error	
	11	1 – 6	Temperature monitoring error	
	12	1, 2	Brake error	
	13	5, 24	Encoder 1 error	
	16	5 – 8, 10, 20 – 27	Startup error	
	19	1 – 9	Process data error	
	20	2, 11	Device monitoring error	
	23	4	Power section error	
	25	2 – 7, 20, 21, 30,31, 61, 70	Parameter memory monitoring	
	26	1, 3	External error	
	28	1, 12 – 14	FCB drive function error	
	29	1 – 4	Hardware limit switch error	
	30	1 – 3	Software limit switch error	
	31	1 – 4, 7, 9	Thermal motor protection error	
	32	2 – 6, 12	Communication error	
	33	11, 12, 13	System initialization error	
	34	1	Process data configuration error	
	35	1 – 5	Function activation error	
	42	1 – 3	Lag error	
	44	2, 3, 4	Error overcurrent phase U, V, W	
	46	2, 3, 50 51, 52	Safety card error	
	51	1	Analog processing error	

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LED	Operating status/		Meaning	Measure
	Error code	Suberror code		
Red **Steady light**	1	1, 2	Output stage monitoring error	Contact SEW-EURODRIVE Service.
	4	2	Brake chopper error	
	7	2	DC link error	
	9	3, 4, 8	Control mode error	
	10	2, 99	Data Flexibility error	
	11	7, 8	Temperature monitoring error	
	13	1, 3, 6, 7, 8, 9, 11, 13, 15, 22, 23	Encoder 1 error	
	16	2, 11, 12. 30	Startup error	
	17	7	Internal processor error	
	18	1, 3, 4, 7, 8, 9, 10, 12, 13	Software error	
	20	1, 7	Device monitoring error	
	21	1	S-Drive 1 error	
	23	5, 6, 7, 8	Power section error	
	25	10, 12 – 19, 50, 51, 81	Parameter memory monitoring	
	28	13	FCB drive function error	
	33	1, 2, 6, 7, 8, 10	System initialization error	
	46	1	Safety card error	

LED "L/A" Port 1

The following table shows the display functions of the "L/A" LED for port 1:

LED	Meaning
Green **Illuminated**	There is **no** Ethernet connection to Ethernet port 1.
Yellow **Illuminated**	An Ethernet connection exists from Ethernet port 1 to an additional Ethernet consumer.

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LED "L/A" Port 2

The following table shows the display functions of the "L/A" LED for port 2:

LED	Meaning
Green **Illuminated**	There is **no** Ethernet connection to Ethernet port 2.
Yellow **Illuminated**	An Ethernet connection exists from Ethernet port 2 to an additional Ethernet consumer.

8.2.5 Bus-specific LEDs for PROFINET IO

"BF" LED

The following table describes the display functions of the "BF" LED:

LED	Meaning	Measure
– **Off**	The device has detected a connection to the PROFINET master.	–
Red **Illuminated**	The connection to the PROFINET master has failed. The device does not detect a connection to the PROFINET master (bus fault).	• Check the PROFINET connection of the device. • Check all the cables in the PROFINET network.
	The PROFINET master is not in operation.	• Check the PROFINET master.
	Faulty process data configuration.	• Check the process data configuration.

"US1" LED

The following table describes the display functions of the "US1" LED:

LED	Meaning	Measure
Yellow **Flashing**	The device is in the initialization phase.	• Wait until initialization is complete.
Green **Illuminated**	The device works in normal operation.	–
Green **Flashing**	Reserved	–
Red **Illuminated**	The device has detected an internal fault.	• Observe the information in chapter "Fault description".

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8.2.6 Bus-specific LEDs for EtherNet/IP™ and Modbus TCP

"NS" LED

The following table describes the display functions of the "NS" LED:

Status	Possible cause	Measure
– **Off**	The device is switched off. No DC 24 V supply.	• Check the DC 24 V supply. • Switch on the device again.
	The IP address is not set.	• Set the IP address.
Green **Flashing**	The connection to the Ethernet master has failed. The device does not detect a connection to the Ethernet master (bus error).	• Check the Ethernet connection of the device. • Check all Ethernet connections.
Green **Illuminated**	The IP address is set. The Ethernet connection has been established.	–
Red **Flashing**	The timeout time of the controlling connection has expired. The status is reset by restarting communication.	• Check the fieldbus connection. • Check the master/scanner. • Check all Ethernet connections.
Red **Illuminated**	A conflict was detected during IP address assignment.	• Check whether another device with the same IP address is available in the network. • Change the IP address of the device. • Check the DHCP settings for IP address assignment of the DHCP server (only when using a DHCP server).
Red/green **Flashing**	The device is performing an LED test. This state may only be active for a short time during startup.	–
	The device has received the designated target unit network ID (TUNID). The LED will keep flashing until the device has received the APPLY_TUNID service and the validation is successfully completed.	

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"MS" LED

The following table describes the display functions of the "MS" LED:

LED	Meaning	Measure
– **Off**	No power supply or DC 24 V supply.	• Check the voltage supply.
Green **Flashing**	The device has not been configured yet.	• Configure the device. • Check the DHCP server connection (only if DHCP is activated and the state is persistent).
Green **Illuminated**	Device OK.	–
Red **Flashing**	A recoverable error has occurred on the device.	• Check whether another device with the same IP address is available in the network. • Change the IP address of the device. • Check the DHCP settings for IP address assignment of the DHCP server (only when using a DHCP server).
Red **Illuminated**	An unrecoverable error has occurred on the device.	• Switch on the device again. • Reset the device to the factory settings. • If this fault occurs repeatedly, replace the device or contact SEW-EURODRIVE Service.
Red/green **Flashing**	The device performs an LED test. This state may only be active for a short time during startup.	–
	The device is waiting for a target unit network ID (TUNID).	Assign a target unit network ID (TUNID) to the device.
	Parameterization of the device is required.	Check the parameterization of the CSB51A/CSL51A safety option.

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8.2.7 Bus-specific LEDs for POWERLINK

"BS" LED

The following table describes the display functions of the "BS" LED:

LED	Meaning
Off	"INIT" state The interface is in "INIT" state.
Green **Flickering**	"BASIC ETHERNET Mode" state None of the SoA, SoC, PReq, or PRes message types detected.
Green **Flashing once**	"PRE_OPERATIONAL_1Mode" state Only acyclic communication is possible.
Green **Flashing twice**	"PRE_OPERATIONAL_2Mode" state Acyclic and cyclic communication are possible. Process data not valid.
Green **Flashing three times**	"READY_TO_OPERATE_Mode" state
Green **Flashing**	"STOPPED_Mode" state
Green **Illuminated**	"OPERATIONAL Mode" state

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"BE" LED

The following table describes the display functions of the "BE" LED:

LED	Meaning	Measure
Off	Transition to "OPERATIONAL_Mode" state	–
	Software reset of the NMT state machine (start basic node initialization)	–
	Transition to "BASIC_ETHERNET_Mode" state after a timeout of the SoC, PReq, PRes, and SoA message types.	–
Red **Illuminated**	POWERLINK cycle time exceeded.	Check/adjust the network.
	The number of managing nodes (MN) in the POWERLINK network is > 1.	Check/adjust the network. Configure only 1 managing node.
	Invalid Ethernet frame format, such as incorrect Ethernet CRC (redundancy checksum)	Check/adjust the network.
	Loss of frame	Check/adjust the network.
	Frame collision	Check/adjust the network.
	Invalid IP address	Set a valid IP address.

8.3 Device replacement

8.3.1 Information

INFORMATION

When activating the delivery state of devices with the option /P (customer-specific parameter set), parameter settings are implemented that deviate from the default delivery state set by SEW-EURODRIVE.

8.3.2 Replacing the electronics cover

Replace the electronics cover as follows:

1. Consider the safety notes in chapter "Creating a safe working environment" (→ 🗎 9).
   ⇨ Make sure the device is de-energized. The 400 V line voltage and the 24 V backup voltage must be disconnected.
2. Loosen the screws and remove the electronics cover from the connection box.

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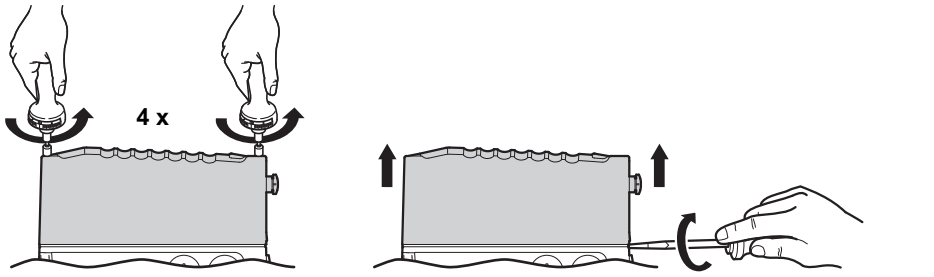

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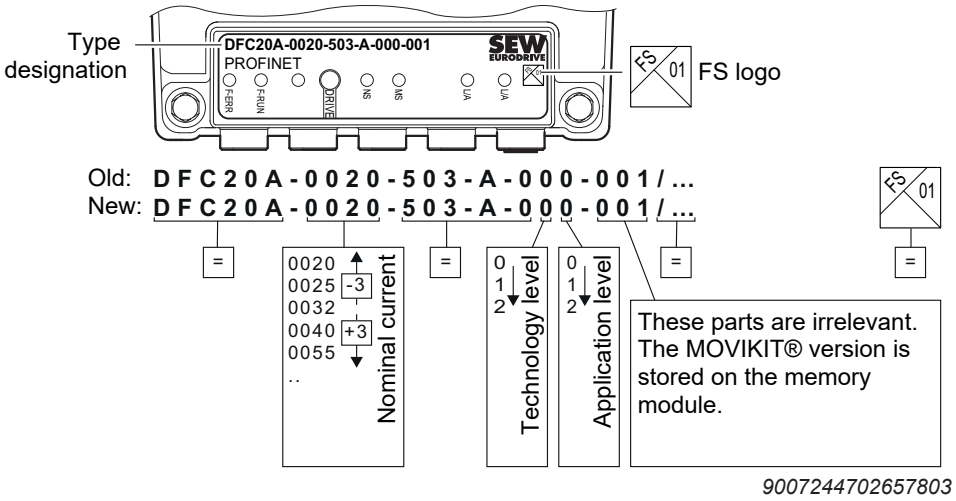
3. Compare the data on the nameplate of the previous electronics cover with the data on the nameplate of the new electronics cover.

INFORMATION

Always replace the electronics cover with an electronics cover with the same type designation.

But it is permitted to use an electronics cover with a nominal output current that is up to 3 times higher or lower than what the old electronics cover had.

- However, if you use an electronics cover with a higher nominal output current, the power at the output shaft will not be increased.
- When you use an electronics cover with a lower nominal output current than the old electronics cover, the power at the output shaft may no longer be high enough to meet the requirements.



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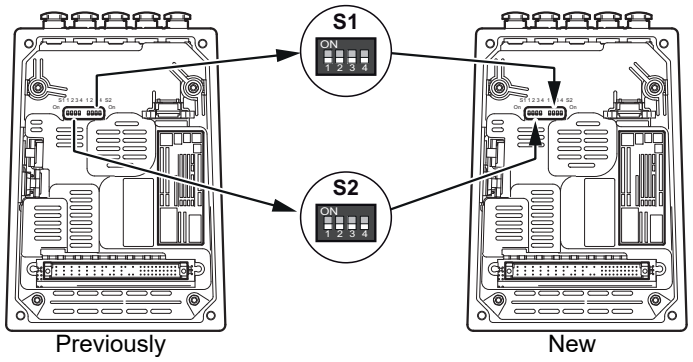
INFORMATION

In safety-related applications, replace an electronics cover only with an electronics cover with the same FS logo.

4. Set all the control elements (e.g. DIP switches, see chapter "Startup") on the new electronics cover in the same way as the control elements of the previous electronics cover.



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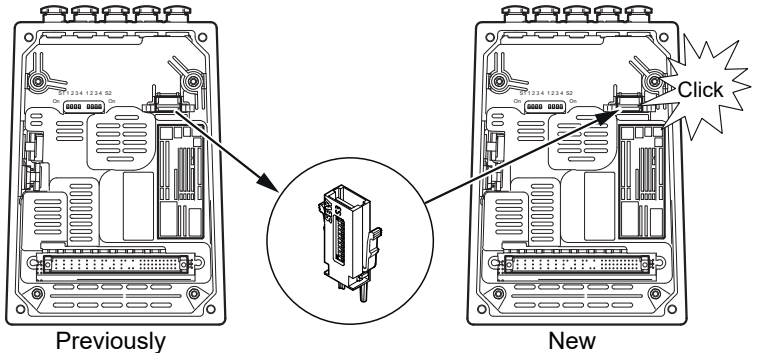
5. Remove the replaceable memory module from the old electronics cover. Insert the replaceable memory module in the new electronics cover.



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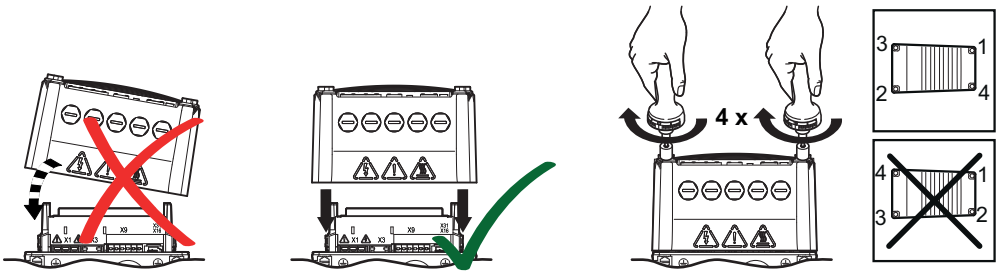
6. Place the new electronics cover onto the connection box and screw it in place.



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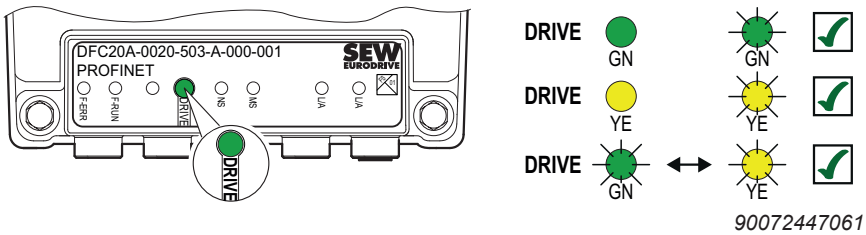
7. Supply the device with voltage.
8. Check the functionality of the new electronics cover. If the electronics cover functions properly, the "DRIVE" LED shows one of the following states:



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9. If the device contains an optional safety card, a safety acknowledgment may be required. This acknowledgment cancels the start inhibit on the safety card.

8.3.3 Replacing the memory module

Replace the memory module as follows:

1. Observe the safety notes in chapter "Creating a safe working environment" (→ 🗎 9).
   ⇨ Make sure the device is de-energized. The 400 V line voltage and the 24 V backup voltage must be disconnected.
2. Loosen the screws and remove the electronics cover from the connection box.
3. Remove the memory module from the old electronics cover.
4. Compare the part number and the status of the memory module.

INFORMATION

The new memory module must have the same part number and the same (or a higher) status as the old memory module.

5. Set the DIP switches on the new memory module in the same way as the control elements of the previous memory module.
6. Insert the new memory module into the electronics cover.
7. Place the electronics cover onto the connection box and screw it in place.
8. Supply the device with voltage.
9. Check the startup of the device.
   ⇨ If required, perform startup again or load a saved startup into the device.
   ⇨ For devices with safety card, check the startup of the safety card. For further information, refer to the product manual > chapter "Project planning for functional safety" > "Safety conditions" > "Startup requirements".
10. Check the functionality of the new electronics cover.

If the device was ordered with the option /P "Parameters ex works", the customer-specific parameter set is saved on the supplied memory module upon delivery.

When ordering a new memory module using the part number, no data set is stored on the memory module.

- Start up the device manually.
- As an alternative, start up the device with a previously saved data set.

8.3.4 Device replacement

Replace the device as follows:

1. Consider the safety notes in chapter "Creating a safe working environment" (→ 🗎 9).
   ⇨ Make sure the device is de-energized. The 400 V line voltage and the 24 V backup voltage must be disconnected.
2. When you replace the device including the electronics cover, you also have to carry out the steps described in chapter "Replacing the electronics cover".
3. Remove the device. Observe the removal notes in chapter "Mechanical installation".
4. Compare the data on the nameplate of the old device with the nameplate data of the new device.

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INFORMATION

Always replace the decentralized inverter with a decentralized inverter that has the same properties.

In safety-related applications, replace a decentralized inverter only with a decentralized inverter with the same FS logo.

5. Install the device. Observe chapter "Mechanical installation".
6. Perform the installation according to chapter "Electrical installation".
7. Remove the memory module from the old electronics cover. Insert this memory module in the new electronics cover.
8. Place the electronics cover onto the connection box and screw it in place.
9. Supply the device with voltage.
10. Check the function of the new device.

8.4 Shutdown

⚠ WARNING

Risk of burns due to hot surfaces.

Severe injuries.

- Let the devices cool down before touching them.

⚠ WARNING

Electric shock caused by dangerous voltages in the connection box. Dangerous voltages can still be present for up to 5 minutes after disconnection from the power supply system.

Severe or fatal injuries.

- Before removing the electronics cover, de-energize the device via a suitable external disconnection device.
- Secure the device against unintended re-connection of the voltage supply.
- Secure the output shaft against rotation.
- Wait for at least the following time before removing the electronics cover: **5 minutes**

To shut down the device, de-energize the device using appropriate measures. Disconnect the 400 V line voltage and the 24 V backup voltage from the device.

8.5 Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Iron, steel or cast iron

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- Stainless steel
- Magnets
- Aluminum
- Copper
- Electronic parts
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately:

- Oil and grease

  Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.
- Screens
- Capacitors

Waste disposal according to WEEE Directive 2012/19/EU

This product and its accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and its accessories according to the national regulations of your country.

For further information, contact the responsible SEW-EURODRIVE branch or an authorized partner of SEW-EURODRIVE.

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9 Inspection and maintenance

9.1 Inspection and maintenance intervals

The following table shows the inspection and replacement intervals for the device:

Time interval	What should I do?	Who is permitted to perform the work?
When the electronics cover is opened after an operating period of ≥ 6 months	If you open the electronics cover after an operating period of ≥ 6 months, you must replace the gasket between the connection box and the electronics cover to ensure the IP protection class. The 6-month period can be shortened by harsh ambient/operating conditions, e.g. cleaning with aggressive chemicals or frequent temperature variations.	Specialists at customer site
Each time the electronics cover is opened	Visual inspection of the gasket between connection box and electronics cover: In case of damage, replace this gasket.	Specialists at customer site

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9.2 Inspection and maintenance work

9.2.1 Preliminary work regarding inspection and maintenance

Carry out the following steps before all inspection and maintenance work:

1. ⚠ **WARNING!** Electric shock caused by dangerous voltages in the connection box. Severe or fatal injuries.
   De-energize the device. Pay attention to the 5 safety rules in chapter "Carrying out electrical work safely". Afterwards, wait 5 minutes.
2. ⚠ **WARNING!** Risk of burns due to hot surfaces. Severe injuries.
   Let the device cool sufficiently before touching it.
3. Secure the output shaft of permanently excited motors against rotation. You thereby avoid an electric shock from the regenerative operation during the rotation of the shaft.

9.2.2 Replacing the gasket between connection box and electronics cover

Spare part kit

The gasket is available as a spare part (1, 10 or 50 pieces) from SEW-EURODRIVE.

Contents	Part number of gasket for size 1	Part number of gasket for size 2
1 piece	18187765	28131738
10 pieces	28266161	28278097
50 pieces	28266188	28284356

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Work steps with electronics cover size 1

NOTICE

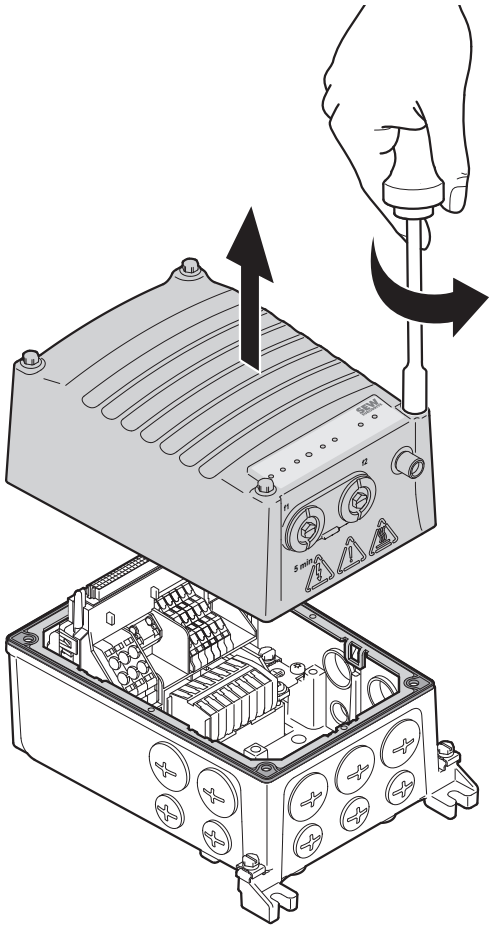
Loss of the guaranteed degree of protection.

Damage to property.

- When the cover is removed from the connection box, the cover and the wiring space must be protected from humidity, dust or foreign particles.

Replace the gasket of MOVIMOT® flexible as follows:

1. Perform the steps according to chapter "Preliminary work regarding inspection and maintenance" (→ 🗎 123).
2. Loosen the screws of the electronics cover and remove it.



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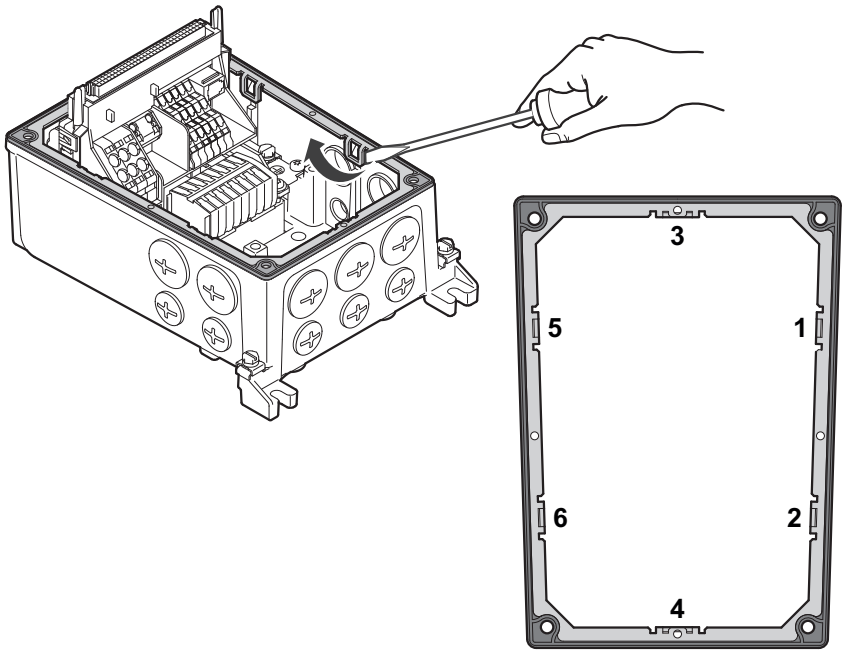
3. **NOTICE!** Loss of the guaranteed degree of protection. Possible damage to property. Make sure that the sealing surfaces are not damaged when removing the gasket.
   Loosen the used seal by levering it off the retaining cams.
   ⇨ Disassembly is easier if you adhere to the sequence shown in the following figure.



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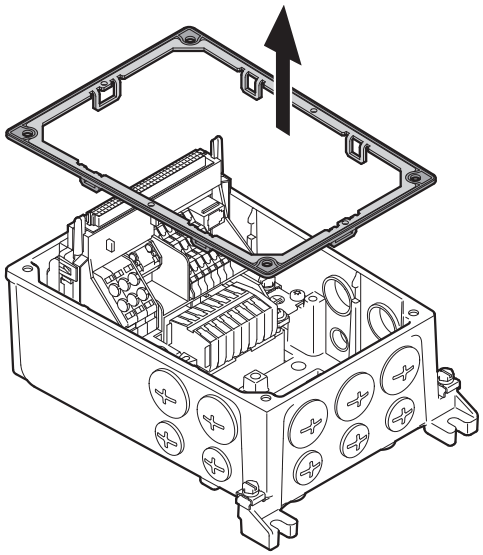
4. Remove the old gasket completely from the connection box.



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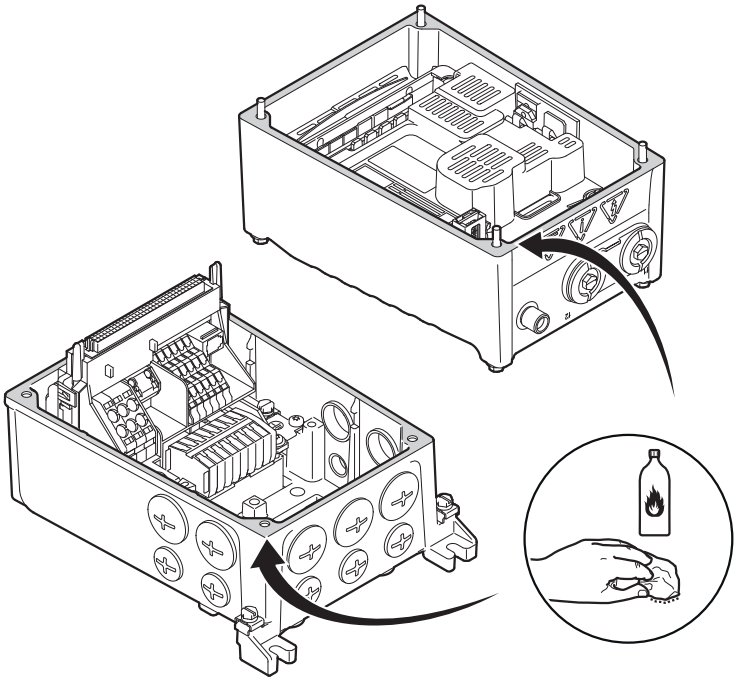
5. ⚠ **CAUTION!** Risk of injury due to sharp edges. Cutting injuries. Use protective gloves when cleaning. Ensure that work is carried out by trained specialists only. Carefully clean the sealing surfaces of the connection box and the electronics cover.



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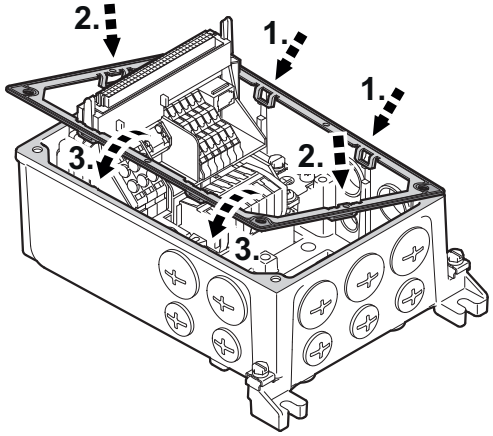
6. Place the new gasket on the connection box and fix it with the retaining cams. Installation is facilitated if you follow the illustrated order.



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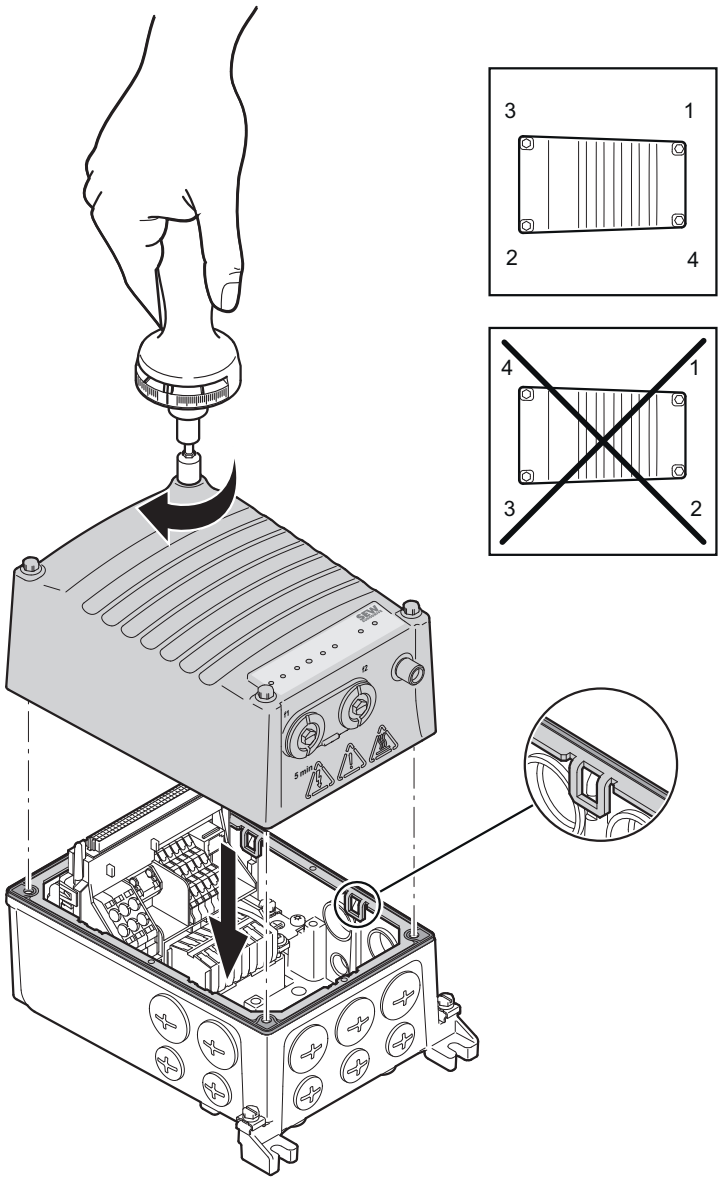
7. Check the installation and startup of the device using the applicable operating instructions.
8. Place the electronics cover back onto the connection box and secure it.
   ⇨ Proceed as follows when mounting the electronics cover: Insert/screw in the screws and tighten them in diametrically opposite sequence step by step with a tightening torque of 6.0 Nm.



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Work steps with electronics cover size 2

NOTICE

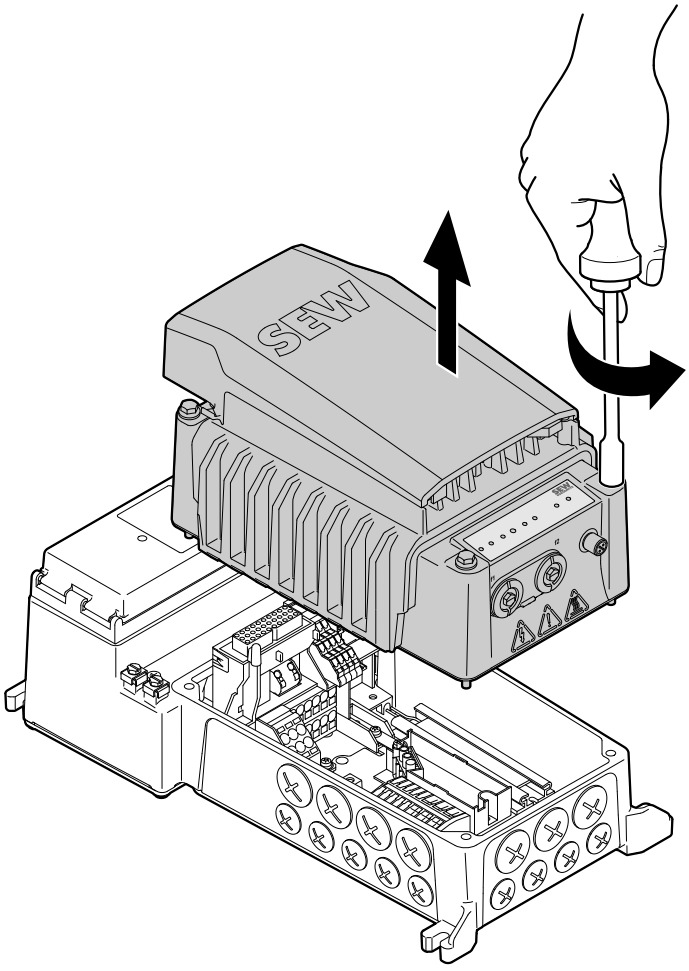
Loss of the guaranteed degree of protection.

Damage to property.

- When the cover is removed from the connection box, the cover and the wiring space must be protected from humidity, dust or foreign particles.

Replace the gasket of MOVIMOT® flexible as follows:

1. Perform the steps according to chapter "Preliminary work regarding inspection and maintenance" (→ 🗎 123).
2. Loosen the screws of the electronics cover and remove it.



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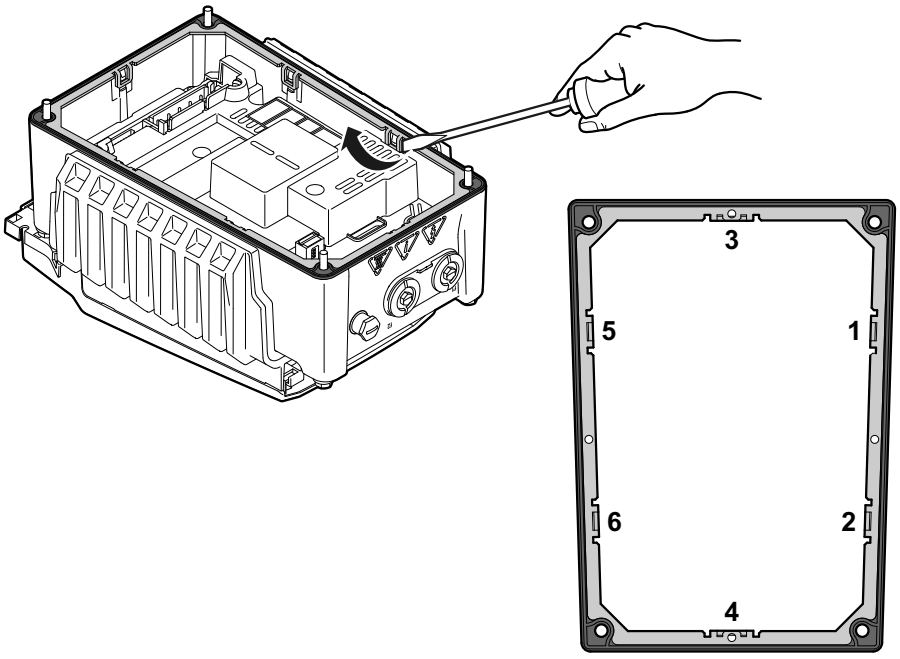
3. **NOTICE!** Loss of the guaranteed degree of protection. Possible damage to property. Make sure that the sealing surfaces are not damaged when removing the gasket.
   Loosen the used seal by levering it off the retaining cams.
   ⇨ Disassembly is easier if you adhere to the sequence shown in the following figure.



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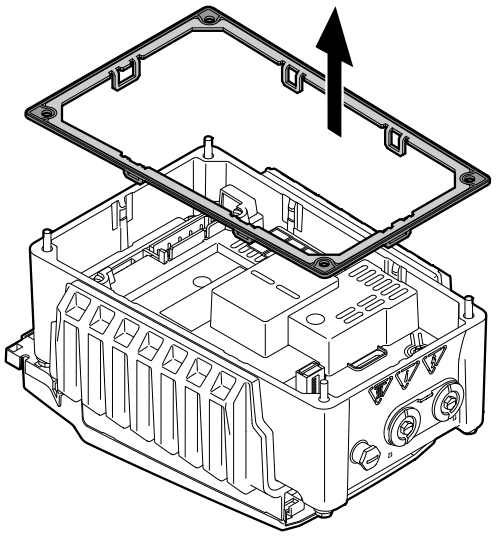
4. Remove the old gasket completely from the electronics cover.



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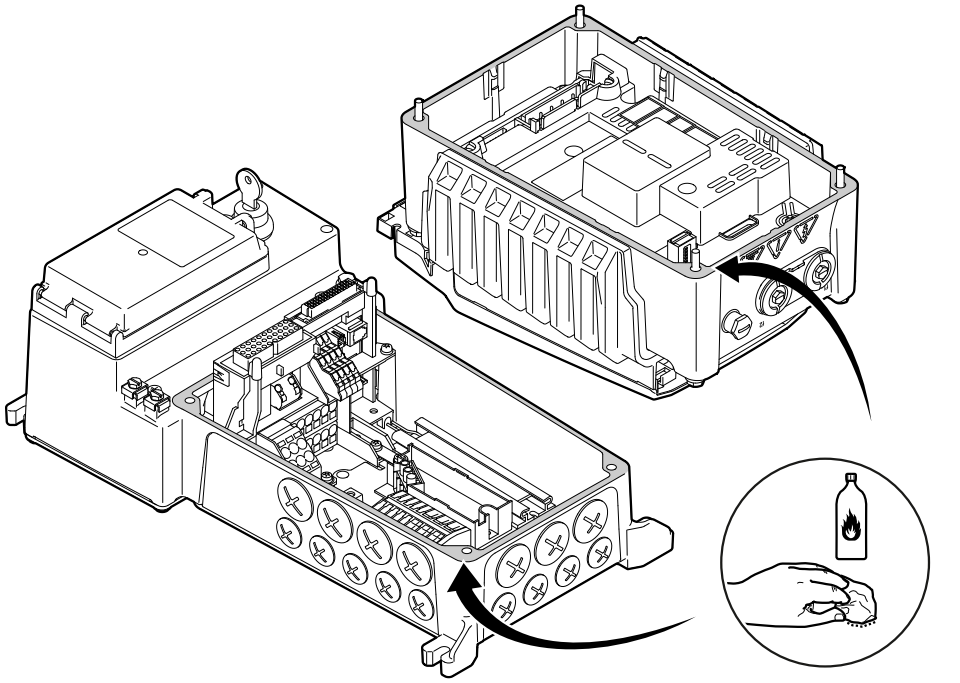
5. ⚠ **CAUTION!** Risk of injury due to sharp edges. Cutting injuries. Use protective gloves when cleaning. Ensure that work is carried out by trained specialists only. Carefully clean the sealing surfaces of the connection box and the electronics cover.



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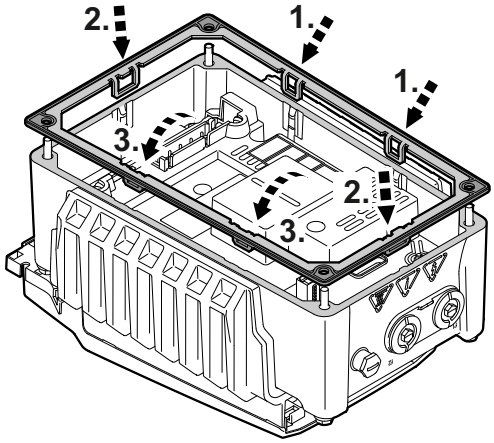
6. Place the new gasket on the electronics cover and fix it in position with the retaining cams. Installation is facilitated if you follow the illustrated order.



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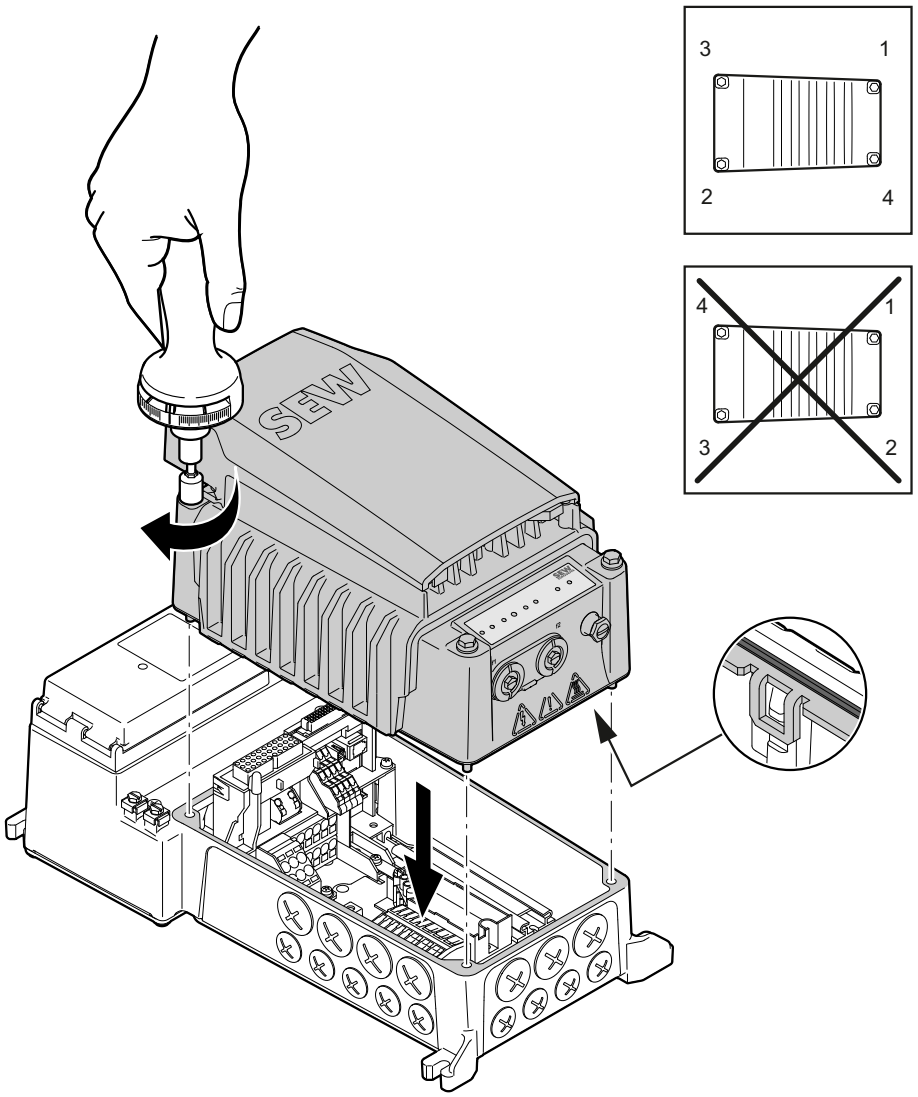
7. Check the installation and startup of the device using the applicable operating instructions.
8. Place the electronics cover back onto the connection box and secure it.
   ⇨ Proceed as follows when mounting the electronics cover: Insert/screw in the screws and tighten them in diametrically opposite sequence step by step with a tightening torque of 9.5 Nm.



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10 Contacting SEW-EURODRIVE

You can find the worldwide contact data and locations on the **SEW-EURODRIVE website** via the following link or the QR code shown below.

https://www.sew-eurodrive.de/contacts-worldwide

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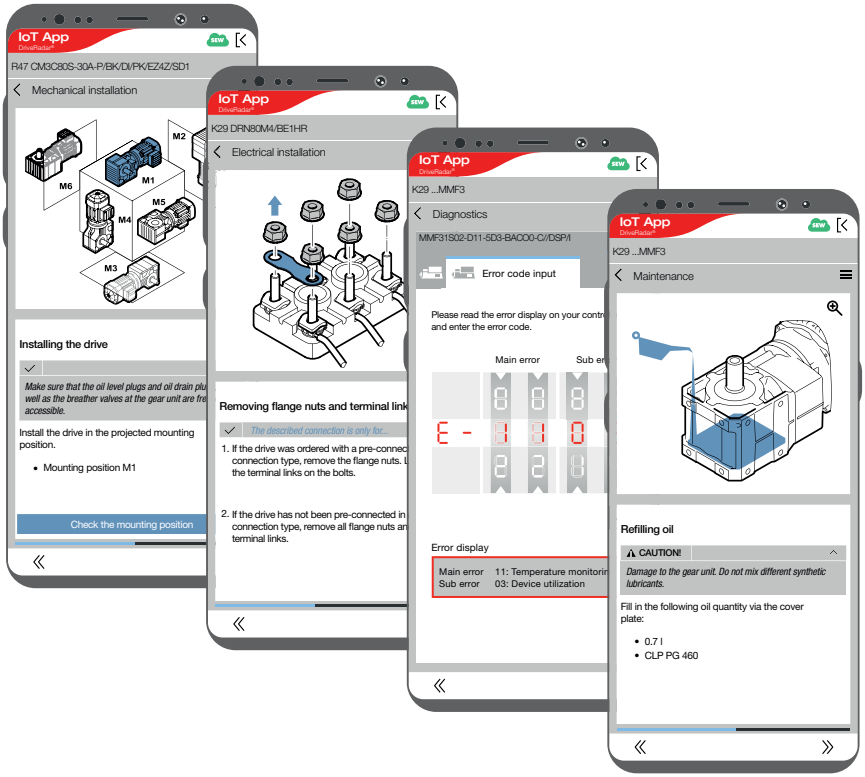
IoT App
DriveRadar®



https://iotapp.io

Google Play App Store

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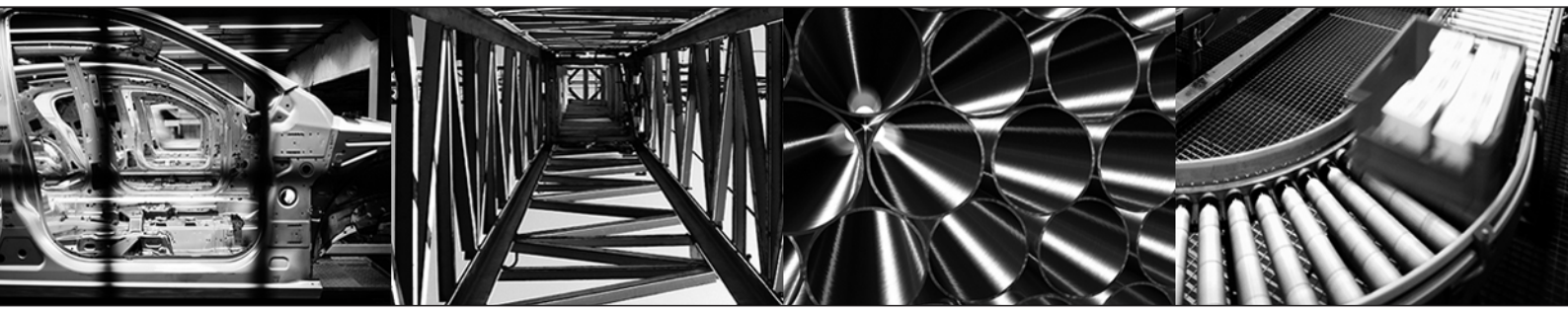
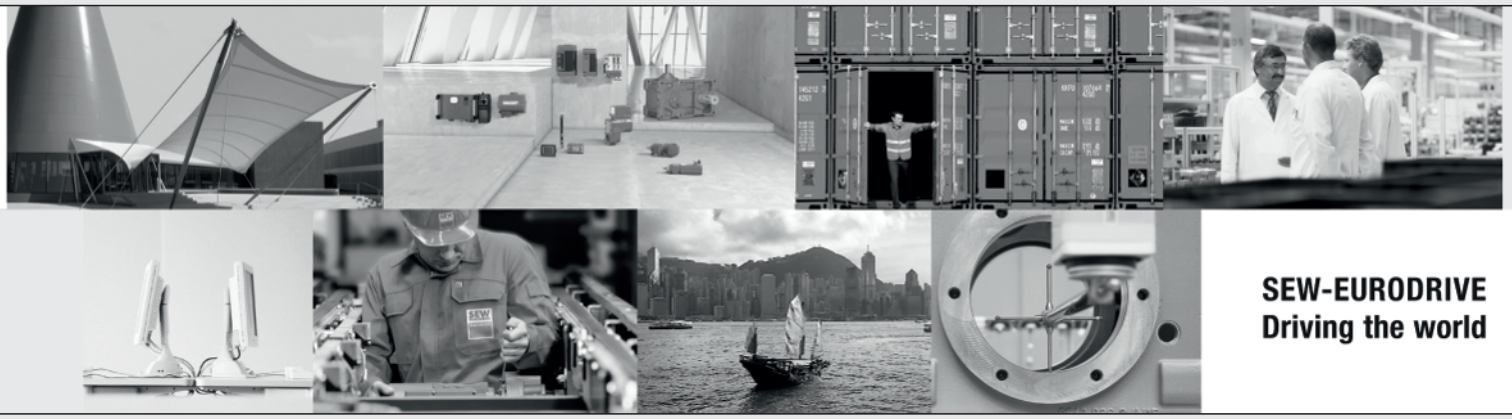
Documentation and technical information on your smartphone – paperless and always available





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