



SEW
EURODRIVE

Addendum to the Operating Instructions



Application Inverters
Control Cabinet with MOVIDRIVE® technology



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1 General information

INFORMATION



This addendum describes the amendments made to the operating instructions and the product manual of the MOVIDRIVE® technology application inverters.

This document is a supplement to the operating instructions and the "MOVIDRIVE® technology Application Inverters" product manual.

The amendments in this addendum describe the control cabinet with MOVIDRIVE® technology.

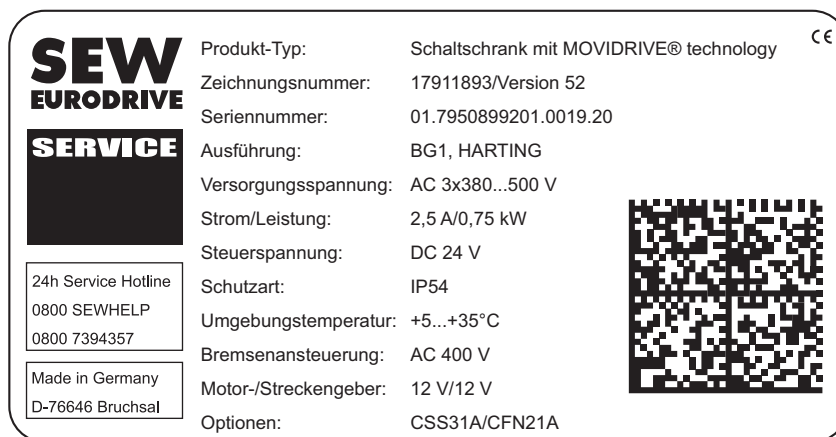
1.1 Other applicable documentation

Observe the corresponding documentation for all additional components.

2 Device structure

2.1 Nameplate

The main nameplate lists information about the device type. The following figure shows an example of a main nameplate:



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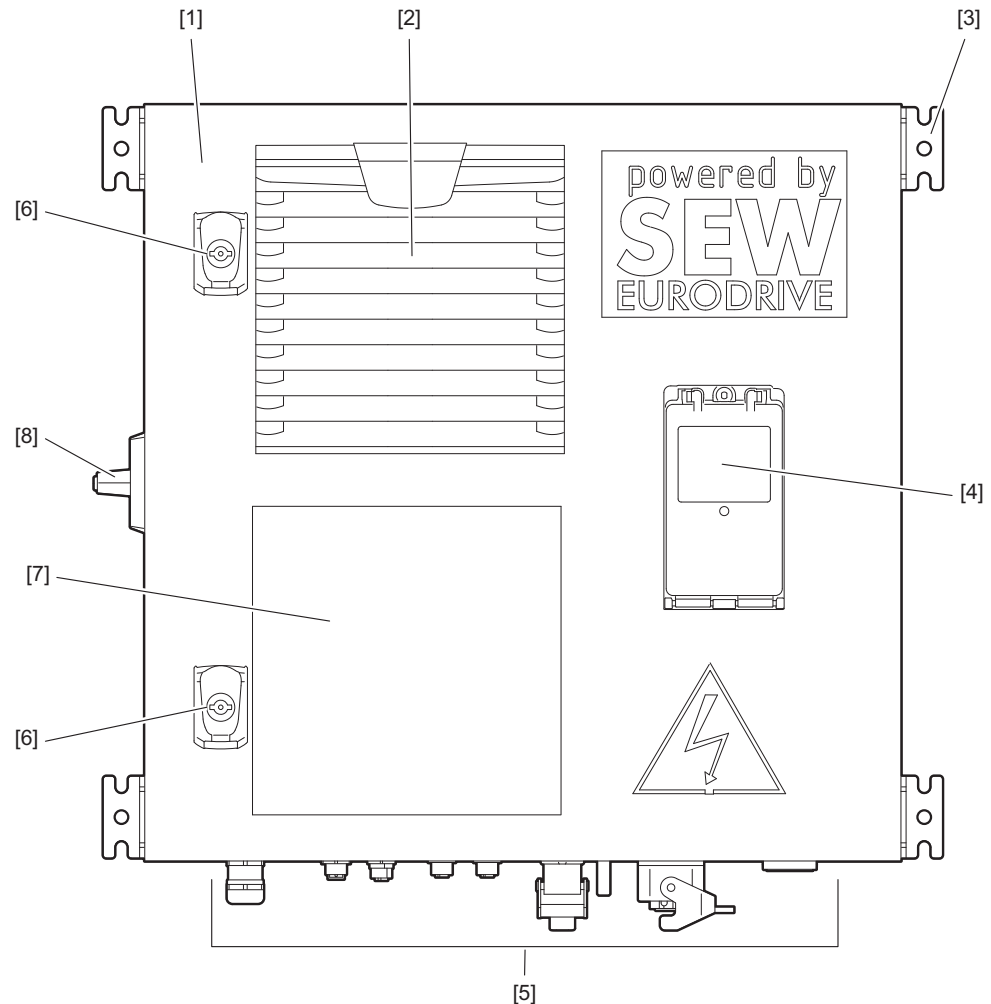
Depending on the device design, the following information is listed on the main nameplate:

Value	Specification
Product type	Product name
Drawing number	EPLAN drawing number
Serial number	Serial number of the control cabinet with MOVIDRIVE® technology
Design	Size and connector configuration of the control cabinet with MOVIDRIVE® technology
Supply voltage	Supply voltage of the frequency inverter
Current / power	Current / power of the frequency inverter
Control voltage	Control voltage of the control cabinet with MOVIDRIVE® technology
Degree of protection	IP degree of protection
Ambient temperature	Temperature range
Brake control	Output voltage of the brake control system
Motor/distance encoder	Voltage supply of the motor/distance encoder
Options	Option cards installed in the frequency inverter

2.2 Device overview

2.2.1 Control cabinet with MOVIDRIVE® technology, size 1

The following figure shows the device structure:



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- [1] Control cabinet housing
- [2] Outlet filter (air outlet)
- [3] Wall bracket
- [4] Operator panel including protection cover
- [5] Interfaces/connections
- [6] Door lock
- [7] Filter fan (air inlet)
- [8] Maintenance switch

2.2.2 Maintenance switch



⚠ WARNING

Electric shock due to dangerous voltage in the control cabinet with MOVIDRIVE® technology.

Severe or fatal injuries can occur.

- Disconnect the control cabinet with MOVIDRIVE® technology from the voltage supply before carrying out any work.
- Observe a minimum switch-off time of 10 minutes after disconnecting the supply voltage.

NOTICE

Increased wear of the switch contacts.

Destruction of the switch contacts.

- Do not operate the maintenance switch under load.

The maintenance switch is used to interrupt the 400 V voltage supply in the control cabinet with MOVIDRIVE® technology and it features a triple locking mechanism. This does not interrupt the external 24 V supply. If the maintenance switch is in the "0" or "OFF" position, the control cabinet with MOVIDRIVE® technology is disconnected from the voltage supply.

2.3 Function unit

2.3.1 Power section

The function unit consists of the following components:

Frequency inverter on MOVIDRIVE® technology platform

The basic design of the frequency inverter controls asynchronous motors. Option cards for the frequency inverter allow for controlling various motor types. The following power ratings are available:

Control cabinet with MOVIDRIVE® technology - size	Power in kW	Current in A	Frequency inverter size
Size 1	0.55	2	MOVIDRIVE® technology size 1
	0.75	2.5	
	1.1	3.2	
	1.5	4	
	2.2	5.5	MOVIDRIVE® technology size 2
	3	7	
	4	9.5	
	5.5	12.5	MOVIDRIVE® technology size 3
	7.5	16	
Size 2	11	24	MOVIDRIVE® technology size 4
	15	32	
Size 3	22	46	MOVIDRIVE® technology size 5

Encoder evaluation option

Motor encoder

You can use the following motor encoders with this device:

Resolver

		Company
RH1M	Built-in encoder, resolver	SEW-EURODRIVE
RH1L		

Incremental encoder

		Company
EG7S	Add-on encoder, Sin/Cos	SEW-EURODRIVE
EG7R	Add-on encoder, RS422	
EG7C	Add-on encoder, TTL to HTL	
EH1C	Add-on encoder, HTL	
EH1S	Add-on encoder, Sin/Cos	
EH1R	Add-on encoder, TTL (RS422)	
EI7S	Built-in encoder, Sin/Cos	
EI7C/EI71/EI72/EI76	Built-in encoder, HTL	
ES7S	Add-on encoder, Sin/Cos	
ES7R	Add-on encoder, TTL (RS422)	
ES7C	Add-on encoder, TTL to HTL	
ES1S/ES2S	Add-on encoder, Sin/Cos	
ES1R/ES2R	Add-on encoder, TTL (RS422)	
ES1C/ES2C	Add-on encoder, HTL	
EV1S	Add-on encoder, Sin/Cos	
EV1R	Add-on encoder, TTL (RS422)	
EV1C	Add-on encoder, HTL	

Depending on the device design, the device also supports incremental encoders with resolver, TTL, HTL, RS422 and sin/cos signals.

Absolute encoder

Asynchronous motors		Company
AS3H/AS4H	Add-on encoder, Sin/Cos	SEW-EURODRIVE
AS7W	Add-on encoder, RS422	
AG7W	Add-on encoder, TTL to HTL	
AS7Y	Add-on encoder, HTL	
AG7Y	Add-on encoder, Sin/Cos	
AV1H	Add-on encoder, TTL (RS422)	
AV6H	Built-in encoder, Sin/Cos	
Synchronous motors		Company
AK0H	Built-in encoder (HIPERFACE®, multi-turn), Sin/Cos	SEW-EURODRIVE
AK1H		
AS1H		
EK0H	Built-in encoder (HIPERFACE®, single-turn), Sin/Cos	
EK1H		
ES1H		

Distance encoder

Depending on the device design, the device also supports incremental encoders with TTL, HTL, RS422 and sin/cos signals.

You can use the following distance encoders with this device:

SSI

		Company
AH7Y	Rotary encoder	SEW-EURODRIVE
AG7Y		
AS7Y		
AV1Y		
AV2Y		
DME3000-x11	Laser distance measuring instrument	Sick/Stegmann
DME4000-x11 0.1 mm		
DME4000-x11 1 mm		
DME5000-x11 0.1 mm		
DME5000-x11 1 mm		
AG100 MSSI	Rotary encoder	
AG626		
ARS60		
ATM60		
ATM90		
POMUX KH53	Linear distance sensor	
BPS37	Barcode measuring system	Leuze-electronic
OMS1 0.1 mm	Laser distance measuring instrument	
OMS1 1 mm		
OMS2 0.1 mm		
AMS200		
BTL5-S112-M1500-P-S32	Linear distance sensor	Balluff
BTL5-S112B-M1500-P-S32		
TR CE58M	Rotary encoder	TR-Electronic
TR CE65M		
TR LA41K	Linear distance sensor	
TR LE100 0.1 mm	Laser distance measuring instrument	
TR LE100 1 mm		
TR LE200 0.1 mm		

		Company
WCS2A-LS311	Barcode distance sensor	Pepperl & Fuchs
WCS3A-LS311		
WCS3B-LS311		
EDM	Laser distance measuring instrument	
VDM100-150 0.1 mm		
VDM100-150 1 mm		
GM 401	Rotary encoder	IVO
Kueb 9081xxxx2003	Rotary encoder	Fritz Kübler
Kueb 9081xxxx2004		
LIMAX2	Linear distance sensor	Elgo
RP 0.005 mm	Linear distance sensor	MTS Sensors
RH 0.005 mm		
RF 0.005 mm		
RD4 0.005 mm		
MSA1000	Linear distance sensor	SIKO

SSI combination encoder

		Company
AVM58X-1212	Rotary encoder	Pepperl & Fuchs
HMG161 S24 H2048	Rotary encoder	Hübner
AMG73 S24 S2048		
AMG83 S24 S2048		
ROQ424	Rotary encoder	Heidenhain

HIPERFACE®

		Company
DME4000-x17	Laser distance measuring instrument	Sick / Stegmann
DME5000-x17		
SKM36	Rotary encoder	
SKS36		
SRM50		
SRM60		
SRM64		
SRS50		
SRS64		
LinCoder L230	Linear distance sensor	

CANopen

		Company
DME4000-x19 0.1 mm	Laser distance measuring instrument	Sick
DME4000-x19 1 mm		
TR CE58M	Rotary encoder	TR-Electronic
TR LE200	Laser distance measuring instrument	
WCS3B-LS410	Barcode distance sensor	Pepperl & Fuchs

EnDaT

		Company
ECN113	Rotary encoder	Heidenhain
ECN1313		
EQN1125		
EQN1325		
EQN425		

Brake control

The brake control system is responsible for the supply and control of SEW-EURODRIVE disk brakes. Only connect approved SEW-EURODRIVE disk brakes to the device.

Inputs/outputs

The device has connections for digital inputs and outputs. Connect the sensors and actuators that are required for your application to the digital inputs and outputs. Each control cabinet with MOVIDRIVE® technology variant has the following inputs and outputs:

Inputs	Outputs
6 digital	2 digital
4 safe	

2.3.2 Communication and control unit

The necessary information about the communication and control unit can be found in the "MOVIDRIVE® technology" product manual.

3 Mechanical installation

NOTICE

Risk of collision.

Damage to plant and device components.

- Always position the device so that it will not collide with other components, design elements or persons along the travel path.

3.1 General information

Note the following for mechanical installation of the control cabinet:

- Pay attention to the information concerning permissible ambient conditions at the place of installation.
- Ensure that the control cabinet with MOVIDRIVE® technology is properly attached with suitable mounting and locking elements.
- Make sure collisions are prevented from occurring with other components along the conveyor line.
- Ensure that the existing display and diagnostic elements are accessible and visible.

Ensure that the housing is secured to prevent tipping and sliding during transport, assembly and disassembly.

3.2 Requirements

The following requirements must be fulfilled for the mechanical installation:

- The information provided in the technical data and the permitted conditions for the operating location of the device are observed.
- The minimum clearances and distances and the gaps that are required when using a mounting plate are complied with, see chapter "Mounting position" (→ 17).
- The device is only mounted using the intended mounting options.
- The selection and dimensioning of the mounting and locking elements are in line with the applicable standards, the technical data of the devices and the local requirements.
- The bore dimensions are calculated in accordance with the respective type of fixture, see chapter "Drilling patterns" (→ 16).
- The mounting and locking elements fit into the provided wall holders.
- All display and actuator elements are visible and accessible after installation.

3.3 Waste heat

Ensure that the filter fan/outlet filter can dissipate heat into the environment by means of free convection.

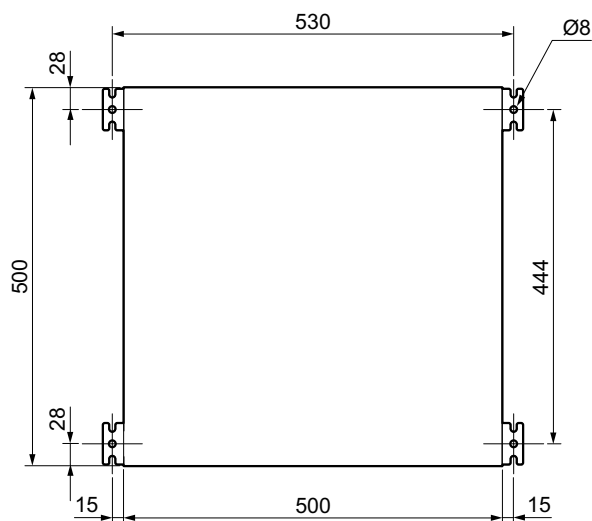
Observe the following notes to ensure an optimized heat convection:

- Use suitable spacers, e.g.:

- Spacers
- Profiles
- Square pipes
- Mounting plates
- T-beams
- Rails
- Ensure that the filter fan/outlet filter is not located in a closed hollow space.
- Avoid heat sources in the immediate proximity of the device.

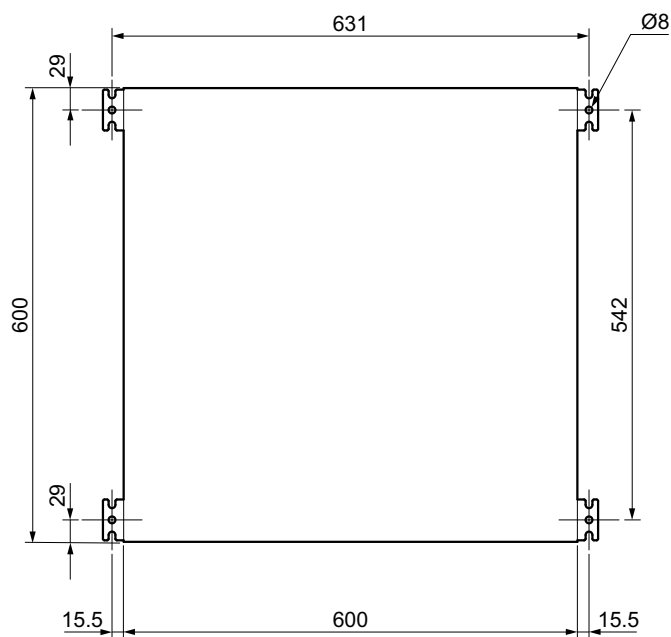
3.4 Drilling patterns

Drilling pattern for control cabinet with MOVIDRIVE® technology size 1:



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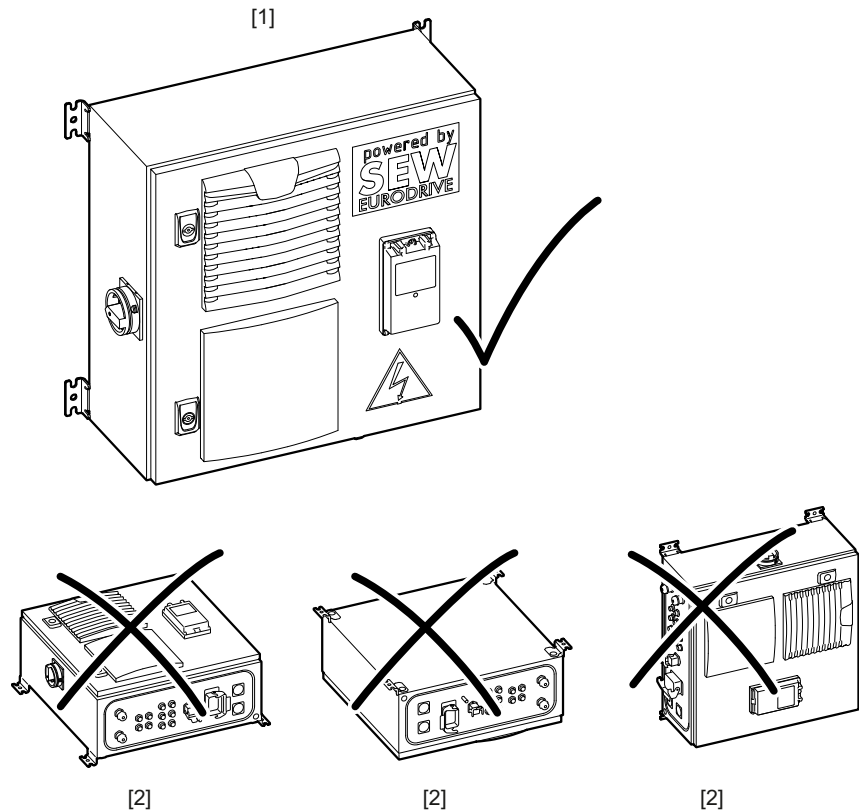
Drilling pattern for control cabinet with MOVIDRIVE® technology size 2 and 3:



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3.5 Mounting position

The following figure shows permitted and not permitted mounting positions:



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- [1] Permitted vertical mounting position
[2] Mounting positions that are not permitted

3.6 Installation clearances

During mechanical installation of the control cabinet, ensure that the following required minimum clearances are adhered to:

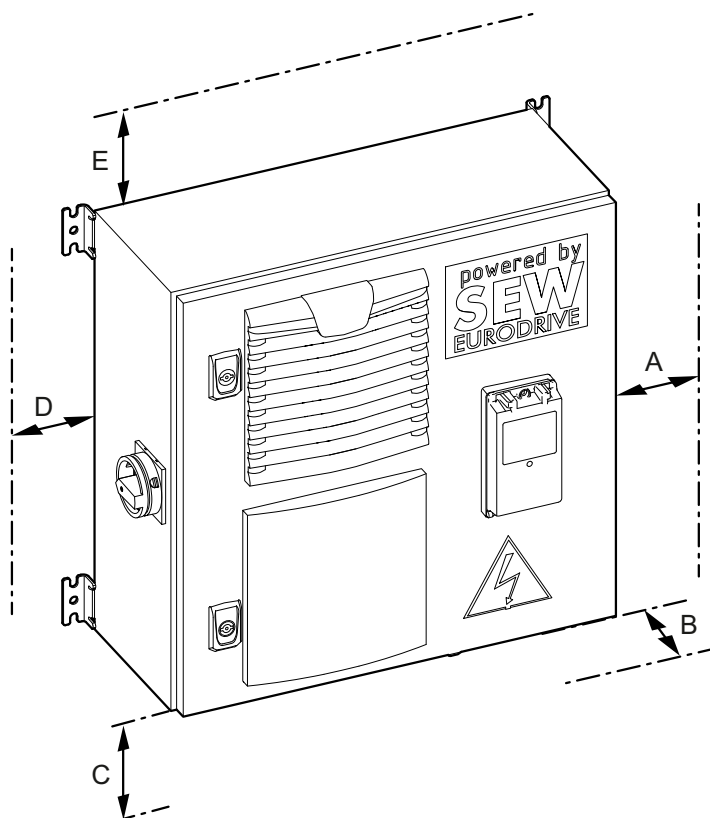
- Cables and plug connectors
- Handling of existing display, diagnostic and control elements
- Heat convection

INFORMATION



Special bending spaces are required according to EN 61800-5-1 for cables with a cross section of 10 mm² and larger. This means the clearance must be increased if required.

The following figure shows the required minimum clearances of the device:



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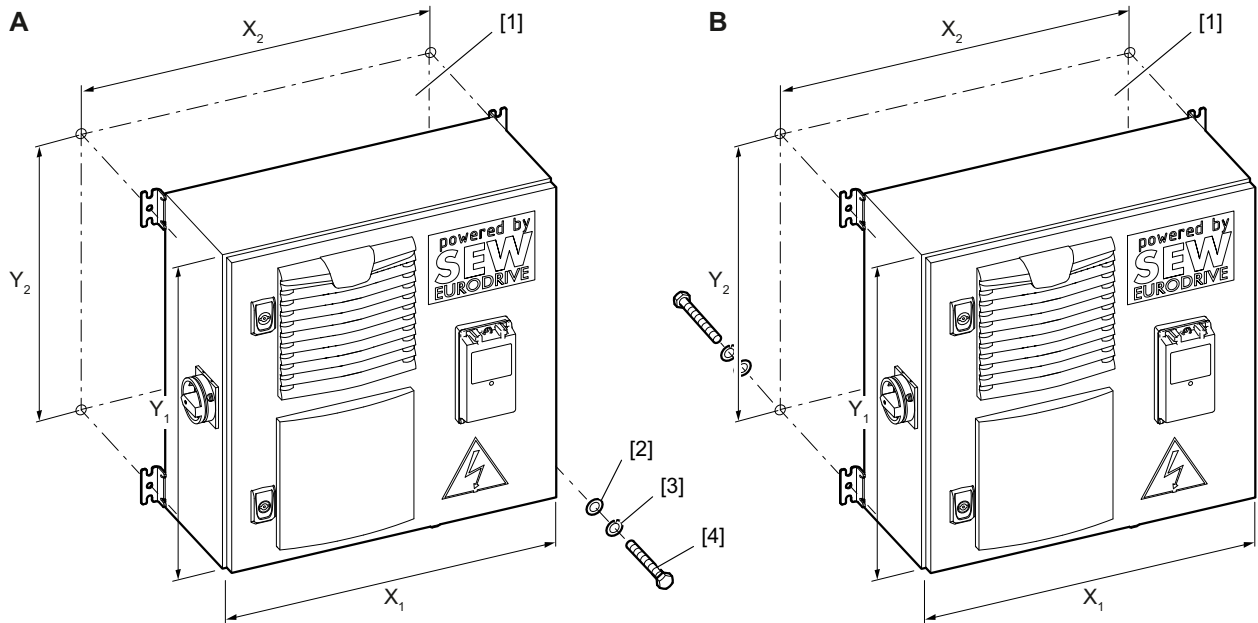
The following table lists the minimum clearances:

Clearance	Function	Size
A: To the side on the right	Room for connection cables, plug connectors, mounted elements, and actuator elements such as maintenance switches	≥ 30 mm
B: Device cover	Room for display, diagnostic and actuator elements, such as the service unit	≥ 700 mm
C: Bottom	Room for connection cables and plug connectors	See dimension drawings in chapter Technical data
D: To the side on the left	Room for optimum heat convection	≥ 200 mm
E: Top	Room for optimum heat convection	≥ 30 mm

3.7 Control cabinet installation

The control cabinet with MOVIDRIVE® technology can be mounted onto a wall or the system/machine using the provided fastenings.

The housing of the control cabinet can be secured using the wall mountings in order to prevent the control cabinet with MOVIDRIVE® technology from tipping over and attached to the system or the machine. Check the screw connections annually. Ensure that the mounting surfaces are level when installing the housing.



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- [1] Mounting surface (e.g. mounting plates)
- [2] Mounting element (e.g. washer)
- [3] Locking elements (e.g. lock washers)
- [4] Mounting elements, M8 screws
- X_1, Y_1 Housing dimensions
- X_2, Y_2 Bore dimensions

4 Electrical installation



⚠ DANGER

Dangerous voltage levels may still be present inside the device and at the terminal strips for up to 10 minutes after the control cabinet has been disconnected from the power supply.

Severe or fatal injuries from electric shock.

To prevent electric shocks:

- Disconnect the control cabinet with MOVIDRIVE® technology from the power supply and wait for 10 minutes before unlocking the door.



⚠ DANGER

A leakage current > 3.5 mA can occur during operation of the control cabinet with MOVIDRIVE® technology.

Severe or fatal injuries from electric shock.

To avoid dangerous shock currents in accordance with EN 61800-5-1, strictly observe the following:

- Supply system cable < 10 mm²:
 - Route a second PE conductor with the cable cross-section of the supply system cable in parallel to the protective earth via separate terminals or use a copper PE conductor with a cable cross-section of 10 mm².
- Supply system cable 10 mm² – 16 mm²:
 - Route a copper PE conductor with the cable cross-section of the supply system cable.
- If a residual current device is used for protection against direct and indirect contact in isolated cases, it must be universal current-sensitive (RCD type B).



INFORMATION

Installation with protective separation.

The control cabinet with MOVIDRIVE® technology fulfills all of the requirements for protective separation of power and electronics connections in accordance with EN 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.

Make yourself familiar with the applicable national accident prevention regulations before you work on a live device.

Perform electrical installation according to the pertinent regulations (e.g. cable cross-sections, fusing, protective conductor connection). The documentation at hand contains additional information.

Ensure that all of the required covers are correctly attached after the electrical installation.

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

4.1 Installation notes

Observe the following points for electrical installation:

- Observe the general safety notes.
- Comply with all instructions referring to the technical data and the permissible conditions where the device is operated.

4.2 Motor types

The device supports the following motor series from SEW-EURODRIVE:

- DRE..
- DRS..
- DRP..
- DRN..
- CM..

4.3 Low-voltage supply systems

The device is suited and allowed for operation in the following systems:

- TN and TT systems with directly grounded star point
- IT systems with non-grounded star point

SEW-EURODRIVE recommends using insulation monitors with pulse-code measurement in this case. The use of such devices prevents the earth-leakage monitor from mis-tripping due to the earth capacitance of the inverter.

No EMC limit values are specified for interference emission in IT systems.

4.4 Protection devices

- Cable protection for the power cable must be implemented using 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.

4.5 UL-compliant installation (in preparation)

UL and cUL approval for the control cabinet with MOVIDRIVE® technology is in preparation.

4.6 Electromagnetic compatibility

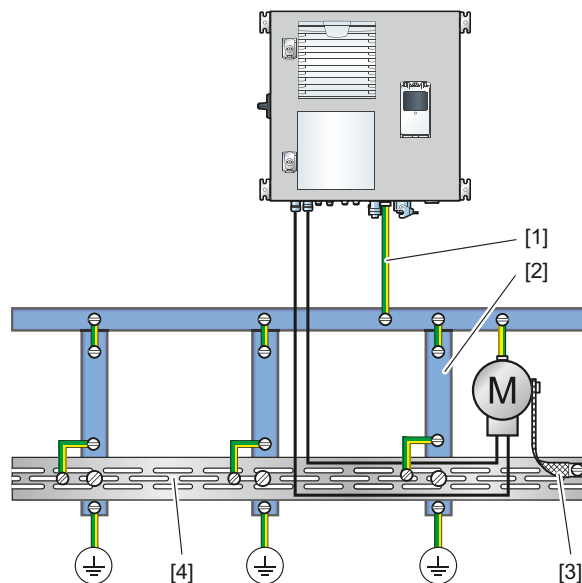
INFORMATION



The device can cause EMC interference within the permitted limit range according to EN 61800-3.

4.6.1 EMC-compliant installation

Ensure that there is a HF-capable equipotential bonding for all drive components. Use low-impedance, HF-capable connectors such as HF litz wire or ground straps. Standard PE does not achieve sufficient equipotential bonding regarding HF and EMC.



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- [1] PE protective earth
- [2] Machine base
- [3] HF litz wire (ground strap)
- [4] Cable duct

4.7 Cable routing

Observe the following when routing the cables:

- Use suitable cables to connect power supply and communication. The connection descriptions can be found in chapter "Electrical connections" (→ 32).
- Route power cables and signal cables in separate cable ducts.
- Maintain the greatest possible distance between power cables and signal cables.
- Avoid using long cables running parallel to one another.

For detailed information on EMC-compliant installation, refer to the publication "Drive Engineering – Practical Implementation: EMC in Drive Engineering".

4.8 Shielding

Observe the following points when shielding:

- Use shielded power and electronics cables.
- Connect the shield and make sure it is grounded over a wide area at both ends. When using cables with multiple shielding, also make sure that the inner shields are grounded over a wide area at both ends.
- Use EMC-capable plug connectors.
- For external bus connections, refer to the bus-specific installation instructions.

4.9 Preventive measures against electrical hazards



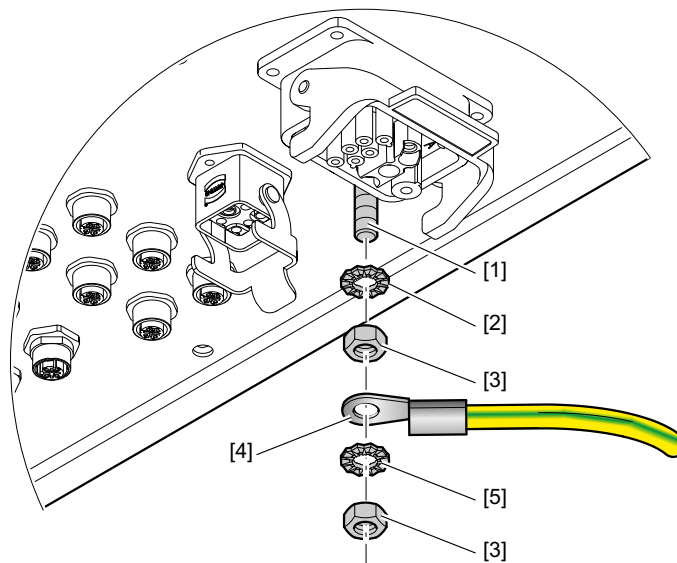
⚠ WARNING

Electric shock due to faulty ground connection or equipotential bonding.

Severe or fatal injuries.

- Make sure to install the ground connection and equipotential bonding correctly.

You have to protect all electrical operating resources, such as the device or the motor, using ground connection or equipotential bonding.



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- [1] Hex head screw
- [2] Contact washer
- [3] Hex nut
- [4] Cable lug with protective earth
- [5] Contact washer

4.10 Use of prefabricated cables

SEW-EURODRIVE uses prefabricated cables for certifications, type tests and approval of the devices. The cables available from SEW-EURODRIVE meet all the requirements necessary for the functions of the device and the connected components. The devices under consideration are always the basic devices including all connected components and corresponding connection cables.

This is why SEW-EURODRIVE recommends to use only the prefabricated cables specified in the documentation.

When using devices with integrated safety functions according to EN ISO 13849, you also have to adhere to all the conditions and requirements for the installation and routing of cables described in the documentation for the devices concerning functional safety.

4.11 Use of third-party cables

If third-party cables are used – even if these cables are technically equivalent – SEW-EURODRIVE will not accept any liability and cannot guarantee compliance with device properties or that the device will function correctly.

If you use third-party cables for connecting the device and connected components, ensure their compliance with applicable national regulations. Note that the technical features of the device or unit network might be affected inadvertently when using third-party cables. This concerns in particular the following properties:

- Mechanical properties (e.g. IP degree of protection, cable carrier suitability)
- Chemical properties (e.g. silicone and halogen free, resistance to substances)
- Thermal properties (e.g. thermal stability, increase in device temperature, flammability class)
- EMC behavior (such as interference emission limit values, compliance with interference immunity values stipulated in standards)
- Functional safety (approvals according to EN ISO 13849-1)

Third-party cables not explicitly recommended by SEW-EURODRIVE must meet at least the requirements of the following standards and have been permitted according to these standards:

- IEC 60309
- IEC 61984
- IEC 60204

4.12 Line components

4.12.1 Residual current device



⚠ WARNING

No protection against electric shock if an incorrect type of residual current device is used.

Severe or fatal injuries can occur.

- Use only universal current sensitive residual current devices of type B for inverters!

- Inverters generate a DC current component in the leakage current and can significantly reduce the sensitivity of a residual current device of type A. A type A residual current device is therefore not permitted as a protection device.
- If using a residual current device is not mandatory according to the standards, SEW-EURODRIVE recommends not to use a residual current device.

4.12.2 Line fuses, fuse types

Install the fuses at the beginning of the supply line behind the supply bus junction.

Line protection types in utilization categories gL, gG:

- Nominal fusing voltage $\geq$ nominal line voltage
- Depending on the frequency inverter utilization, the nominal fusing current must be dimensioned for 100% of the frequency inverter nominal current.

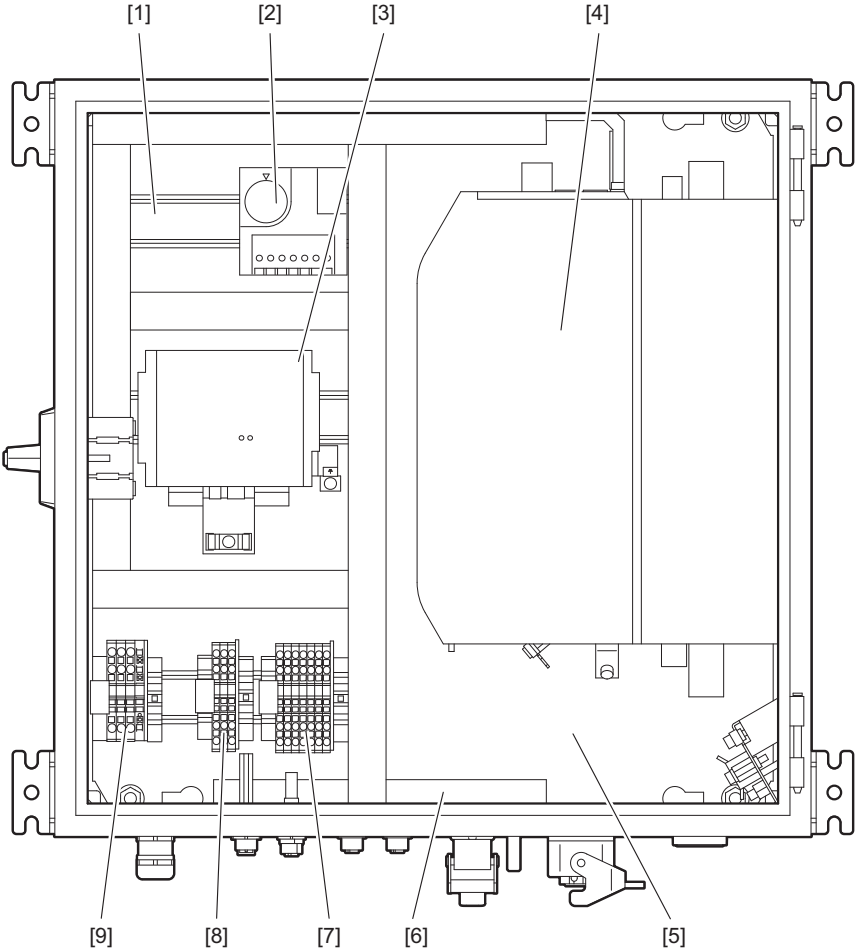
Miniature circuit breaker with characteristics B, C:

- Miniature circuit breaker nominal voltage $\geq$ nominal line voltage
- The nominal current of the miniature circuit breaker must be 10% above the frequency inverter nominal current.

4.12.3 Contactors

Only use contactors in utilization category AC-3 (EN 60947-4-1) as line and braking contactors.

4.13 Terminal assignment



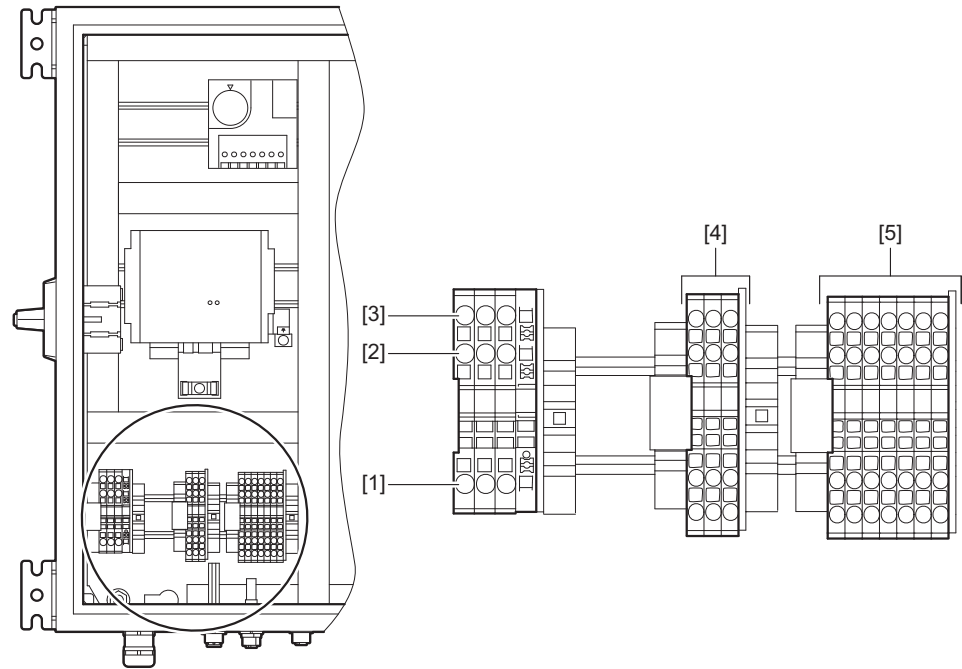
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- [1] Mounting rail
- [2] Control cabinet thermostat
- [3] Safety-related brake module (BST)
- [4] MOVIDRIVE® technology frequency inverter
- [5] Mounting plate
- [6] Cable duct
- [7] Control terminals (internally wired)
- [8] Grounding terminals (internally wired)
- [9] Line terminals X1 (400 V connection)

Terminals X1 are for connecting the supply system cable. Each terminal has three connecting options, which are used for the following purposes:

Connection option	Purpose
400 V IN	Connection of the supply system cable
400 V OUT	Connection of the supply system cable (looping through)
Control cabinet, internal	Frequency inverter voltage supply Prewired (no changes permitted)

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Assignment				
	Terminal	Function	Marking	Name
[1]	X1 Line terminals	Line connection, phase L1 – IN	Brown	L1
		Line connection, phase L2 – IN	Black	L2
		Line connection, phase L3 – IN	Gray	L3
		PE connection – IN	Green/yellow	PE
[2]		Line connection, phase L1 – OUT	Brown	L1
		Line connection, phase L2 – OUT	Black	L2
		Line connection, phase L3 – OUT	Gray	L3
		PE connection – OUT	Green/yellow	PE
[3]		Control cabinet, internal	Brown	L1
			Black	L2
			Gray	L3
			Green/yellow	PE
[4]	Grounding terminals (internally wired)			
[5]	Control terminals (internally wired)			

4.14 Connection blocks

⚠ WARNING

Electric shock when disconnecting or connecting voltage-carrying plug connectors.

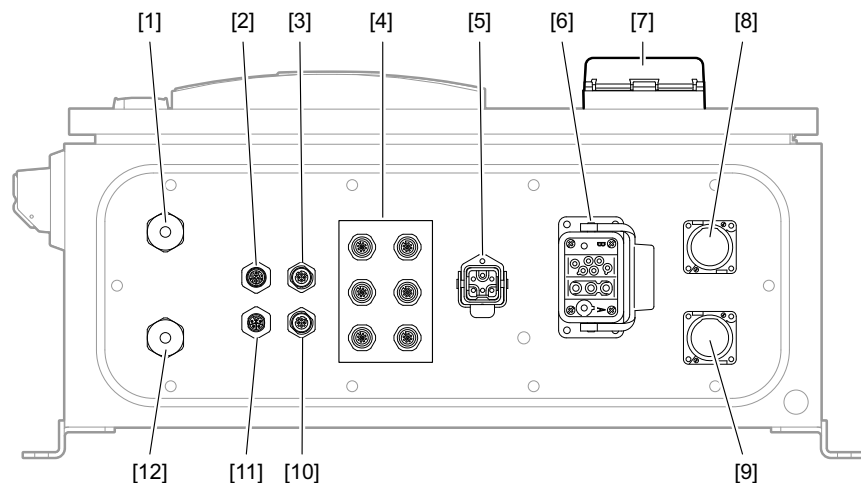
This can result in severe or fatal injuries.

- Disconnect all supply voltages.
- Make sure that the device is de-energized.
- Never plug or unplug the plug connectors while they are energized.

The connection designations for the plug connectors can be found on the connection block. Make sure that the latches of the connections engage after you plugged the plug connectors into the connections.

4.14.1 Size 1 Harting

The following figure shows the connection block of the device:

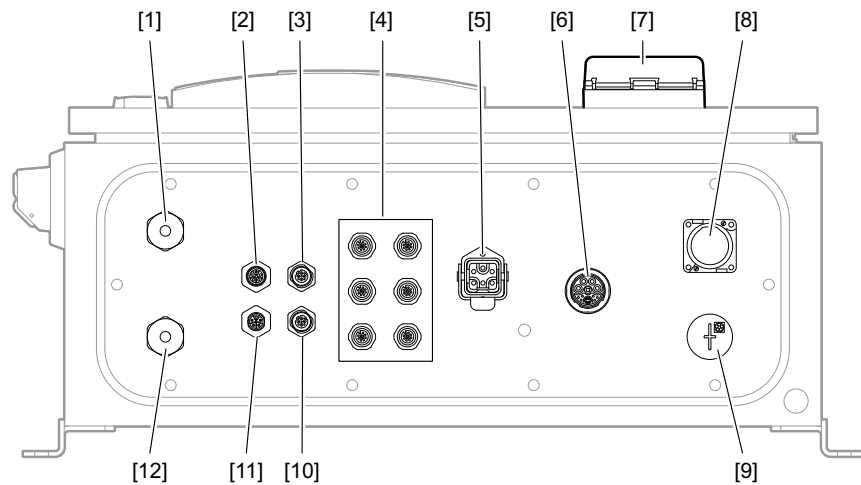


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[1]	400 V OUT screw fitting
[2]	X2313 DC 24 V backup voltage, output
[3]	X4233_2 Fieldbus/Ethernet interface, port 2
[4]	Digital inputs/outputs
[5]	X2301 Braking resistor
[6]	X2012 Motor with brake control
[7]	CBG21A operator panel
[8]	XD2 Distance encoder
[9]	XD1 Motor encoder
[10]	X4233 Fieldbus/Ethernet interface, port 1
[11]	X1523 DC 24 V backup voltage, input
[12]	400 V IN screw fitting

4.14.2 Size 1 M23 with DDI

The following figure shows the connection block of the device:

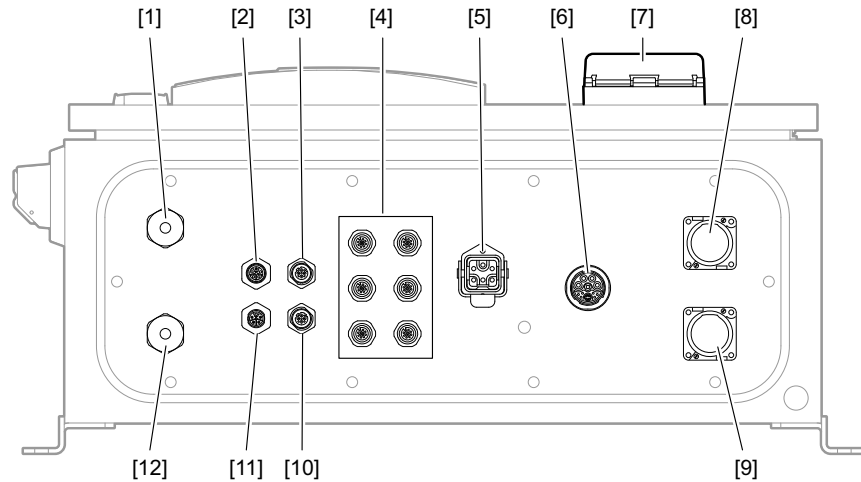


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[1]		400 V OUT screw fitting
[2]	X2313	DC 24 V backup voltage, output
[3]	X4233_2	Fieldbus/Ethernet interface, port 2
[4]		Digital inputs/outputs
[5]	X2301	Braking resistor
[6]	X2104	Inverter output for connecting motors with a digital interface
[7]		CBG21A operator panel
[8]	XD2	Distance encoder
[9]		Filler plug
[10]	X4233	Fieldbus/Ethernet interface, port 1
[11]	X1523	DC 24 V backup voltage, input
[12]		400 V IN screw fitting

4.14.3 Size 1 M23 without DDI

The following figure shows the connection block of the device:

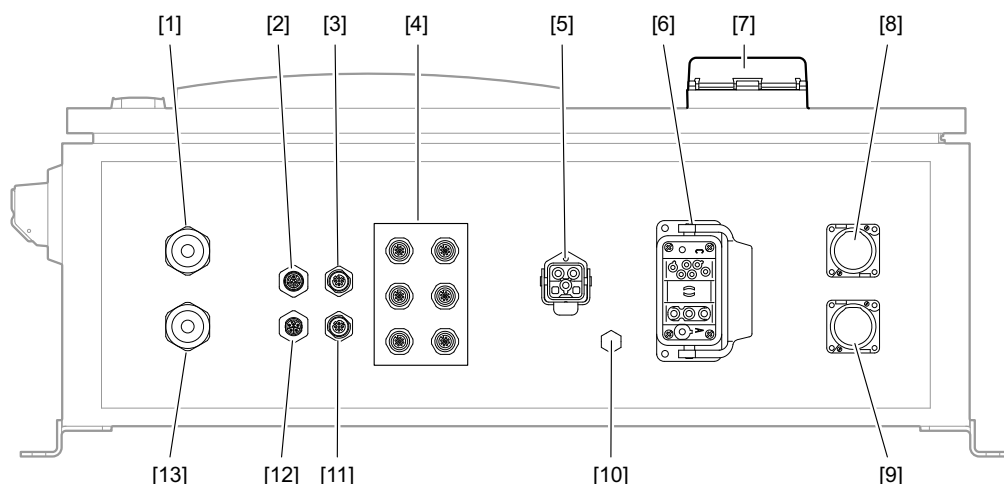


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[1]		400 V OUT screw fitting
[2]	X2313	DC 24 V backup voltage, output
[3]	X4233_2	Fieldbus/Ethernet interface, port 2
[4]		Digital inputs/outputs
[5]	X2301	Braking resistor
[6]	X2041	Inverter output for connecting motors without digital interface
[7]		CBG21A operator panel
[8]	XD2	Distance encoder
[9]	XD1	Motor encoder
[10]	X4233	Fieldbus/Ethernet interface, port 1
[11]	X1523	DC 24 V backup voltage, input
[12]		400 V IN screw fitting

4.14.4 Size 2 / size 3 Harting

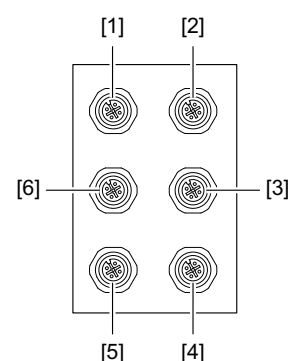
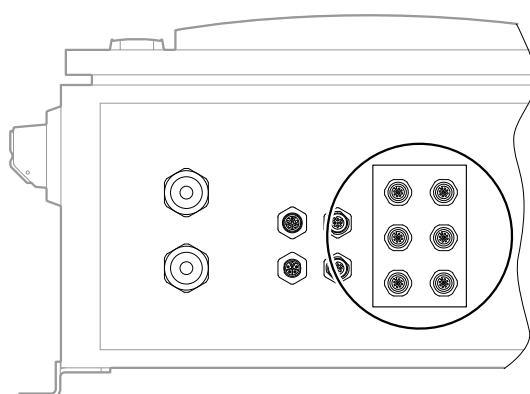
The following figure shows the connection block of the device:



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- | | |
|------|---|
| [1] | 400 V OUT screw fitting |
| [2] | X2313 DC 24 V backup voltage, output |
| [3] | X4233_2 Fieldbus/Ethernet interface, port 2 |
| [4] | Digital inputs/outputs |
| [5] | X2303 Braking resistor |
| [6] | X2016 Motor with brake control |
| [7] | CBG21A operator panel |
| [8] | XD2 Distance encoder |
| [9] | XD1 Motor encoder |
| [10] | PE connection |
| [11] | X4233 Fieldbus/Ethernet interface, port 1 |
| [12] | X1523 DC 24 V backup voltage, input |
| [13] | 400 V IN screw fitting |

4.14.5 Digital inputs/outputs



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- | | |
|-----|---|
| [1] | X5601_1 Digital inputs – safety-related |
| [2] | X5601_2 Digital inputs – safety-related |
| [3] | X5102 Digital outputs |
| [4] | X5133_2 Digital inputs |
| [5] | X5133_1 Digital inputs |
| [6] | X5133_3 Digital inputs |

4.15 Electrical connections

4.15.1 Representation of connections

The wiring diagrams show the contact end of the connections.

4.15.2 Connection cable



INFORMATION

For more information about cable types, see chapter Technical data.

Connection cables are not included in the scope of delivery. Prefabricated cables for connecting SEW-EURODRIVE components are available to order. For each connection, the available prefabricated cables are listed. Specify the part number and length of the required cable in your order.

The quantity and design of the required connection cables depend on the design of the devices and the components to be connected. This is why you do not need all listed cables.

Cable types

The table below shows the depictions used and what they mean:

Depiction	Meaning
	Fixed length
	Variable length
	Suitable for cable carriers
	Not suitable for cable carriers

4.15.3 Cable design

Diagram

The following table shows the cable structure based on an example:

Depiction	Meaning
(	Cable shield
4	Number of conductor pairs (in twisted cables only)
X	
2	Number of conductors
X	G - with green-yellow protective earth X - without protective earth
0.25	Conductor cross section in mm ²
)	Cable shield
+	A plus sign is added to conductors with other features.
...	

Example

The following examples illustrate the cable structure:

- **3G1.5:**
Cable with 3 conductors of 1.5 mm² each, one of which is a green-yellow protective earth
- **((2X2X0.25)+4G2.5):**
Shielded hybrid cable with
 - 4 twisted-pair cables of 0.25 mm² each, shielded, and
 - 4 power cores of 2.5 mm² each, one of which is a green-yellow protective earth.

4.15.4 X2012: Motor with brake control

INFORMATION



To avoid damage or malfunction of the drive system, do not use motors with built-in brake rectifier in conjunction with this product.

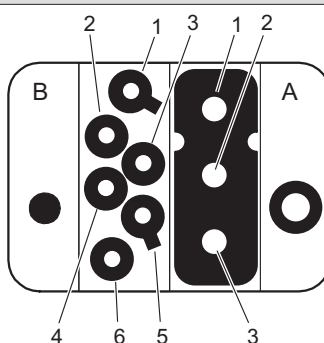
Function

Power connection for motor with brake up to 7.5 kW

Connection type

Han-Modular® 6 B, female, 1 locking latch

Connection diagram



[A] Han® C module, female

No.	Name	Function
1	U	Motor phase U output
2	V	Motor phase V output
3	W	Motor phase W output

[B] Han® E protected module, female

No.	Name	Function
1	TF/TH/KTY+ ¹⁾	Motor temperature sensor (+)
2	15	Brake terminal 15 (blue)
3	13	Brake terminal 13 (red)
4	14	Brake terminal 14 (white)
5	n.c.	Not connected
6	TF/TH/KTY- ¹⁾	Motor temperature sensor (-)

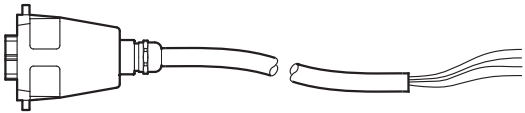
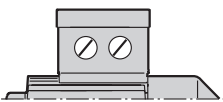
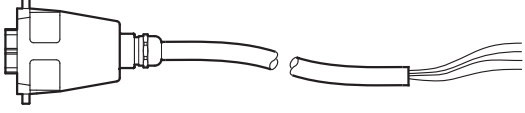
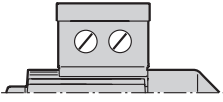
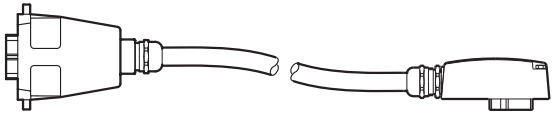
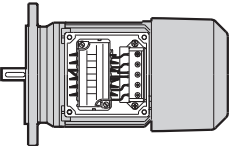
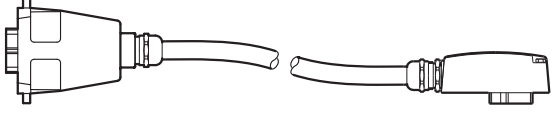
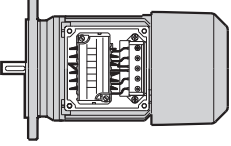
1) You must observe the specifications in chapter "Technical data" regarding the permitted temperature sensors (TF, TH or KTY).

Hinged frame

No.	Name	Function
—	PE	PE connection

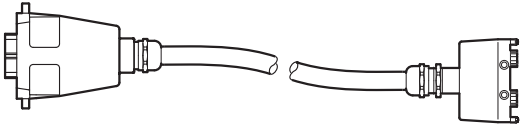
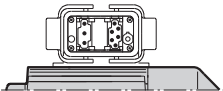
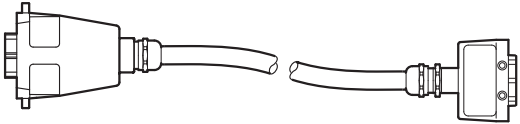
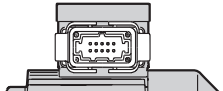
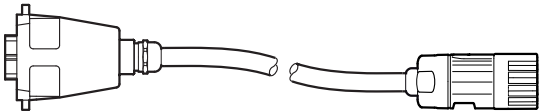
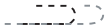
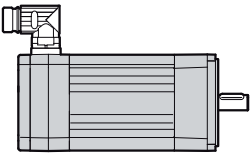
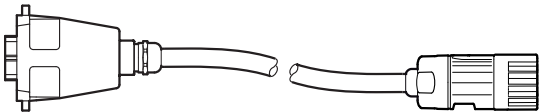
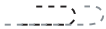
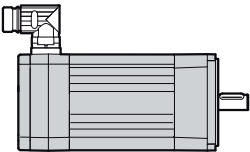
Connection cable

4 kW device power IEC

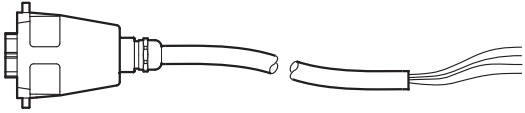
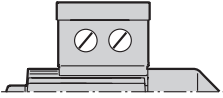
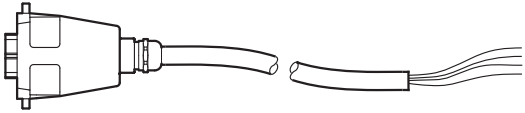
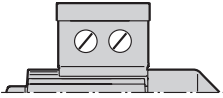
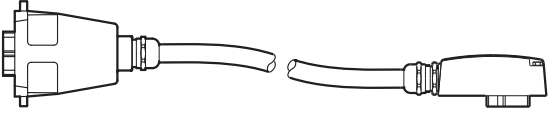
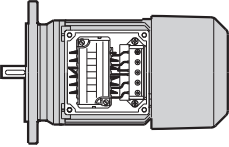
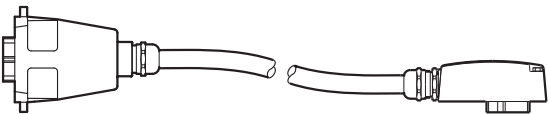
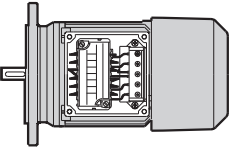
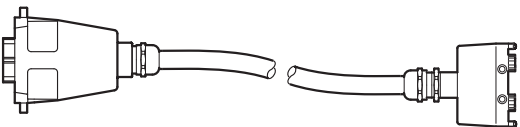
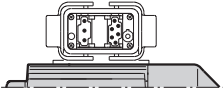
Cable	Length/installation type	Type	Component
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Part number: 18118143 Cable design: 4G1.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/1.5	DRN112 DRL112 – 132 
Part number: 18118178 人 Cable design: 4G1.5  Han® 6 B ↔ IS 人	Variable length 	D/1.5	DRN80 – 132 人 DRL71 – 132 人 
Part number: 18118151 △ Cable design: 4G1.5  Han® 6 B ↔ IS △	Variable length 	D/1.5	DRN80 – 132 △ DRL71 – 132 △ 

4 Electrical installation

Electrical connections

Cable	Length/installation type	Type	Component
Part number: 18118186 Cable design: 4G1.5  Han® 6 B ↔ ABB8	Variable length 	D/1.5	DRN80 – 112 DRL71 – 132 
Part number: 18118194 Cable design: 4G1.5  Han® 6 B ↔ ASB8	Variable length 	D/1.5	DRN80 – 112 DRL71 – 132 
Part number: 18122027 Cable design: 4G1.5  Han® 6 B ↔ SB11	Variable length 	E/1.5	CMP63 – 80 
Part number: 18110525 Cable design: 4G2.5  Han® 6 B ↔ SB12	Variable length 	E/2.5	CMP63 – 80 

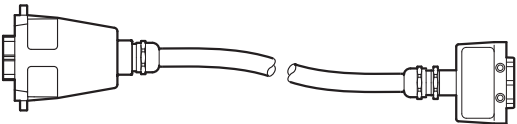
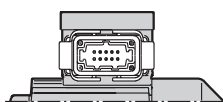
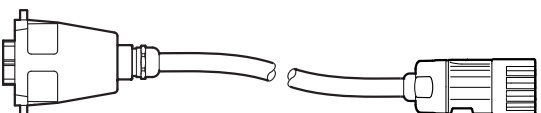
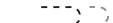
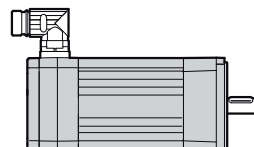
4 kW device power UL

Cable	Length/installation type	Type	Component
Part number: 18108334 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M4)	Variable length 	D/2.5	DRN80 – 100 DRL71 – 100 
Part number: 18108342 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/2.5	DRN112 DRL112 – 132 
Part number: 18108326  Cable design: 4G2.5  Han® 6 B ↔ IS 	Variable length 	D/2.5	DRN80 – 112  DRL71 – 100  
Part number: 18108318  Cable design: 4G2.5  Han® 6 B ↔ IS 	Variable length 	D/2.5	DRN80 – 112  DRL71 – 100  
Part number: 18108245 Cable design: 4G2.5  Han® 6 B ↔ ABB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 

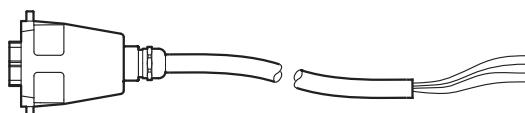
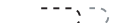
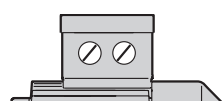
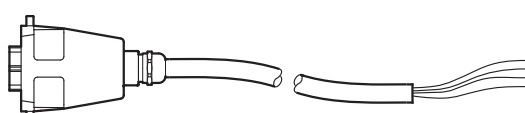
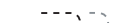
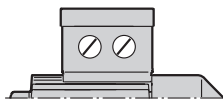
26874946/EN – 05/2021

4 Electrical installation

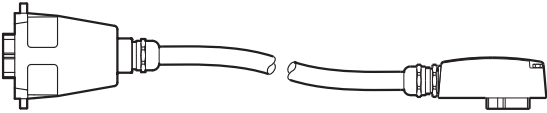
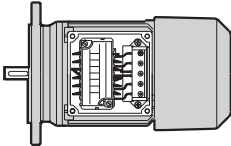
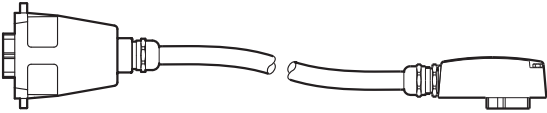
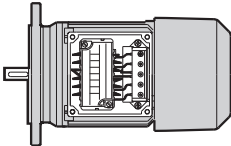
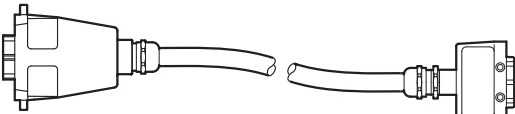
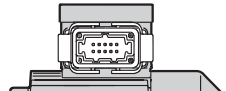
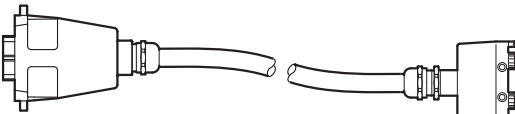
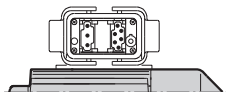
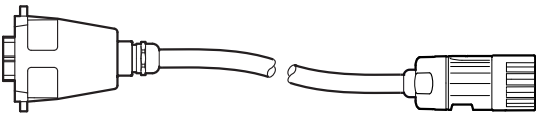
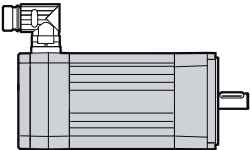
Electrical connections

Cable	Length/installation type	Type	Component
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Part number: 18110525 Cable design: 4G2.5  Han® 6 B ↔ SB12	Variable length 	E/2.5	CMP63 – 80 

7.5 kW device power IEC

Cable	Length/installation type	Type	Component
Part number: 18108334 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M4)	Variable length 	D/2.5	DRN80 – 100 DRL71 – 100 
Part number: 18108342 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/2.5	DRN112 DRL112 – 132 

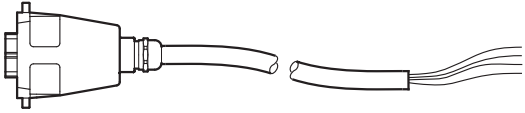
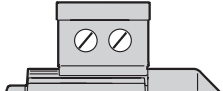
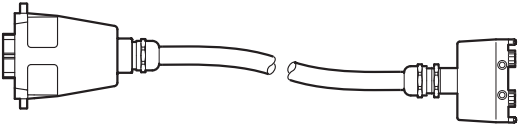
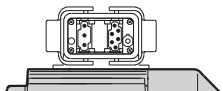
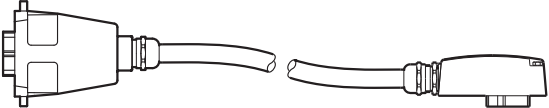
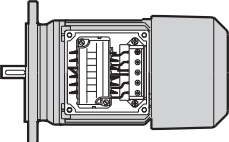
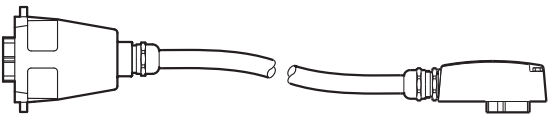
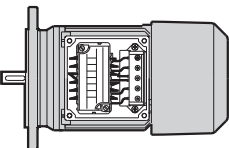
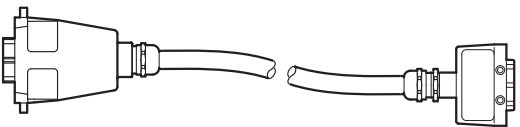
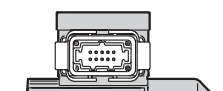
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Cable	Length/installation type	Type	Component
Part number: 18108318 △ Cable design: 4G2.5  Han® 6 B ↔ IS △	Variable length 	D/2.5	DRN80 – 112 △ DRL71 – 100 △ 
Part number: 18108326 人 Cable design: 4G2.5  Han® 6 B ↔ IS 人	Variable length 	D/2.5	DRN80 – 112 人 DRL71 – 100 人 
Part number: 18108202 Cable design: 4G2.5  Han® 6 B ↔ ASB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 
Part number: 18108245 Cable design: 4G2.5  Han® 6 B ↔ ABB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 
Part number: 18122035 Cable design: 4G4  Han® 6 B ↔ SB14	Variable length 	E/4.0	CMP63 – 100 

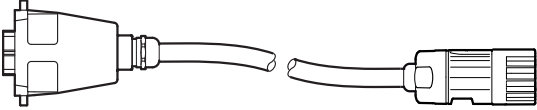
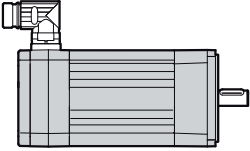
4 Electrical installation

Electrical connections

7.5 kW device power UL

Cable	Length/installation type	Type	Component
Part number: 18120601 Cable design: 4G4  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/4.0	DRN112 – 132 DRL112 – 132 
Part number: 18120628 Cable design: 4G4  Han® 6 B ↔ ABB8	Variable length 	D/4.0	DRN80 – 132 DRL71 – 90 
Part number: 18121276 △ Cable design: 4G4  Han® 6 B ↔ IS △	Variable length 	D/4.0	DRN80 – 132 △ DRL71 – 90 △ 
Part number: 18121284 人 Cable design: 4G4  Han® 6 B ↔ IS 人	Variable length 	D/4.0	DRN80 – 132 人 DRL71 – 90 人 
Part number: 18120636 Cable design: 4G4  Han® 6 B ↔ ASB8	Variable length 	D/4.0	DRN80 – 132 DRL71 – 90 

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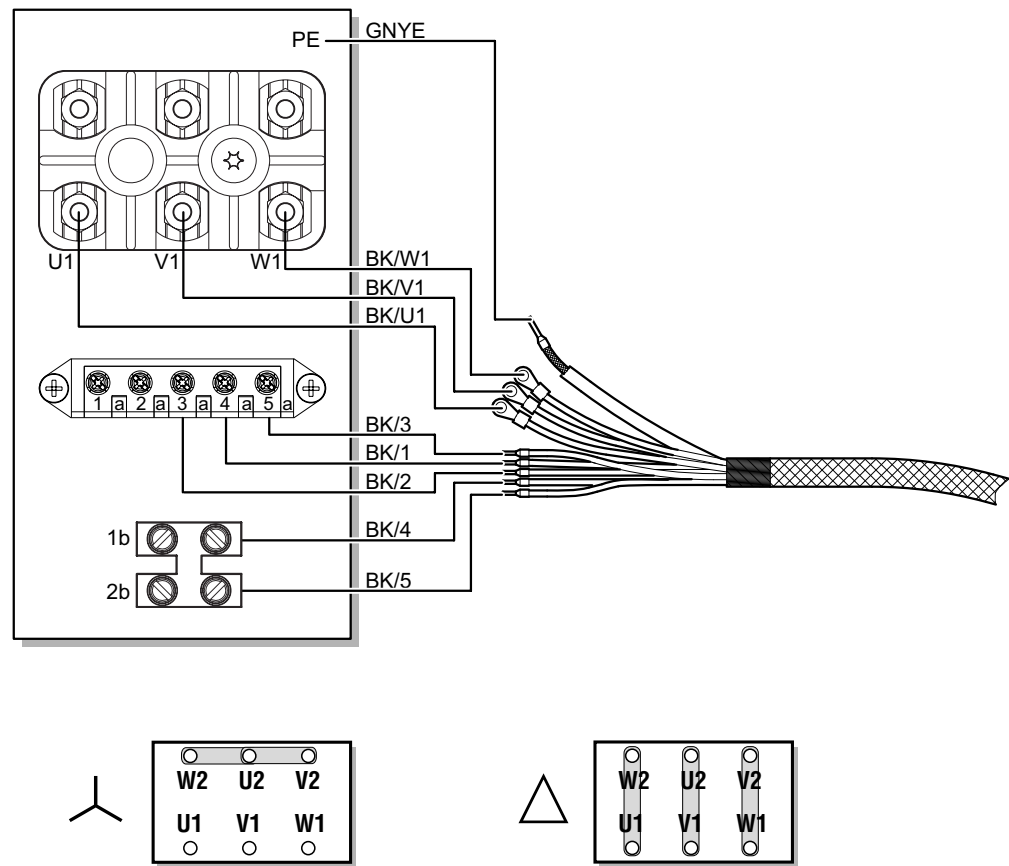
Cable	Length/installation type	Type	Component
Part number: 18122035 Cable design: 4G4  Han® 6 B ↔ SB14	Variable length 	E/4.0	CMP63 – 100 

Conductor assignment

Part number	Motor terminal DR.. motor	Color coding	Hybrid cable designation	Connection device
18108334 18108342 18118135 18118143 18120601	U1	Black	U1	Motor phase U
	V1	Black	V1	Motor phase V
	W1	Black	W1	Motor phase W
	4a	Black	1	Brake 13 (red)
	3a	Black	2	Brake 14 (white)
	5a	Black	3	Brake 15 (blue)
	1b	Black	4	TF/TH +
	2b	Black	5	TF/TH -
	PE connection	Green-yellow + shield end (Inner shield)		PE

Connecting the hybrid cable

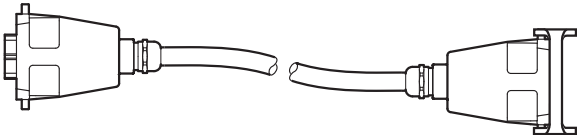
The following figure shows the connection of the hybrid cable to the terminal box of the motor. Also observe the wiring diagram of the respective motor.



18014401328186635

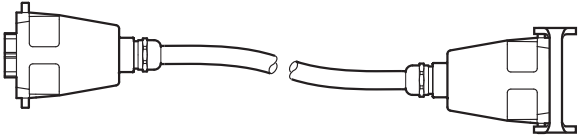
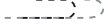
Extension cable

4 kW device power IEC/UL

Cable	Length/installation type	Type	Component
Part number: 18157475 Cable design: 4G6  Han® 6 B ↔ Han® 6 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 6B

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7.5 kW device power IEC/UL

Cable	Length/installation type	Type	Component
Part number: 18157475 Cable design: 4G6  Han® 6 B ↔ Han® 6 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 6B

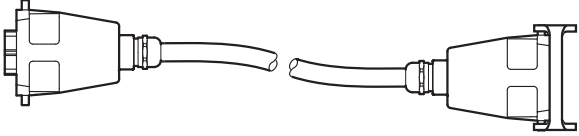
Phase reversal cable

INFORMATION

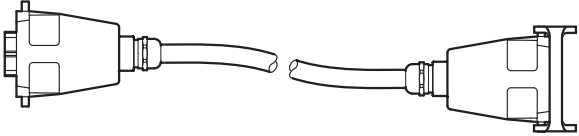


If you are using an encoder, note that you also need an encoder signal reversal cable in addition to the phase reversal cable. For more information about encoder signal reversal cables, refer to the description of the encoder connection.

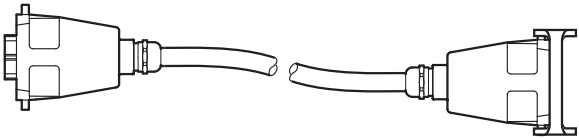
4 kW device power IEC/UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18113737 Cable design: 4G2.5  Han® 6 B ↔ Han® 6 B	Fixed length 	D/2.5	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

7.5 kW device power IEC

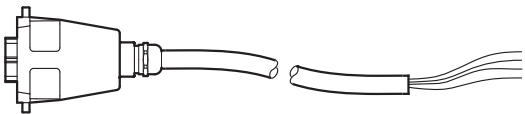
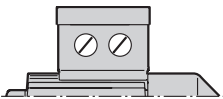
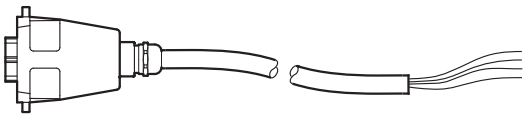
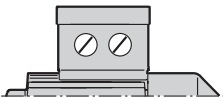
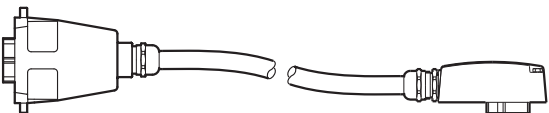
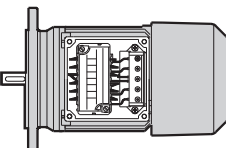
Cable	Length/installation type	Type	Wiring diagram
Part number: 18113737 Cable design: 4G2.5  Han® 6 B ↔ Han® 6 B	Fixed length 	D/2.5	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

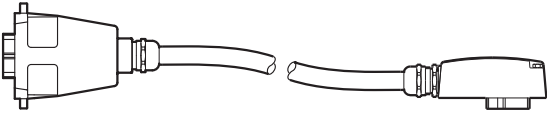
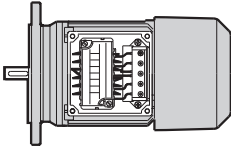
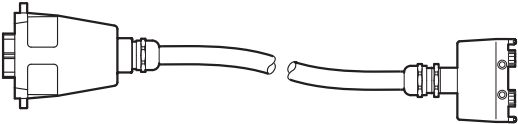
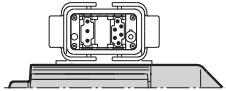
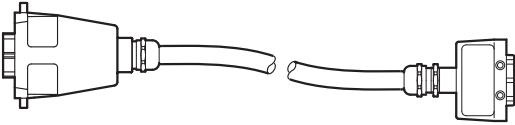
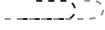
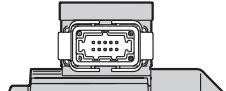
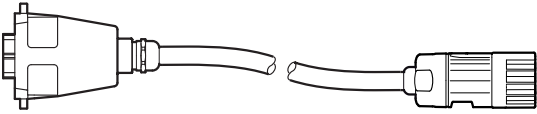
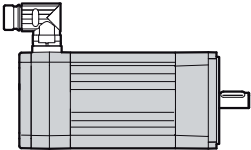
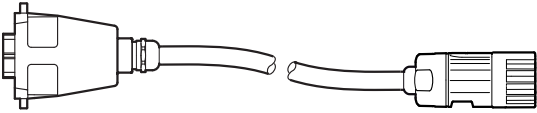
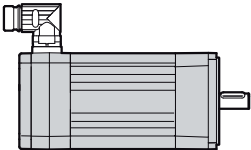
7.5 kW device power UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18122000 Cable design: 4G6  Han® 6 B ↔ Han® 6 B	Fixed length 	D/6.0	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

Connection cables

2.2 kW/4 kW device power IEC

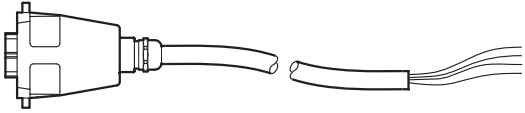
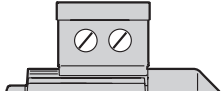
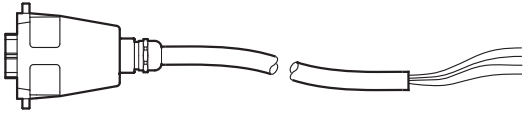
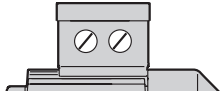
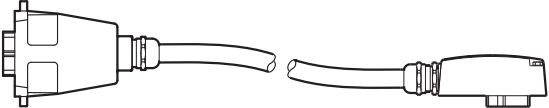
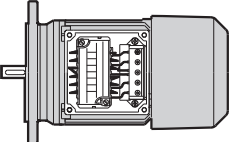
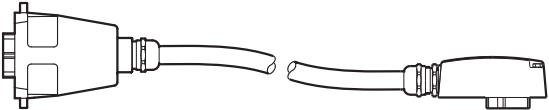
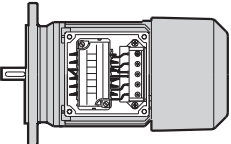
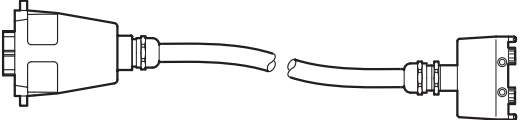
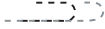
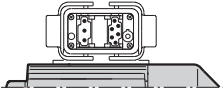
Cable	Length/installation type	Type	Component
Part number: 18118135 Cable design: 4G1.5  Han® 6 B ↔ open (terminal box connection M4)	Variable length 	D/1.5	DRN80 – 100 DRL71 – 100 
Part number: 18118143 Cable design: 4G1.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/1.5	DRN112 DRL112 – 132 
Part number: 18118178 人 Cable design: 4G1.5  Han® 6 B ↔ IS 人	Variable length 	D/1.5	DRN80 – 132 人 DRL71 – 132 人 

Cable	Length/installation type	Type	Component
Part number: 18118151 △ Cable design: 4G1.5  Han® 6 B ↔ IS △	Variable length 	D/1.5	DRN80 – 132 △ DRL71 – 132 △ 
Part number: 18118186 Cable design: 4G1.5  Han® 6 B ↔ ABB8	Variable length 	D/1.5	DRN80 – 112 DRL71 – 132 
Part number: 18118194 Cable design: 4G1.5  Han® 6 B ↔ ASB8	Variable length 	D/1.5	DRN80 – 112 DRL71 – 132 
Part number: 18122027 Cable design: 4G1.5  Han® 6 B ↔ SB11	Variable length 	E/1.5	CMP63 – 80 
Part number: 18110525 Cable design: 4G2.5  Han® 6 B ↔ SB12	Variable length 	E/2.5	CMP63 – 80 

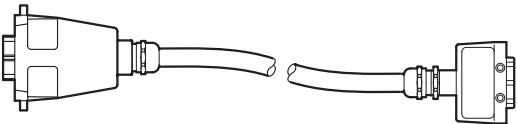
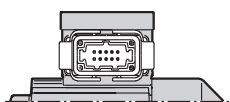
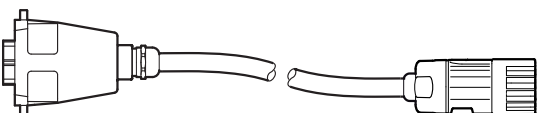
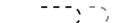
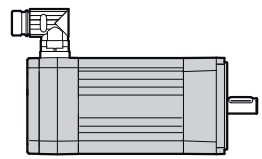
4 Electrical installation

Electrical connections

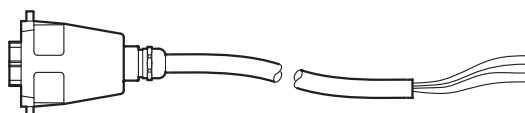
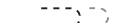
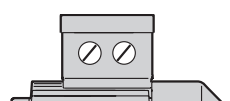
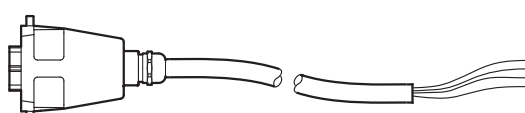
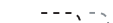
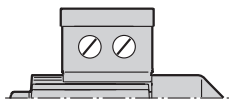
2.2 kW/4 kW device power UL

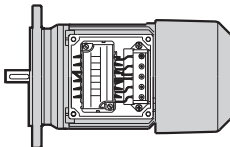
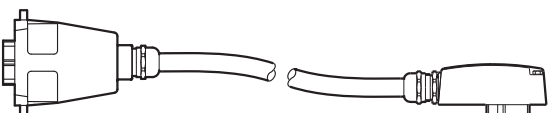
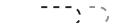
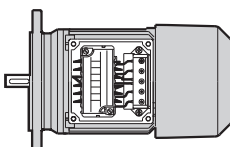
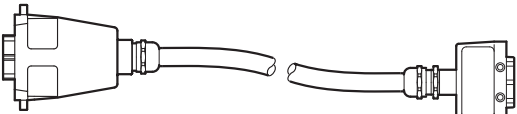
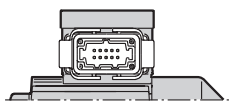
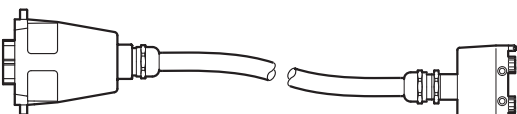
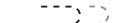
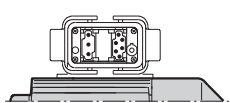
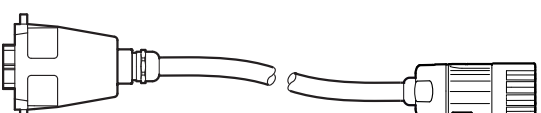
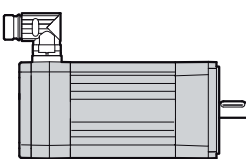
Cable	Length/installation type	Type	Component
Part number: 18108334 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M4)	Variable length 	D/2.5	DRN80 – 100 DRL71 – 100 
Part number: 18108342 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/2.5	DRN112 DRL112 – 132 
Part number: 18108326  Cable design: 4G2.5  Han® 6 B ↔ IS 	Variable length 	D/2.5	DRN80 – 112  DRL71 – 100  
Part number: 18108318  Cable design: 4G2.5  Han® 6 B ↔ IS 	Variable length 	D/2.5	DRN80 – 112  DRL71 – 100  
Part number: 18108245 Cable design: 4G2.5  Han® 6 B ↔ ABB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 

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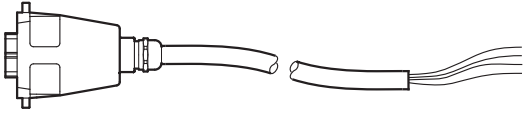
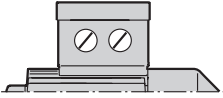
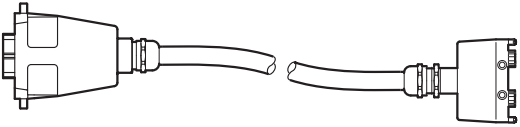
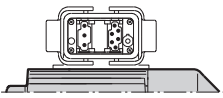
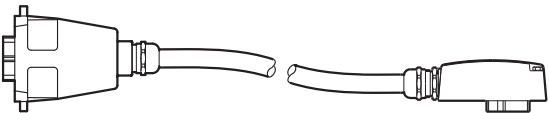
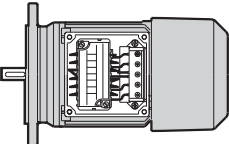
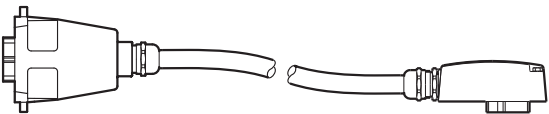
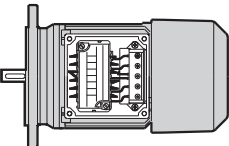
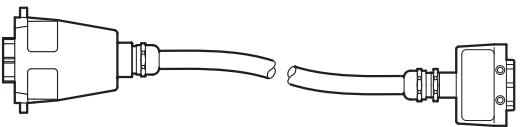
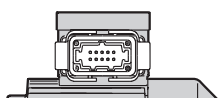
Cable	Length/installation type	Type	Component
Part number: 18108202 Cable design: 4G2.5  Han® 6 B ↔ ASB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 
Part number: 18110525 Cable design: 4G2.5  Han® 6 B ↔ SB12	Variable length 	E/2.5	CMP63 – 80 

7.5 kW device power IEC

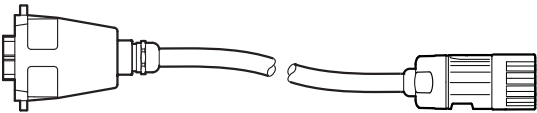
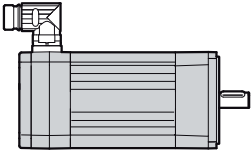
Cable	Length/installation type	Type	Component
Part number: 18108334 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M4)	Variable length 	D/2.5	DRN80 – 100 DRL71 – 100 
Part number: 18108342 Cable design: 4G2.5  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/2.5	DRN112 DRL112 – 132 

Cable	Length/installation type	Type	Component
Part number: 18108318 △ Cable design: 4G2.5  Han® 6 B ↔ IS △	Variable length 	D/2.5	DRN80 – 112 △ DRL71 – 100 △ 
Part number: 18108326 人 Cable design: 4G2.5  Han® 6 B ↔ IS 人	Variable length 	D/2.5	DRN80 – 112 人 DRL71 – 100 人 
Part number: 18108202 Cable design: 4G2.5  Han® 6 B ↔ ASB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 
Part number: 18108245 Cable design: 4G2.5  Han® 6 B ↔ ABB8	Variable length 	D/2.5	DRN80 – 112 DRL71 – 100 
Part number: 18122035 Cable design: 4G4  Han® 6 B ↔ SB14	Variable length 	E/4.0	CMP63 – 100 

7.5 kW device power UL

Cable	Length/installation type	Type	Component
Part number: 18120601 Cable design: 4G4  Han® 6 B ↔ open (terminal box connection M5)	Variable length 	D/4.0	DRN112 – 132 DRL112 – 132 
Part number: 18120628 Cable design: 4G4  Han® 6 B ↔ ABB8	Variable length 	D/4.0	DRN80 – 132 DRL71 – 90 
Part number: 18121276 △ Cable design: 4G4  Han® 6 B ↔ IS △	Variable length 	D/4.0	DRN80 – 132 △ DRL71 – 90 △ 
Part number: 18121284 人 Cable design: 4G4  Han® 6 B ↔ IS 人	Variable length 	D/4.0	DRN80 – 132 人 DRL71 – 90 人 
Part number: 18120636 Cable design: 4G4  Han® 6 B ↔ ASB8	Variable length 	D/4.0	DRN80 – 132 DRL71 – 90 

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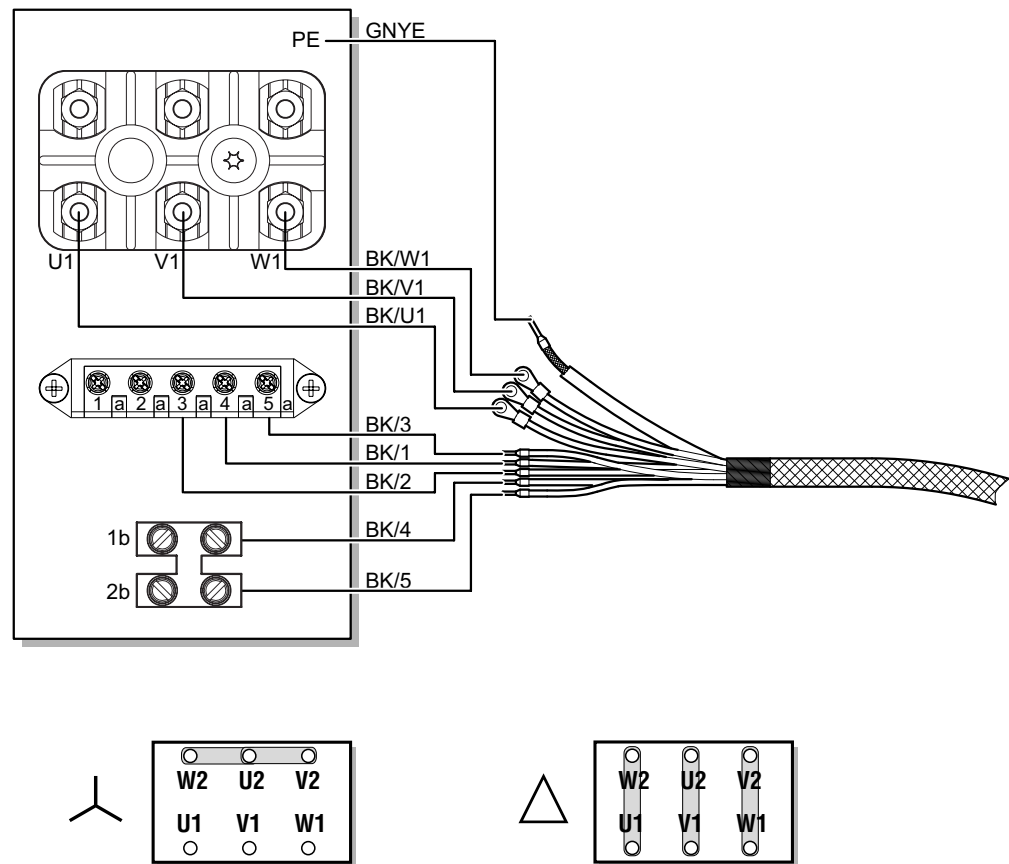
Cable	Length/installation type	Type	Component
Part number: 18122035 Cable design: 4G4  Han® 6 B ↔ SB14	Variable length 	E/4.0	CMP63 – 100 

Conductor assignment

Part number	Motor terminal DR.. motor	Color coding	Hybrid cable designation	Connection device
18108334 18108342 18118135 18118143 18120601	U1	Black	U1	Motor phase U
	V1	Black	V1	Motor phase V
	W1	Black	W1	Motor phase W
	4a	Black	1	Brake 13 (red)
	3a	Black	2	Brake 14 (white)
	5a	Black	3	Brake 15 (blue)
	1b	Black	4	TF/TH +
	2b	Black	5	TF/TH -
	PE connection	Green-yellow + shield end (Inner shield)		PE

Connecting the hybrid cable

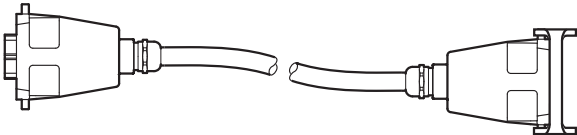
The following figure shows the connection of the hybrid cable to the terminal box of the motor. Also observe the wiring diagram of the respective motor.



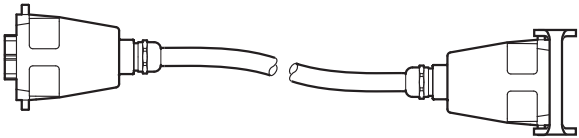
18014401328186635

Extension cable

2.2 kW/4 kW device power IEC/UL

Cable	Length/installation type	Type	Component
Part number: 18157475 Cable design: 4G6  Han® 6 B ↔ Han® 6 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 6B

7.5 kW device power IEC/UL

Cable	Length/installation type	Type	Component
Part number: 18157475 Cable design: 4G6  Han® 6 B ↔ Han® 6 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 6B

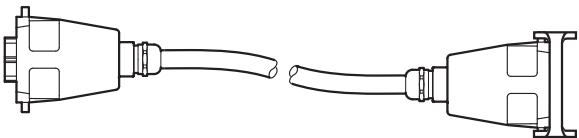
Phase reversal cable

INFORMATION

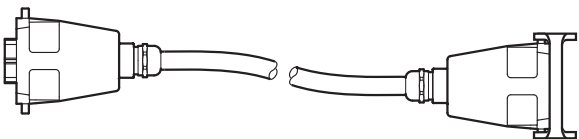
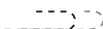


If you are using an encoder, note that you also need an encoder signal reversal cable in addition to the phase reversal cable. For more information about encoder signal reversal cables, refer to the description of the encoder connection.

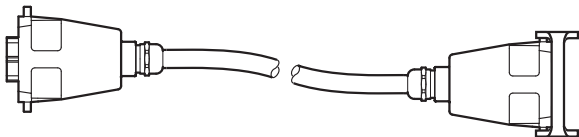
2.2 kW/4 kW device power IEC/UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18113737 Cable design: 4G2.5  Han® 6 B ↔ Han® 6 B	Fixed length 	D/2.5	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

7.5 kW device power IEC

Cable	Length/installation type	Type	Wiring diagram
Part number: 18113737 Cable design: 4G2.5  Han® 6 B ↔ Han® 6 B	Fixed length 	D/2.5	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

7.5 kW device power UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18122000 Cable design: 4G6  Han® 6 B ↔ Han® 6 B Fixed length D/6.0 U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-			

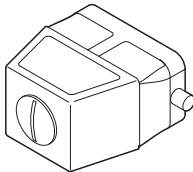
Connection component

Jumper plug temperature sensor

Part number: 18180264

Structure	
Modules	Jumpered pins
[B] – [B]	1 – 6

Connection: Han® 6 B, male-male



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4.15.5 X2016: Motor with brake control

INFORMATION



To avoid damage or malfunction of the drive system, do not use motors with built-in brake rectifier in conjunction with this product.

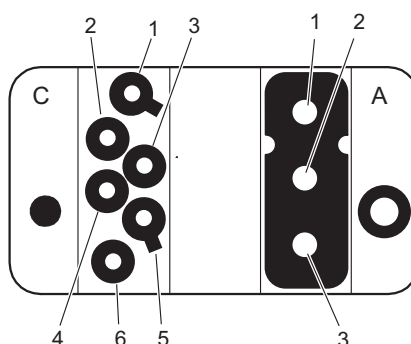
Function

Power connection for motor with brake up to 22 kW

Connection type

Han-Modular® 10 B, female, 1 single locking latch

Connection diagram



[A] Han® C module, female

No.	Name	Function
1	U	Motor phase U output
2	V	Motor phase V output
3	W	Motor phase W output

[C] Han® E protected module, female

No.	Name	Function
1	TF/TH/KTY+ ¹⁾	Motor temperature sensor (+)
2	15	Brake terminal 15 (blue)
3	13	Brake terminal 13 (red)
4	14	Brake terminal 14 (white)
5	n.c.	Not connected
6	TF/TH/KTY- ¹⁾	Motor temperature sensor (-)

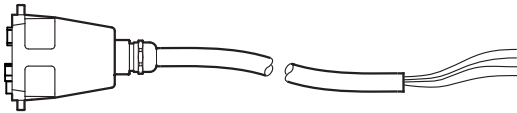
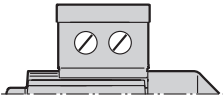
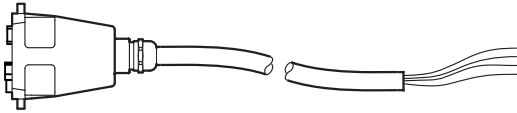
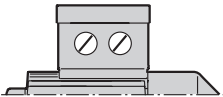
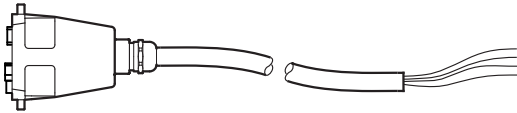
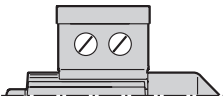
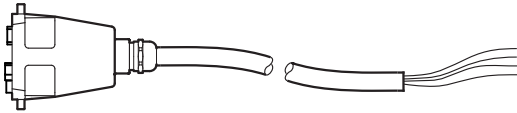
1) You must observe the specifications in chapter "Technical data" regarding the permitted temperature sensors (TF, TH or KTY).

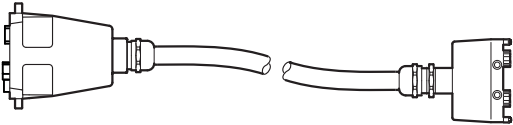
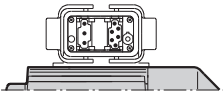
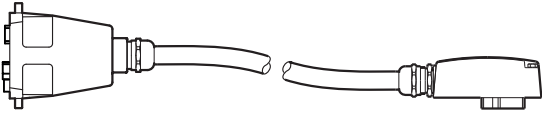
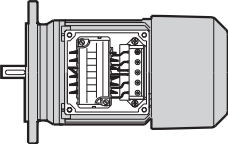
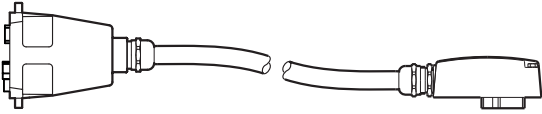
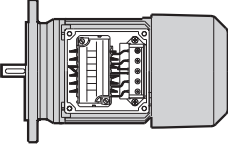
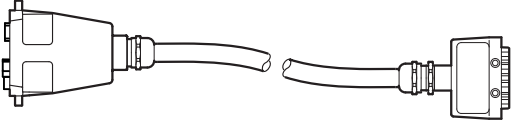
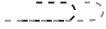
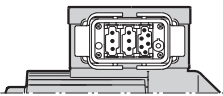
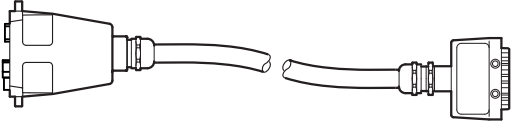
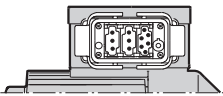
Hinged frame

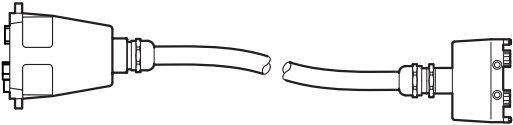
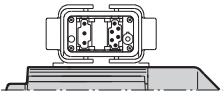
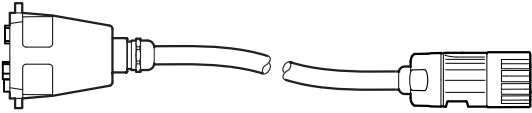
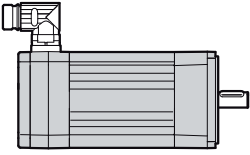
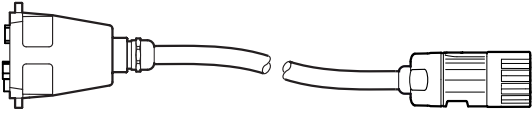
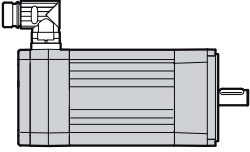
No.	Name	Function
—	PE	PE connection

Connection cables

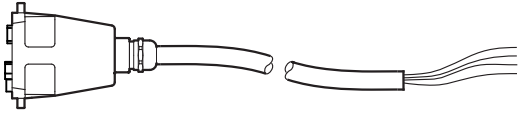
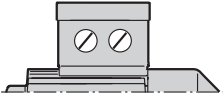
11 kW device power IEC

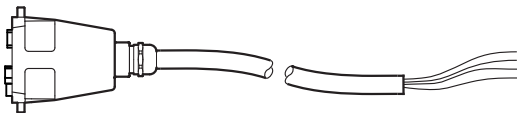
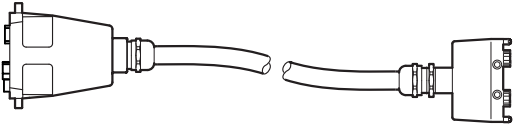
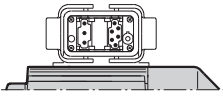
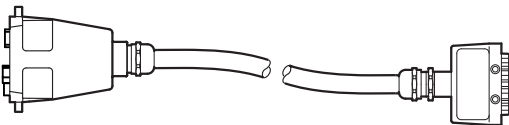
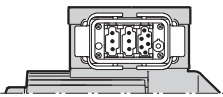
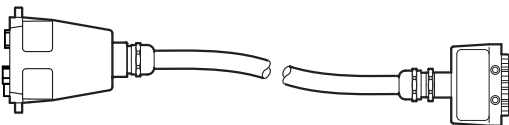
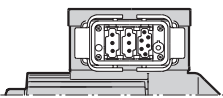
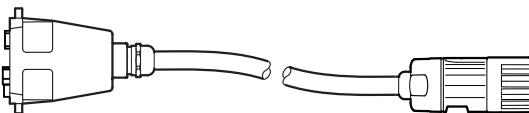
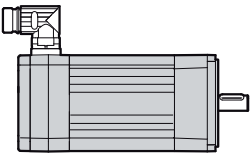
Cable	Length/installation type	Type	Component
Part number: 18110452 Cable design: 4G6  Han® 10 B ↔ open (terminal box connection M5)	Variable length 	D/6.0	DRN112 – 132 DRL112 – 132 
Part number: 18110479 Cable design: 4G6  Han® 10 B ↔ open (terminal box connection M6)	Variable length 	D/6.0	DRN160 DRL160 
Part number: 18120644 Cable design: 4G4  Han® 10 B ↔ open (terminal box connection M5)	Variable length 	D/4.0	DRN112 – 132 DRL112 – 132 
Part number: 18120741 Cable design: 4G4  Han® 10 B ↔ open (terminal box connection M6)	Variable length 	D/4.0	DRN112 – 132 DRL112 – 132 

Cable	Length/installation type	Type	Component
Part number: 18120652 Cable design: 4G4  Han® 10 B ↔ ABB8	Variable length 	D/4.0	DRN112 – 160 DRL112 – 132 
Part number: 18146252 △ Cable design: 4G4  Han® 10 B ↔ IS2 △	Variable length 	D/4.0	DRN80 – 132△ DRL71 – 90△ 
Part number: 18146228 人 Cable design: 4G4  Han® 10 B ↔ IS2 人	Variable length 	D/4.0	DRN80 – 132人 DRL71 – 90人 
Part number: 18123562 人 Cable design: 4G6  Han® 10B ↔ ADB2 人	Variable length 	D/6.0	DRN160人 DRL160人 
Part number: 18123570 △ Cable design: 4G6  Han® 10B ↔ ADB2 △	Variable length 	D/6.0	DRN160△ DRL160△ 

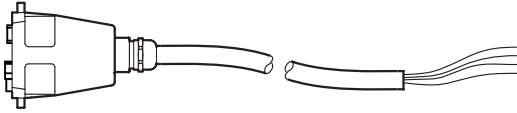
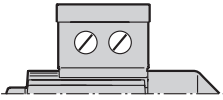
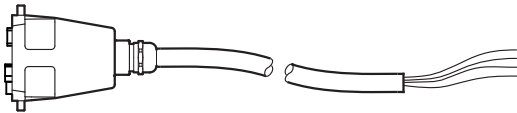
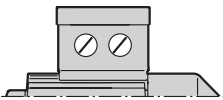
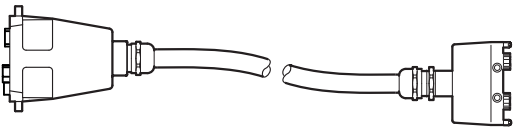
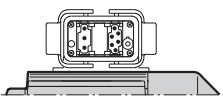
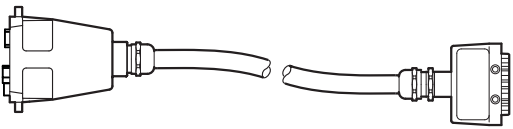
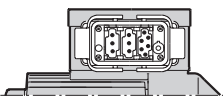
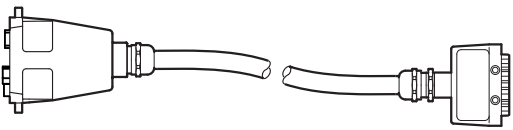
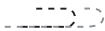
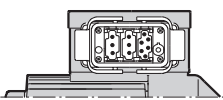
Cable	Length/installation type	Type	Component
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Part number: 18110533 Cable design: 4G6  Han® 10 B ↔ SBB6	Variable length 	E/6.0	CMP80 – 100 
Part number: 18122051 Cable design: 4G4  Han® 10 B ↔ SB14	Variable length 	E/4.0	CMP63 – 100 

11 kW device power UL

Cable	Length/installation type	Type	Component
Part number: 18110452 Cable design: 4G6  Han® 10 B ↔ open (terminal box connection M5)	Variable length 	D/6.0	DRN180 DRL180 

Cable	Length/installation type	Type	Component
Part number: 18110479 Cable design: 4G6  Han® 10 B ↔ open (terminal box connection M6)	Variable length 	D/6.0	DRN180 DRL180 
Part number: 18110436 Cable design: 4G6  Han® 10 B ↔ ABB8	Variable length 	D/6.0	DRN180 DRL180 
Part number: 18123562  Cable design: 4G6  Han® 10B ↔ ADB2 	Variable length 	D/6.0	DRN180  DRL180  
Part number: 18123570  Cable design: 4G6  Han® 10B ↔ ADB2 	Variable length 	D/6.0	DRN180  DRL180  
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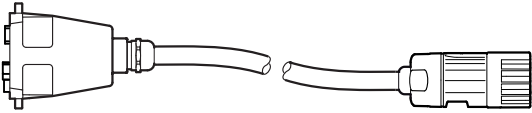
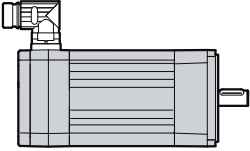
15 kW device power IEC

Cable	Length/installation type	Type	Component
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Part number: 18110479 Cable design: 4G6  Han® 10 B ↔ open (terminal box connection M6)	Variable length 	D/6.0	DRN180 DRL180 
Part number: 18110436 Cable design: 4G6  Han® 10 B ↔ ABB8	Variable length 	D/6.0	DRN180 DRL180 
Part number: 18123562  Cable design: 4G6  Han® 10B ↔ ADB2 	Variable length 	D/6.0	DRN180  DRL180  
Part number: 18123570  Cable design: 4G6  Han® 10B ↔ ADB2 	Variable length 	D/6.0	DRN180  DRL180  

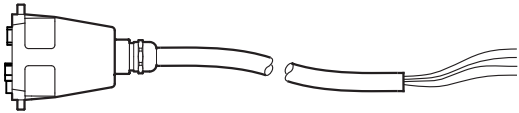
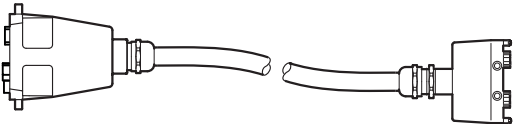
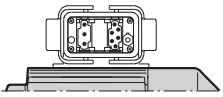
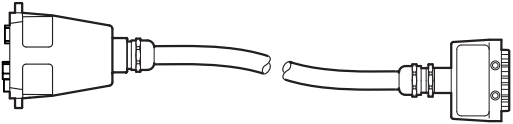
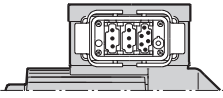
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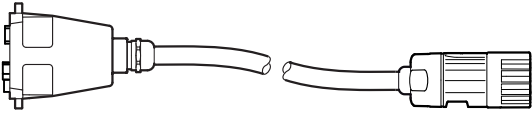
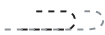
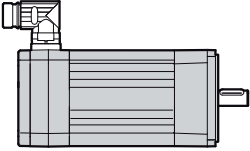
Electrical connections

Cable	Length/installation type	Type	Component
Part number: 18110533 Cable design: 4G6  Han® 10 B ↔ SBB6	Variable length 	E/6.0	CMP80 – 100 

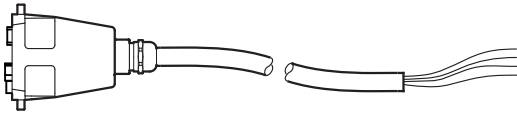
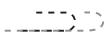
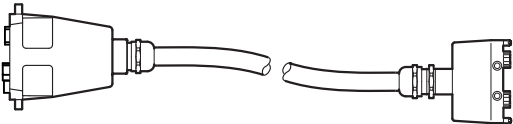
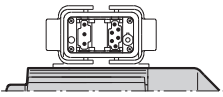
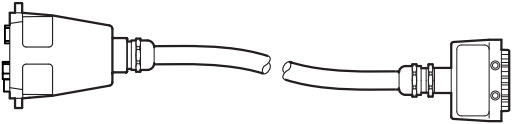
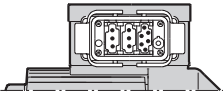
15 kW device power UL

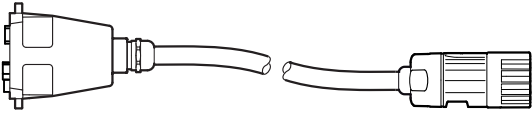
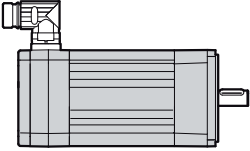
Cable	Length/installation type	Type	Component
Part number: 18121985 Cable design: 4G10  Han® 10 B ↔ open (terminal box connection IO)	Variable length 	D/10.0	DRN180 DRL180 
Part number: 18118208 Cable design: 4G10  Han® 10 B ↔ ABB8/AKB8	Variable length 	D/10.0	DRN180 DRL180 
Part number: 18123589  Cable design: 4G10  Han® 10B ↔ ADB2 	Variable length 	D/10.0	DRN180  DRL180  

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Cable	Length/installation type	Type	Component
Part number: 18182151 Cable design: 4G10.0  Han® 10B ↔ SBB10	Variable length 	D/10	CMP80 – 112 

22 kW device power IEC

Cable	Length/installation type	Type	Component
Part number: 18121985 Cable design: 4G10  Han® 10 B ↔ open (terminal box connection IO)	Variable length 	D/10.0	DRN180 DRL180 
Part number: 18118208 Cable design: 4G10  Han® 10 B ↔ ABB8/AKB8	Variable length 	D/10.0	DRN180 DRL180 
Part number: 18123589 人 Cable design: 4G10  Han® 10B ↔ ADB2 人	Variable length 	D/10.0	DRN180 人 DRL180 人 

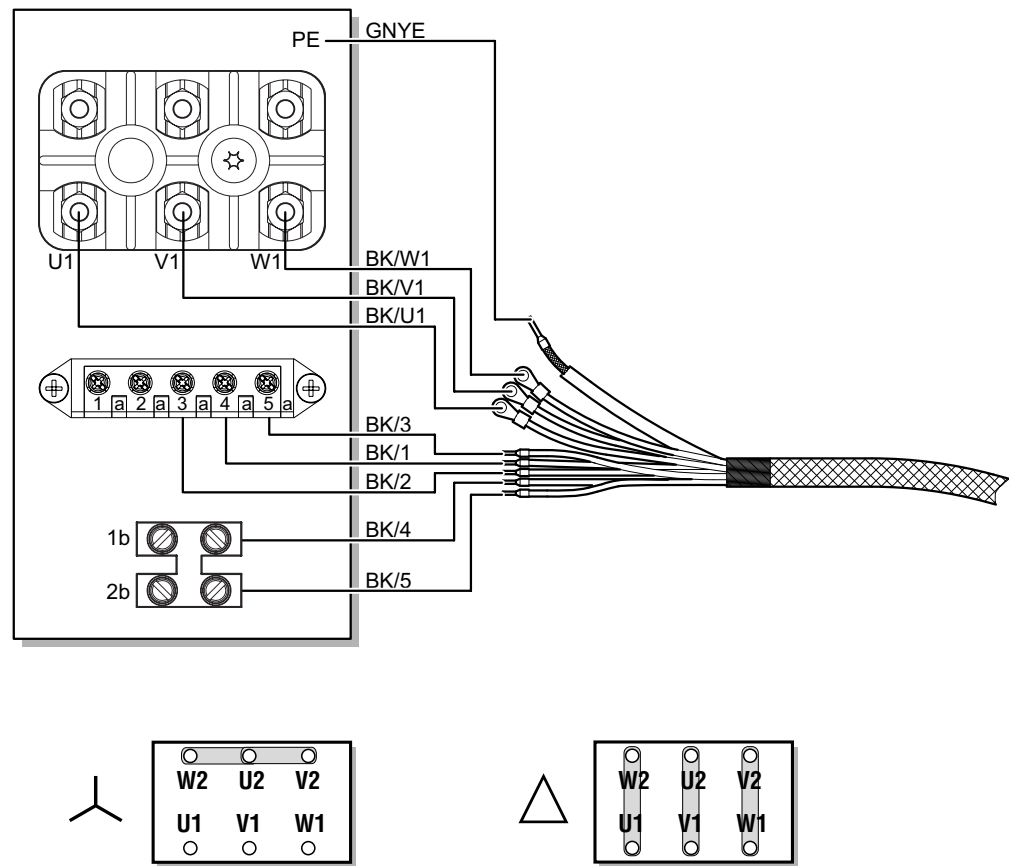
Cable	Length/installation type	Type	Component
Part number: 18182151 Cable design: 4G10.0  Han® 10B ↔ SBB10	Variable length 	D/10	CMP80 – 112 

Conductor assignment

Part number	Motor terminal DR.. motor	Color coding	Hybrid cable designation	Connection device
18110452 18110479 18121985	U1	Black	U1	Motor phase U
	V1	Black	V1	Motor phase V
	W1	Black	W1	Motor phase W
	4a	Black	1	Brake 13 (red)
	3a	Black	2	Brake 14 (white)
	5a	Black	3	Brake 15 (blue)
	1b	Black	4	TF/TH +
	2b	Black	5	TF/TH -
	PE connection	Green-yellow + shield end (Inner shield)		PE

Connecting the hybrid cable

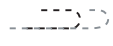
The following figure shows the connection of the hybrid cable to the terminal box of the motor. Also observe the wiring diagram of the respective motor.



18014401328186635

Extension cable

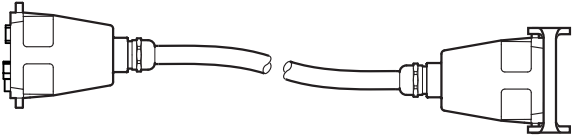
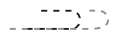
11 kW device power IEC/UL

Cable	Length/installation type	Type	Component
Part number: 18164226 Cable design: 4G6  Han® 10 B ↔ Han® 10 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 10 B

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Electrical connections

15 kW device power IEC

Cable	Length/installation type	Type	Component
Part number: 18164226 Cable design: 4G6  Han® 10 B ↔ Han® 10 B	Variable length 	D/6.0	Connection cable: Motor cable with Han® 10 B

Phase reversal cable

INFORMATION



If you are using an encoder, note that you also need an encoder signal reversal cable in addition to the phase reversal cable. For more information about encoder signal reversal cables, refer to the description of the encoder connection.

11 kW device power IEC/UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18119638 Cable design: 4G6  Han® 10 B ↔ Han® 10 B	Fixed length 	D/6.0	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

15 kW device power IEC/UL

Cable	Length/installation type	Type	Wiring diagram
Part number: 18113745 Cable design: 4G10  Han® 10 B ↔ Han® 10 B	Fixed length 	D/10.0	U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-

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22 kW device power IEC

Cable	Length/installation type	Type	Wiring diagram
Part number: 18113745 Cable design: 4G10  Han® 10 B ↔ Han® 10 B Fixed length D/10.0 U1 – V1 V1 – U1 W1 – W1 13 – 13 14 – 14 15 – 15 TF+ – TF+ TF- – TF-			

4.15.6 X2041: Inverter output for connecting motors without digital interface

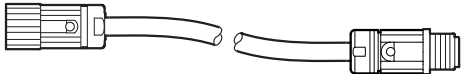
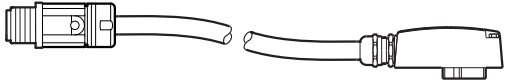
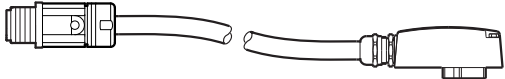
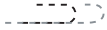
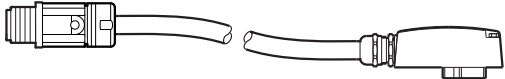
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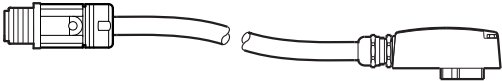
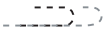
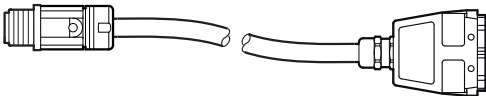
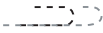
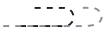
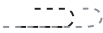
Function		
Inverter output for connecting motors without digital interface		
Connection type		
M23, female, union nut with female thread, TE Connectivity - Intercontec Products, series 723, SEW insert, SpeedTec equipment, coding ring: brown, protected against contact		
Connection diagram		
Assignment		
Contact	Signal	Description
A	U	Motor connection, phase U
B	V	Motor connection, phase V
C	W	Motor connection, phase W
D	13	Brake connection 13
E	14	Brake connection 14
F	15	Brake connection 15
PE	PE	PE connection
1	Temp+	Temperature sensor+ connection
2	Res.	Reserved
3	Temp-	Temperature sensor- connection

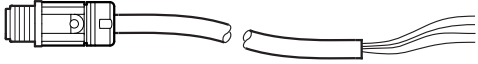
Connection cable

The following tables list the cables available for this connection:

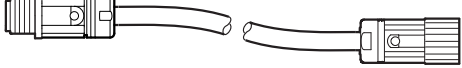
Cable cross section 1.5 mm²

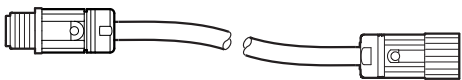
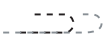
Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: brown, female M23, coding ring: brown, male	CE/UL: 28128710	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male IS2, female, △	CE/UL: 28125932	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male IS2, female, △	CE/UL: 28125940	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male IS1, female, △	CE/UL: 28125959	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V

Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: brown, male IS1, female, 3	CE/UL: 28125967	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male HAN® 10E, fe- male, ASB4	CE/UL: 28125975	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male Open, M5 ring cable lug, con- ductor end sleeves	CE/UL: 28125983	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male Open, M4 ring cable lug, con- ductor end sleeves	CE/UL: 28125991	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male Open	CE/UL: 28128435	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V

Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: brown, male Open, con- ductor end sleeves	CE/UL: 28126009	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V
 M23, coding ring: brown, male M23, without encoding ring, female (SH1/ KH1)	CE/UL: 28128451	LEONI LEHC® 000749	Variable 	1.5 mm ² / AC 500 V

Cable cross section 2.5 mm²

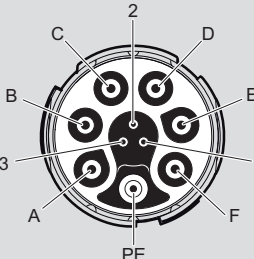
Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: brown, male Open	CE/UL: 28135369	LEONI LEHC® 005275	Variable 	2.5 mm ² / AC 500 V
 M23, coding ring: brown, male M23, without encoding ring (SH1/KH1) female	CE/UL: 28128443	LEONI LEHC® 005275	Variable 	2.5 mm ² / AC 500 V

Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/oper- ating voltage
 M23, coding ring: brown, male M23, coding ring: brown, female	CE/UL: 28128478	LEONI LEHC® 005275	Variable 	2.5 mm ² / AC 500 V

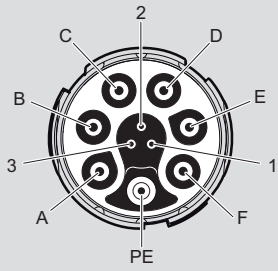
Connection of cables with open end

28128435, 28135369

The following table shows the core assignment of cables with the following part number:

Part numbers							
28128435, 28135369							
Assembly							
Open cable end, not prefabricated			Motor connection depending on brake control			Prefabricated plug connector	
			Without brake	3-wire brake AC 110 – 500 V (BE/BZ brake)	2-wire brake DC 24 V (BK/BP brake)		
Core color/ core cross sec- tion	Identi- fication	Assembly	Description			Signal	Contact
Black 2.5 mm ²	U1	Not pre- fabricated	Motor connection, phase U			U	A
Black 2.5 mm ²	V2	Not pre- fabricated	Motor connection, phase V			V	B
Black 2.5 mm ²	W3	Not pre- fabricated	Motor connection, phase W			W	C
Black 1.0 mm ²	1	Not pre- fabricated	Reserved ¹⁾	Brake 13 (blue)	Brake+	Brake 13	D
Black 1.0 mm ²	2	Not pre- fabricated	Reserved ¹⁾	Brake 14 (white)	Reserved ¹⁾	Brake 14	E

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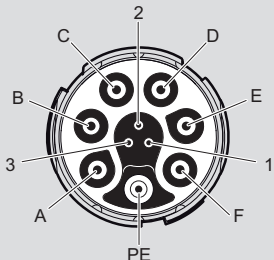
Assembly							
Open cable end, not prefabricated			Motor connection depending on brake control			Prefabricated plug connector	
			Without brake	3-wire brake AC 110 – 500 V (BE/BZ brake)	2-wire brake DC 24 V (BK/BP brake)		
Core color/ core cross section	Identification	Assembly	Description			Signal	Contact
Black 1.0 mm ²	3	Not pre-fabricated	Reserved ¹⁾	Brake 15 (blue)	Brake–	Brake 15	F
Green/yellow 2.5 mm ²	–	Not pre-fabricated	PE connection			PE	PE
Black 0.75 mm ²	4	Not pre-fabricated	Temperature sensor+ connection			Temp+	1
–	–	–	–			Res.	2
Black 0.75 mm ²	5	Not pre-fabricated	Temperature sensor- connection			Temp–	3

1) Reserved wires must be isolated and fixed in the connection box.

28125991, 28125983

The following table shows the core assignment of cables with the following part numbers:

Part numbers
28125991, 28125983

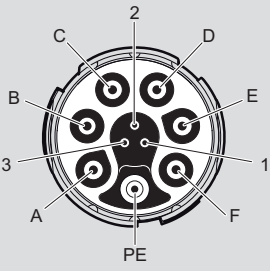
Assembly							
Open cable end, conductor end sleeves, ring cable lugs			Motor connection depending on brake control			Prefabricated plug connector	
			Without brake	3-wire brake AC 110 – 500 V (BE/BZ brake)	2-wire brake DC 24 V (BK/BP brake)		
Core color/ core cross section	Identification	Assembly	Description			Signal	Contact
Black 1.5 mm ² 2.5 mm ²	U1	Ring cable lug M4, M5	Motor connection, phase U			U	A
Black 1.5 mm ² 2.5 mm ²	V2	Ring cable lug M4, M5	Motor connection, phase V			V	B
Black 1.5 mm ² 2.5 mm ²	W3	Ring cable lug M4, M5	Motor connection, phase W			W	C
Black 1.0 mm ²	1	Conductor end sleeve	Reserved ¹⁾	Brake 13 (blue)	Brake+	Brake 13	D
Black 1.0 mm ²	2	Conductor end sleeve	Reserved ¹⁾	Brake 14 (red)	Reserved ¹⁾	Brake 14	E
Black 1.0 mm ²	3	Conductor end sleeve	Reserved ¹⁾	Brake 15 (white)	Brake–	Brake 15	F
Green/yellow 1.5 mm ² 2.5 mm ²	–	Conductor end sleeve	PE connection			PE	PE
Black 0.75 mm ²	4	Conductor end sleeve	Temperature sensor+ connection			Temp+	1
–	–	–	–			Res.	2
Black 0.75 mm ²	5	Conductor end sleeve	Temperature sensor- connection			Temp–	3

1) Reserved wires must be isolated and fixed in the connection box.

28126009

The following table shows the core assignment of cables with the following part number:

Part number
281286009

Assembly							
Open cable end, conductor end sleeves			Motor connection depending on brake control			Prefabricated plug connector	
			Without brake	3-wire brake AC 110 – 500 V (BE/BZ brake)	2-wire brake DC 24 V (BK/BP brake)		
Core color/ core cross section	Identi- fication	Assembly	Description			Signal	Contact
Black 1.5 mm ²	U1	Conductor end sleeve	Motor connection, phase U			U	A
Black 1.5 mm ²	V2	Conductor end sleeve	Motor connection, phase V			V	B
Black 1.5 mm ²	W3	Conductor end sleeve	Motor connection, phase W			W	C
Black 1.0 mm ²	1	Conductor end sleeve	Reserved ¹⁾	Brake 13 (red)	Brake+	Brake 13	D
Black 1.0 mm ²	2	Conductor end sleeve	Reserved ¹⁾	Brake 14 (white)	Reserved ¹⁾	Brake 14	E
Black 1.0 mm ²	3	Conductor end sleeve	Reserved ¹⁾	Brake 15 (blue)	Brake–	Brake 15	F
Green/yel- low 1.5 mm ²	–	Conductor end sleeve	PE connection			PE	PE
Black 0.75 mm ²	4	Conductor end sleeve	Temperature sensor+ connection			Temp+	1
–	–	–	–			Res.	2
Black 0.75 mm ²	5	Conductor end sleeve	Temperature sensor- connection			Temp–	3

1) Reserved wires must be isolated and fixed in the connection box.

4.15.7 X2104: Inverter output for connecting motors with digital interface (MOVILINK® DDI)

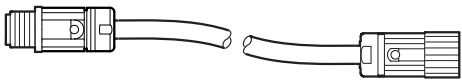
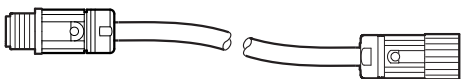
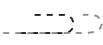
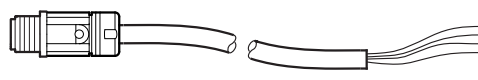
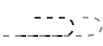
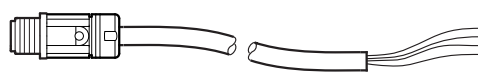
The following table shows information about this connection:

Function			
Inverter output for connecting motors with digital interface (MOVILINK® DDI)			
Connection type			
M23, female, union nut with female thread, TE Connectivity - Intercontec Products, series 723, SEW insert, SpeedTec equipment, coding ring: without, protected against contact			
Connection diagram			
Assignment			
Contact	Signal	Description	
		Connection depending on brake control	
		Standard design for 2-wire and 3-wire brakes AC 110 – 500 V	Design with brake rectifier 24 V (/BES) for 2-wire brakes
U	U	Motor connection, phase U	
V	V	Motor connection, phase V	
W	W	Motor connection, phase W	
PE	PE	PE connection	
1	DDI	MOVILINK® DDI	
A	Brake A	Reserved	Brake connection-
B	Brake B	Brake 15 connection (blue)	Reserved
C	Brake C	Brake 13 connection (red)	Reserved
D	Brake D	Brake 14 connection (white)	Brake connection+

Connection cable

The following tables list the cables available for this connection:

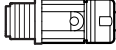
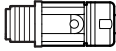
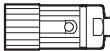
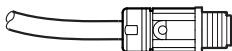
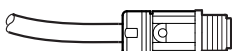
Cable cross section 1.5 mm²

Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, without encoding ring, male M23, without encoding ring, female	CE/UL: 28123905	LEONI LEHC® 005775	Variable 	4 × 1.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, male M23, without encoding ring, female	CE/UL: 28123859	LEONI LEHC® 005769	Variable 	4 × 1.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, male Open	CE/UL: 28124332	LEONI LEHC® 005769	Variable 	4 × 1.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, male Open	CE/UL: 28124367	LEONI LEHC® 005775	Variable 	4 × 1.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V

4 Electrical installation

Electrical connections

Cable cross section 2.5 mm²

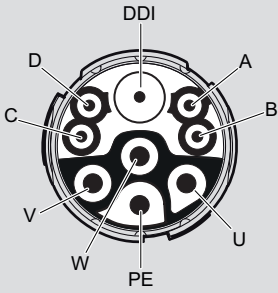
Connection cables	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, without encoding ring, male  Open	CE/UL: 28124340	LEONI LEHC® 005770	Variable 	4 × 2.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, male  Open	CE/UL: 28124375	LEONI LEHC® 005776	Variable 	4 × 2.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, female  M23, without encoding ring, male	CE/UL: 28123867	LEONI LEHC® 005244	Variable 	4 × 2.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V
 M23, without encoding ring, female  M23, without encoding ring, male	CE/UL: 28123913	LEONI LEHC® 005244	Variable 	4 × 2.5 mm ² + 4 × 1.0 mm ² + RG58 / AC 500 V

Connection of cables with open end

The following table shows the core assignment of cables with the following part numbers:

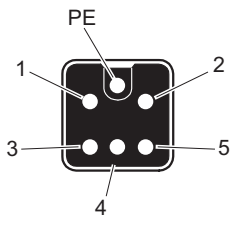
Part numbers	
Installation method of cable	Part numbers
	28124367, 28124375
	28124332, 28124340

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Assembly							
Open cable end at the motor			Motor connection depending on brake control			Prefabricated plug connector	
			Without brake	3-wire brake AC 110 – 500 V	2-wire brake DC 24 V		
				(BE/BZ brake)	(BK/BP brake)		
Core color/ core cross section	Identification	Assembly	Description			Signal	Contact
Black 1.5 mm ² 2.5 mm ²	U/L1	Not pre-fabricated	Motor connection, phase U			U	U
Black 1.5 mm ² 2.5 mm ²	V/L2	Not pre-fabricated	Motor connection, phase V			V	V
Black 1.5 mm ² 2.5 mm ²	W/L3	Not pre-fabricated	Motor connection, phase W			W	W
Green/yellow 1.5 mm ² 2.5 mm ²	-	Not pre-fabricated	PE connection			PE	PE
Purple coaxial cable	-	Coaxial connectors	MOVILINK® DDI connection			DDI	1
Yellow 1.0 mm ²	A	Not pre-fabricated	Reserved ¹⁾	Reserved ¹⁾	Brake-	Brake A	A
Orange 1.0 mm ²	B	Not pre-fabricated	Reserved ¹⁾	Brake 15 (blue)	Reserved ¹⁾	Brake B	B
Pink 1.0 mm ²	C	Not pre-fabricated	Reserved ¹⁾	Brake 13 (red)	Reserved ¹⁾	Brake C	C
Purple 1.0 mm ²	D	Not pre-fabricated	Reserved ¹⁾	Brake 14 (white)	Brake+	Brake D	D

1) Reserved wires must be isolated and fixed in the connection box.

4.15.8 X2301: Braking resistor

Function		
Power connection for external braking resistor		
Connection type		
Han® Q 5/0, female		
Wiring diagram		
		
No.	Name	Function
1	n.c.	Not connected
2	n.c.	Not connected
3	+R	Braking resistor (+)
4	n.c.	Not connected
5	-R	Braking resistor (-)
PE	PE	PE connection

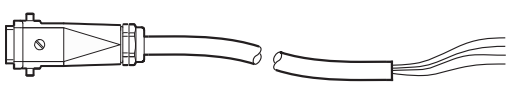
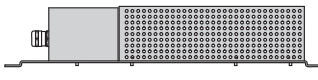
Connection cable



INFORMATION

For the **braking resistor BW100-004-00**, you do **not** have to order an additional cable. The braking resistor is delivered with mounted connection cable and plug connector.

IEC/UL

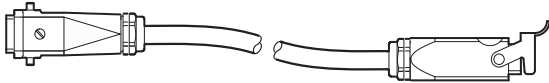
Cable	Length/installation type	Component
Part number: 18166563 (replacement for 11722916) Cable design: (3G2.5) Core cross section: 2.5 mm²  Han® Q 5/0 ↔ Open with conductor end sleeves	Variable length 	External braking resistor  Terminal cross section 6 mm²

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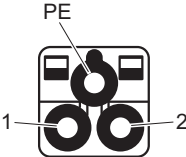
Conductor assignment

Part number	Signal name	Color coding
18166563 (replacement for 11722916)	+R	Black/1
	-R	Black/2
	PE	Green/yellow

Extension cable

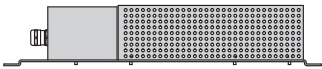
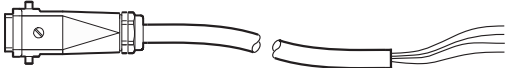
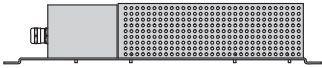
Cable	Length/installation type	Component
Part number: 18121349 Cable design: (3G2.5) Core cross section: 2.5 mm²  Han® Q 5/0 ↔ Han® Q 5/0	Variable length 	Connection cable18166563

4.15.9 X2303: Braking resistor

Function		
Power connection for external braking resistor		
Connection type		
Han® Q 2/0, female, I-coded		
Wiring diagram		
		
No.	Name	Function
1	+R	Braking resistor (+)
2	-R	Braking resistor (-)
PE	PE	PE connection

Connection cables

IEC/UL

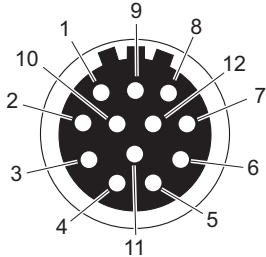
Cable	Length/installation type	Component
Part number: 18166571 (replacement for 18121969) Cable design: (3G2.5) Core cross section: 2.5 mm ²  Han® Q 2/0 ↔ Open with conductor end sleeves	Variable length 	External braking resistor  Terminal cross section: 6 mm ²
Part number: 18166598 (replacement for 18121977) Cable design: (3G6.0) Core cross section: 6 mm ²  Han® Q 2/0 ↔ Open with conductor end sleeves	Variable length 	External braking resistor  Terminal cross section: 6 mm ²

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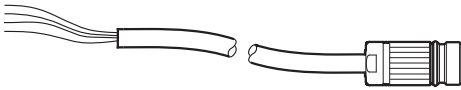
Conductor assignment

Part number	Signal name	Color coding
18166571 (replacement for 18121969)	+R	Black/1
18166598 (replacement for 18121977)	-R	Black/2
	PE	Green/yellow

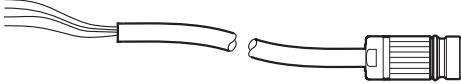
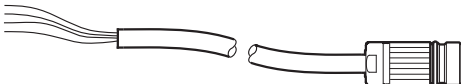
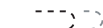
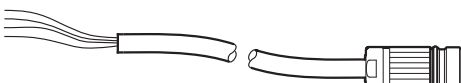
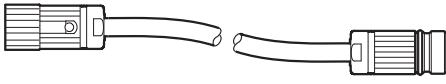
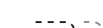
4.15.10 XD1: Motor encoder

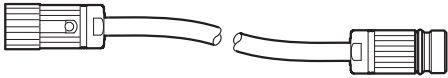
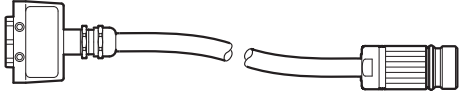
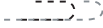
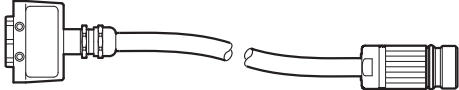
Function		
Connection for HIPERFACE®, sin/cos, TTL/HTL encoders		
Connection type		
M23, insulator, P part 12-pin, female		
Connection diagram		
		
No.	Name	Function
1	C	Signal track C (K0)
2	/C	Negated signal track C (/K0)
3	A	Signal track A (K1)
4	/A	Negated signal track A (/K1)
5	B	Signal track B (K2)
6	/B	Negated signal track B (/K2)
7	D-	Data line (-)
8	D+	Data line (+)
9	TF/TH/KTY+	Motor temperature sensor (+)
10	TF/TH/KTY-	Motor temperature sensor (-)
11	GND	Reference potential
12	+12V	DC 12 V output

Connection cable

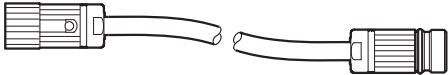
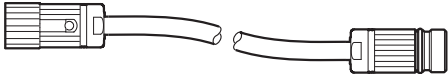
Cable	Length/installation type	Component
Part number: 28111486 (with temperature sensor) Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length	EK8S EK8R EK8C AK8W AK8Y AK8H EI8R EI8C

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Cable	Length/installation type	Component
Part number: 13623184 (without temperature sensor) Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H EI8R EI8C
Part number: 28111494 (with temperature sensor) Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H EI8R EI8C
Part number: 18140408 (without temperature sensor) Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H EI8R EI8C
Part number: 28111451 (with temperature sensor) Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H EI8R EI8C

Cable	Length/installation type	Component
Part number: 28111478 (with temperature sensor) Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	EK8S E.8R E.8C AK8W AK8Y AK8H
Part number: 13621963 (without temperature sensor) Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ encoder cover	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H ES7S ES7R ES7C AS7W AS7Y EG7S EG7R EG7C AG7W AG7Y
Part number: 18140394 (without temperature sensor) Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ encoder cover	Variable length 	EK8S EK8R EK8C AK8W AK8Y AK8H ES7S ES7R ES7C AS7W AS7Y EG7S EG7R EG7C AG7W

Extension cable

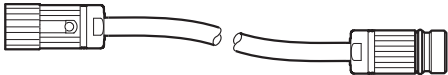
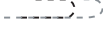
Cable	Length/installation type	Component
Part number: 28111451 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 13621963 28111451 13623184 28111486
Part number: 28111478 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 18140394 28111478 18140408 28111494

Encoder signal reversal cable

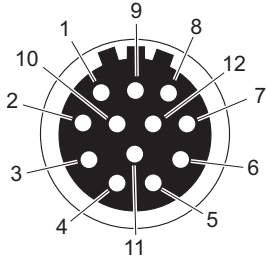
INFORMATION



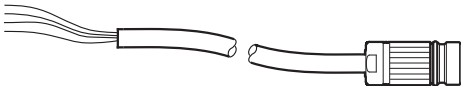
An additional encoder signal reversal cable is only necessary if you are using a phase reversal cable.

Cable	Length/installation type	Component
Part number: 28148096 (not suitable for HIPERFACE® encoders) Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	E..S E..R E..C E..T

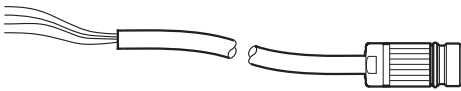
4.15.11 XD2: Distance encoder 12 V

Function		
Connection for HIPERFACE®, sin/cos, TTL/HTL encoders		
Connection type		
M23, insulator, P part 12-pin, female		
Connection diagram		
		
No.	Name	Function
1	C	Signal track C (K0)
2	/C	Negated signal track C (/K0)
3	A	Signal track A (K1)
4	/A	Negated signal track A (/K1)
5	B	Signal track B (K2)
6	/B	Negated signal track B (/K2)
7	D-	Data line (-)
8	D+	Data line (+)
9	res.	Reserved
10	res.	Reserved
11	GND	Reference potential
12	+12V	DC 12 V output

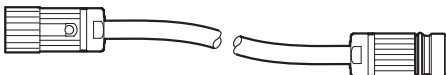
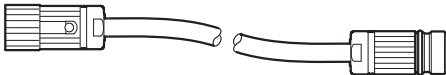
Connection cable

Cable	Length/installation type	Component
Part number: 13623184 Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	HIPERFACE® /SSI encoder

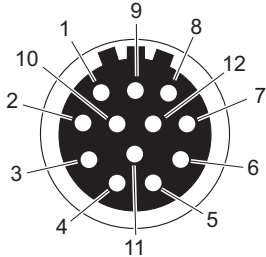
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Cable	Length/installation type	Component
Part number: 18140408 Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	HIPERFACE® /SSI encoder

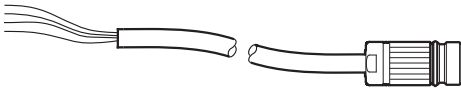
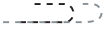
Extension cable

Cable	Length/installation type	Component
Part number: 28111451 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 13621963 28111451 13623184 28111486
Part number: 28111478 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 18140394 28111478 18140408 28111494

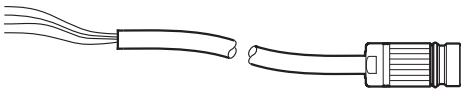
4.15.12 XD2.1: Distance encoder 24 V

Function		
Connection for HIPERFACE®, sin/cos, TTL/HTL encoders		
Connection type		
M23, insulator, P part 12-pin, female		
Connection diagram		
		
No.	Name	Function
1	C	Signal track C (K0)
2	/C	Negated signal track C (/K0)
3	A	Signal track A (K1)
4	/A	Negated signal track A (/K1)
5	B	Signal track B (K2)
6	/B	Negated signal track B (/K2)
7	D-	Data line (-)
8	D+	Data line (+)
9	res.	Reserved
10	res.	Reserved
11	GND	Reference potential
12	+24V	DC 24 V output

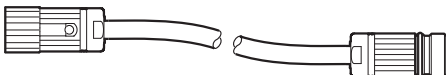
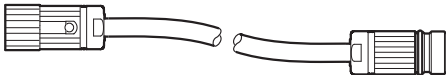
Connection cable

Cable	Length/installation type	Component
Part number: 13623184 Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	HIPERFACE® /SSI encoder

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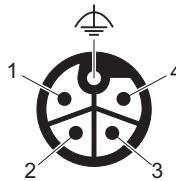
Cable	Length/installation type	Component
Part number: 18140408 Cable design: (4X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ Open with conductor end sleeves	Variable length 	HIPERFACE® /SSI encoder

Extension cable

Cable	Length/installation type	Component
Part number: 28111451 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 13621963 28111451 13623184 28111486
Part number: 28111478 Cable design: (5X2X0.25+2X0.5)  M23, 12-pin, 0°-coded ↔ M23, 12-pin, 0°-coded	Variable length 	Connection cable: 18140394 28111478 18140408 28111494

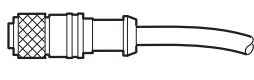
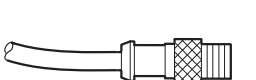
4.15.13 X1523: DC 24 V backup voltage, input

The following table shows information about this connection:

Function		
DC 24 V backup voltage input		
Connection type		
M12, 5-pin, male, L-coded, color: light gray		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	+24V/L1	DC 24 V input/L1 (for backup mode)
2	0V24/N2	0V24 reference potential/N2 (for DC 24 V /BES brake rectifier)
3	0V24/N1	0V24 reference potential/N1 (for backup mode)
4	+24V/L2	DC 24 V connection/L2 (for DC 24 V /BES brake rectifier)
	FE	Functional earth

Connection cables

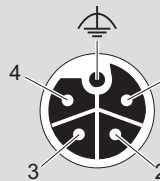
The following table provides an overview of the cables available for this connection:

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M12, 5-pin, L-coded, female	CE/UL: 28114345	HELUKABEL® JZ-500	Variable 	5 × 2.5 mm² / DC 60 V
 M12, 5-pin, L-coded, male				

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M12, 5-pin, L-coded, female Open	CE/UL: 28117786	HELUKABEL® JZ-500	Variable 	5 × 2.5 mm ² / DC 60 V

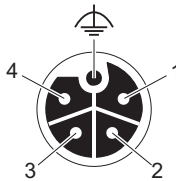
Connection of cables with open end

The following table shows the core assignment of cables with the following part number:

Part numbers					
28117786					
Assembly					
Open cable end			Description	Prefabricated plug connectors	
					
Core color/ core cross sec- tion	Identi- fication	Assembly		Signal	Contact
Black 2.5 mm ²	1	Not pre- fabricated	DC 24 V output/L1 (for backup voltage/supply)	+24V/L1	1
Black 2.5 mm ²	2	Not pre- fabricated	0V24 reference potential/N2 (for DC 24 V /BES brake rectifier)	0V24/N2	2
Black 2.5 mm ²	3	Not pre- fabricated	0V24 reference potential/N1 (for backup voltage/supply)	0V24/N1	3
Black 2.5 mm ²	4	Not pre- fabricated	DC 24 V output/L2 (for DC 24 V /BES brake rectifier)	+24V/L2	4
Black 2.5 mm ²	5	Not pre- fabricated	Functional earth	FE	

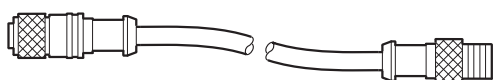
4.15.14 X2313: DC 24 V output backup voltage

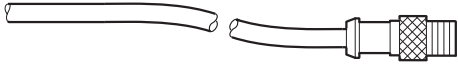
The following table shows information about this connection:

Function		
DC 24 V output backup voltage		
Connection type		
M12, 5-pin, female, L-coded, color: light gray		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	+24V/L1	DC 24 V output/L1 (for backup mode)
2	0V24/N2	0V24 reference potential/N2 (for DC 24 V /BES brake rectifier)
3	0V24/N1	0V24 reference potential/N1 (for backup mode)
4	+24V/L2	DC 24 V connection/L2 (for DC 24 V /BES brake rectifier)
	FE	Functional earth

Connection cables

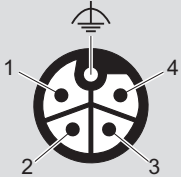
The following table provides an overview of the cables available for this connection:

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M12, 5-pin, L-coded, female M12, 5-pin, L-coded, male	CE/UL: 28114345	HELUKABEL® JZ-500	Variable 	5 × 2.5 mm ² / DC 60 V

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 Open M12, 5-pin, L-coded, male	CE/UL: 28117751	HELUKABEL® JZ-500	Variable 	5 × 2.5 mm ² / DC 60 V

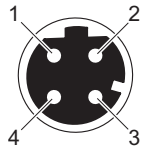
Connection of cables with open end

The following table shows the core assignment of cables with the following part number:

Part numbers					
28117751					
Assembly					
Open cable end			Description	Prefabricated plug connectors	
					
Core color/ core cross section	Identi- fication	Assembly		Signal	Contact
Black 2.5 mm ²	1	Not pre-fabricated	DC 24 V output/L1 (for backup voltage/supply)	+24V/L1	1
Black 2.5 mm ²	2	Not pre-fabricated	0V24 reference potential/N2 (for DC 24 V /BES brake rectifier)	0V24/N2	2
Black 2.5 mm ²	3	Not pre-fabricated	0V24 reference potential/N1 (for backup voltage/supply)	0V24/N1	3
Black 2.5 mm ²	4	Not pre-fabricated	DC 24 V output/L2 (for DC 24 V /BES brake rectifier)	+24V/L2	4
Black 2.5 mm ²	5	Not pre-fabricated	Functional earth	FE	

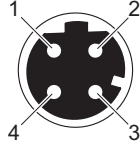
4.15.15 X4233_1: Fieldbus/Ethernet interface, port 1

The following table shows information about this connection:

Function		
Fieldbus/Ethernet interface, port 1		
Connection type		
M12, 4-pin, female, D-coded, color: black		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	TX+	Transmit line (+)
2	RX+	Receive line (+)
3	TX-	Transmit line (-)
4	RX-	Receive line (-)

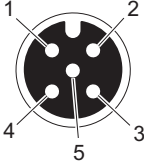
4.15.16 X4233_2: Fieldbus/Ethernet interface, port 2

The following table shows information about this connection:

Function		
Fieldbus/Ethernet interface, port 2		
Connection type		
M12, 4-pin, female, D-coded, color: black		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	TX+	Transmit line (+)
2	RX+	Receive line (+)
3	TX-	Transmit line (-)
4	RX-	Receive line (-)

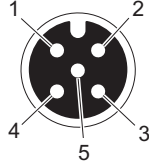
4.15.17 X5133_1: Digital inputs

The following table shows information about this connection:

Function		
Digital inputs		
Connection type		
M12, 5-pin, female, A-coded, color: black		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	+24V	DC 24 V sensor supply
2	DI02	Sensor input DI02
3	0V24	0V24 reference potential for sensors
4	DI01	Sensor input DI01
5	FE	Functional earth

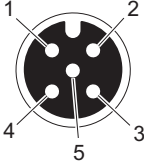
4.15.18 X5133_2: Digital inputs

The following table shows information about this connection:

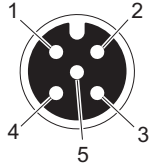
Function		
Digital inputs		
Connection type		
M12, 5-pin, female, A-coded, color: black		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	+24V	DC 24 V sensor supply
2	DI04	Sensor input DI04
3	0V24	0V24 reference potential for sensors
4	DI03	Sensor input DI03
5	FE	Functional earth

4.15.19 X5133_3: Digital inputs

The following table shows information about this connection:

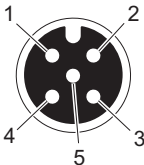
Function		
Digital inputs/outputs		
Connection type		
M12, 5-pin, female, A-coded, color: black		
Connection diagram		
		
Assignment		
Contact	Signal	Description
1	+24V	DC 24 V sensor/actuator supply
2	DIO06	Sensor input DIO06
3	0V24	0V24 reference potential for sensors/actuators
4	DIO05	Sensor input DIO05
5	FE	Functional earth

4.15.20 X5102: Digital outputs

Function		
Digital inputs/outputs of power section		
Connection type		
M12, 5-pin, female, A-coded		
Connection diagram		
		
No.	Name	Function
1	+24V_S	DC 24 V input – sensor supply
2	DO01	Digital output sensor DO01
3	0V24	0V24 reference potential for sensors
4	DO00	Digital output sensor DO00
5	FE	Equipotential bonding / functional earth

4.15.21 X5601_1: Digital inputs – safety-related

The following table shows information about this connection:

Function		
Safety-related inputs		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	F-SS0	DC 24 V sensor supply for safe inputs
2	F-DI01	Safety-related digital input F-DI01
3	GND	Reference potential
4	F-DI00	Safety-related digital input F-DI00
5	F-SS1	DC 24 V sensor supply for safe inputs

Connection cables



INFORMATION

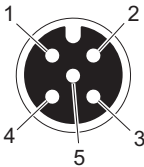
Use only shielded cables for this connection.

Observe the following notes:

- Only connect sensors with contacts to the safe F-DIn inputs in accordance with the fail-safe principle (e.g. emergency off buttons, door contact switches, etc.).
- Note that both sensor supplies F-SS0 and F-SS1 are generally clocked.
- Note that F-SS0 is connected to F-DI00 and F-DI02 via the respective sensor (fixed assignment).
- Note that F-SS1 is connected to F-DI01 and F-DI03 via the respective sensor (fixed assignment).
- Unassigned inputs need not be wired. An open input is always read as a "0" signal.

4.15.22 X5601_2: Digital inputs – safety-related

The following table shows information about this connection:

Function		
Safety-related inputs		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	F-SS0	DC 24 V sensor supply for safe inputs
2	F-DI03	Safety-related digital input F-DI03
3	GND	Reference potential
4	F-DI02	Safety-related digital input F-DI02
5	F-SS1	DC 24 V sensor supply for safe inputs

Connection cables



INFORMATION

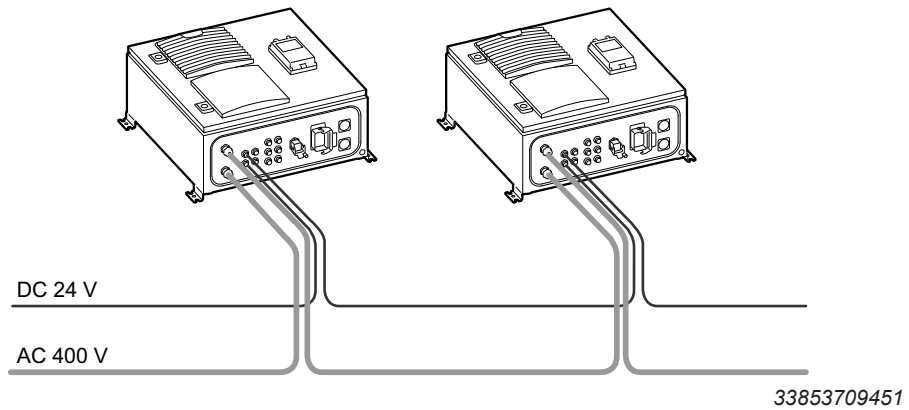
Use only shielded cables for this connection.

Observe the following notes:

- Only connect sensors with contacts to the safe F-DI inputs in accordance with the fail-safe principle (e.g. emergency off buttons, door contact switches, etc.).
- Note that both sensor supplies F-SS0 and F-SS1 are generally clocked.
- Note that F-SS0 is connected to F-DI00 and F-DI02 via the respective sensor (fixed assignment).
- Note that F-SS1 is connected to F-DI01 and F-DI03 via the respective sensor (fixed assignment).
- Unassigned inputs need not be wired. An open input is always read as a "0" signal.

4.16 Several devices to one power supply

Several devices can be supplied by one power supply. Use the existing screw fittings for AC 400 V for this purpose. A screw fitting allows you to connect the supply cable. The second screw fitting allows you to supply the next device. Ensure that a DC 24 V supply is provided via plug connector M12. Another M12 plug connector is provided for looping through this supply line.



The maximum permitted length of the 24 V supply cable is 30 m.

5 External braking resistors

5.1 Assignment of external braking resistors

The external braking resistors are available with the relevant connections as accessories for the control cabinet with MOVIDRIVE® technology. Information about the accessories which are required for your device can be found in the operating instructions provided with the device.

5.2 Description



⚠ WARNING

Danger of electric shock due to high DC voltage in the supply lines (about DC 900 V).

Severe or fatal injuries.

- Only use cables provided by SEW-EURODRIVE.
- Install the cables according to the instructions.



⚠ WARNING

Risk of burns due to hot surfaces. Braking resistors reach a temperature of up to 250 °C under load.

Serious injuries.

- Select a suitable installation location and observe the minimum clearance.
- Provide covers to safeguard hot surfaces.
- Install the protection devices according to the regulations.
- Check the protection devices on a regular basis.

NOTICE

In case of incorrect assignment of the inverters, an overload may occur at the braking resistor and damage the braking resistor.

Damage to braking resistor.

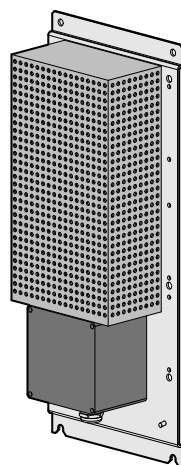
- Observe the assignment of the braking resistor to the inverter and the project planning guidelines.

For regenerative operation, an external braking resistor is connected to the control cabinet with MOVIDRIVE® technology. Observe the following technical data regarding the connection.

5 External braking resistors

Description

Flat-type resistors have internal thermal protection (fuse cannot be replaced) that interrupts the current circuit in the event of overload. Additional components for thermal monitoring are not necessary. The following figure shows an example of a size 1 braking resistor:



9007201338768011

5.3 Mechanical installation

5.3.1 Mounting position

The following table shows permitted and not permitted mounting positions:

Braking resist- ors	Mounting positions			
BW100-004-00				
BW033-012-01 BW050-008-01				
BW017-024-02 BW014-028-02				

5.3.2 Minimum clearance

Calculate the mounting surfaces, the touch guard and the clearance according to the high surface temperature. Observe a minimum clearance of 30 mm. Refer to the instruction leaflet supplied with the corresponding braking resistor for the required minimum clearance dimensions.

5.3.3 Assembly

Required materials

- A mounting plate, for example, to observe the required minimum distances and clearances
- Suitable mounting and safety elements

Procedure

You can mount the braking resistors directly over the retaining plates.

Proceed as follows:

1. For bore dimensions, refer to the dimension drawings in chapter "Technical data" (→ 108).
2. Drill the holes in the appropriate places.

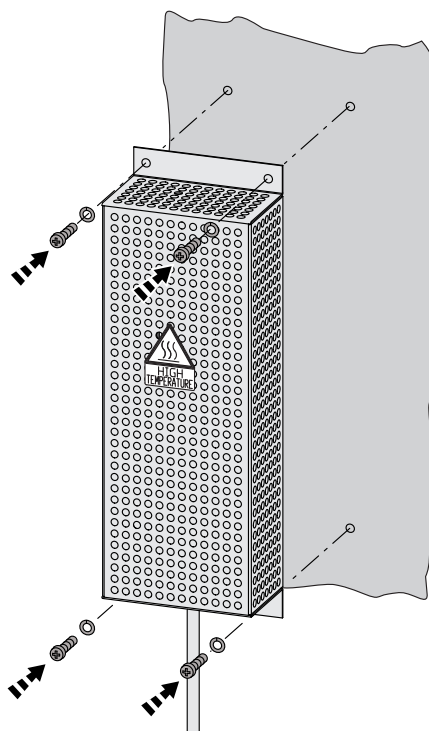
The following figures show how to mount the braking resistors:

26874946/EN – 05/2021

5 External braking resistors

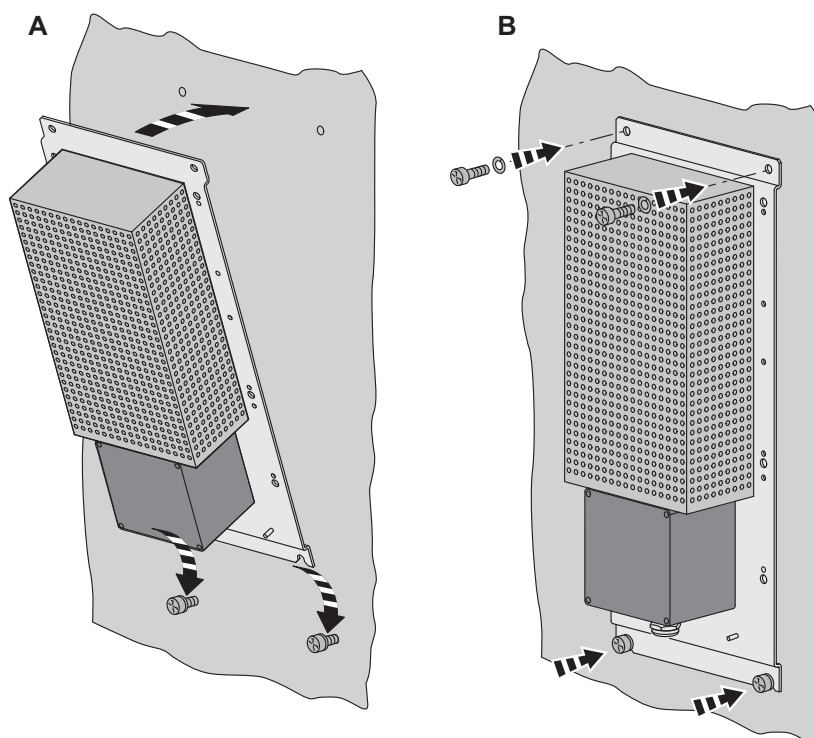
Mechanical installation

Size 0



2110859403

Sizes 1 and 2



9007201365603467

3. Ground the housing of the braking resistor.

26874946/EN – 05/2021

5.3.4 Mounting with mounting brackets (sizes 1 and 2)

Required materials

- "Mounting bracket kit, BW" accessories (part number 18229689):
 - 4 mounting brackets
 - 8 M5 × 12 pan head screws

Procedure

INFORMATION

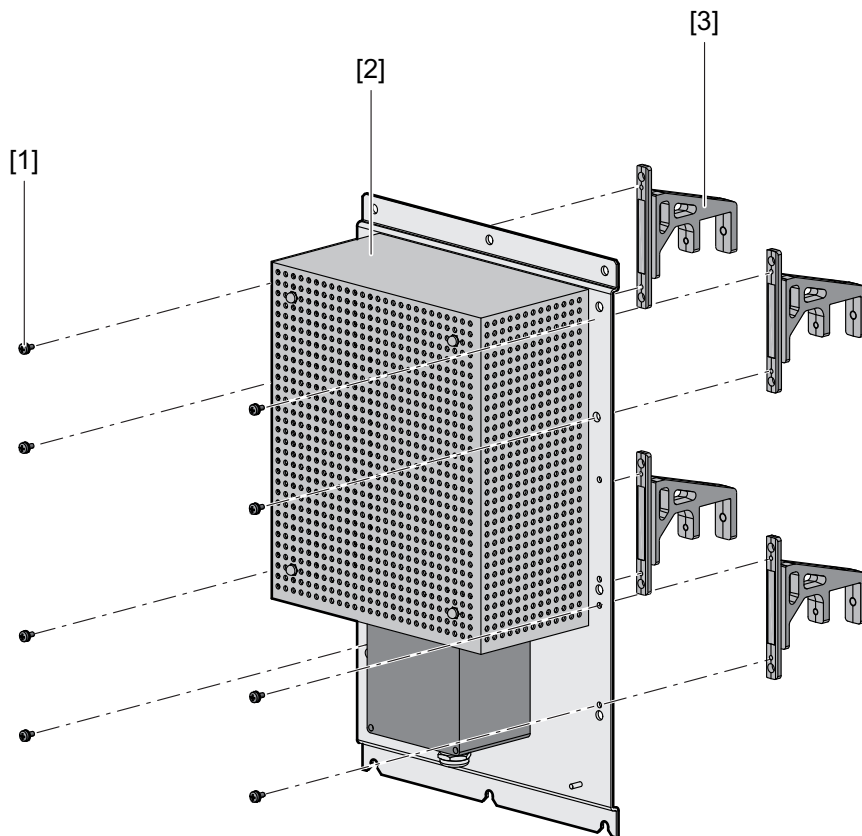


For more information on how to attach the brackets to square pipes or bars, refer to chapter Mounting accessories.

You can use mounting brackets to fasten all braking resistors that are sizes 1 and 2.

Proceed as follows:

1. Use the M5 × 12 pan head screws [1] to attach the mounting brackets [3] to the braking resistor [2].



2091901579

- [1] M5 × 12 pan head screws
 [2] Braking resistor
 [3] Mounting bracket

2. Ground the housing of the braking resistor.

5.4 Technical data

5.4.1 Braking resistors – assignment

The following table shows the external braking resistors for the control cabinet with MOVIDRIVE® technology:

Braking resistor	Part number	Size BW	Terminal cross section
BW100-004-00	17962188	Size 0	Pre-assembled connection cable
BW050-008-01	17962242	Size 1	6 mm ²
BW033-012-01	17962196	Size 1	6 mm ²
BW017-024-02	17962218	Size 2	6 mm ²
BW014-028-02	17962226	Size 2	6 mm ²

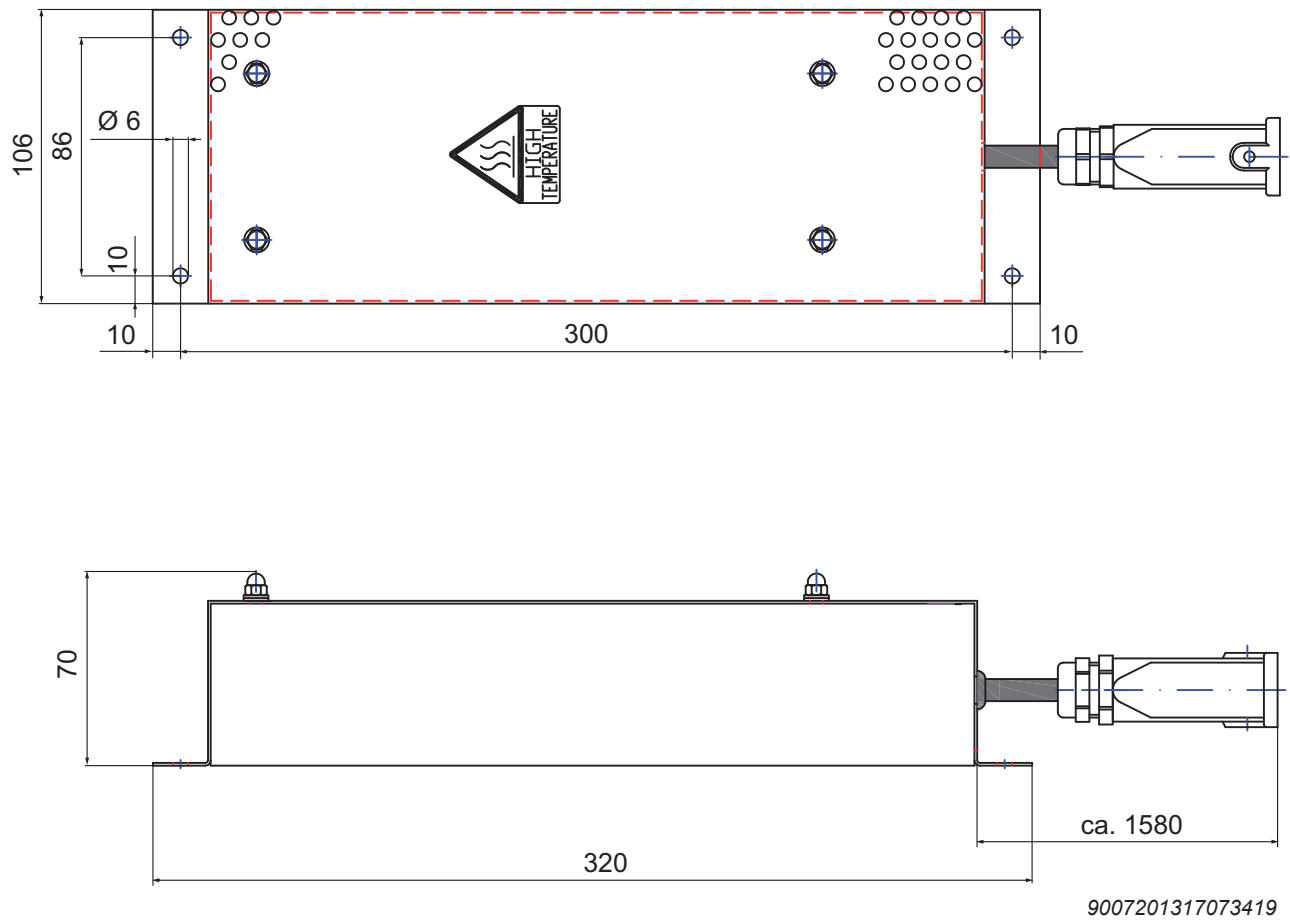
5.4.2 Technical data according to IEC

		Braking resistor				
		BW100-004-00	BW050-008-01	BW033-012-01	BW017-024-02	BW014-028-02
Function		Carrying off of regenerative energy				
Degree of protection		IP65				
Mounting position		Flat-type resistor				
Resistance		100 Ω	50 Ω	33.3 Ω	16.7 Ω	14.3 Ω
Continuous braking power	100% cdf	0.4 kW	0.8 kW	1.2 kW	2.4 kW	2.8 kW
	50% cdf	0.8 kW	1.6 kW	2.4 kW	4.8 kW	5.6 kW
	25% cdf	1.5 kW	3 kW	4.5 kW	9 kW	10.5 kW
	12% cdf	2.2 kW	4.4 kW	6.6 kW	13.2 kW	15.4 kW
	6% cdf	3.6 kW	7.2 kW	10.8 kW	21.6 kW	25.2 kW
	3% cdf	6 kW	12 kW	18 kW	36 kW	42 kW
	2% cdf	7.7 kW	15.4 kW	23.1 kW	46.2 kW	53.9 kW
	1% cdf	14.4 kW	28.8 kW	43.2 kW	86.4 kW	100.8 kW
Dimensions W × H × D		320 × 70 × 106 mm	550 × 105 × 230 mm		550 × 158 × 330 mm	

5.4.3 Dimension drawings

Size 0 braking resistor

The dimension drawing shows the mechanical dimensions in mm:

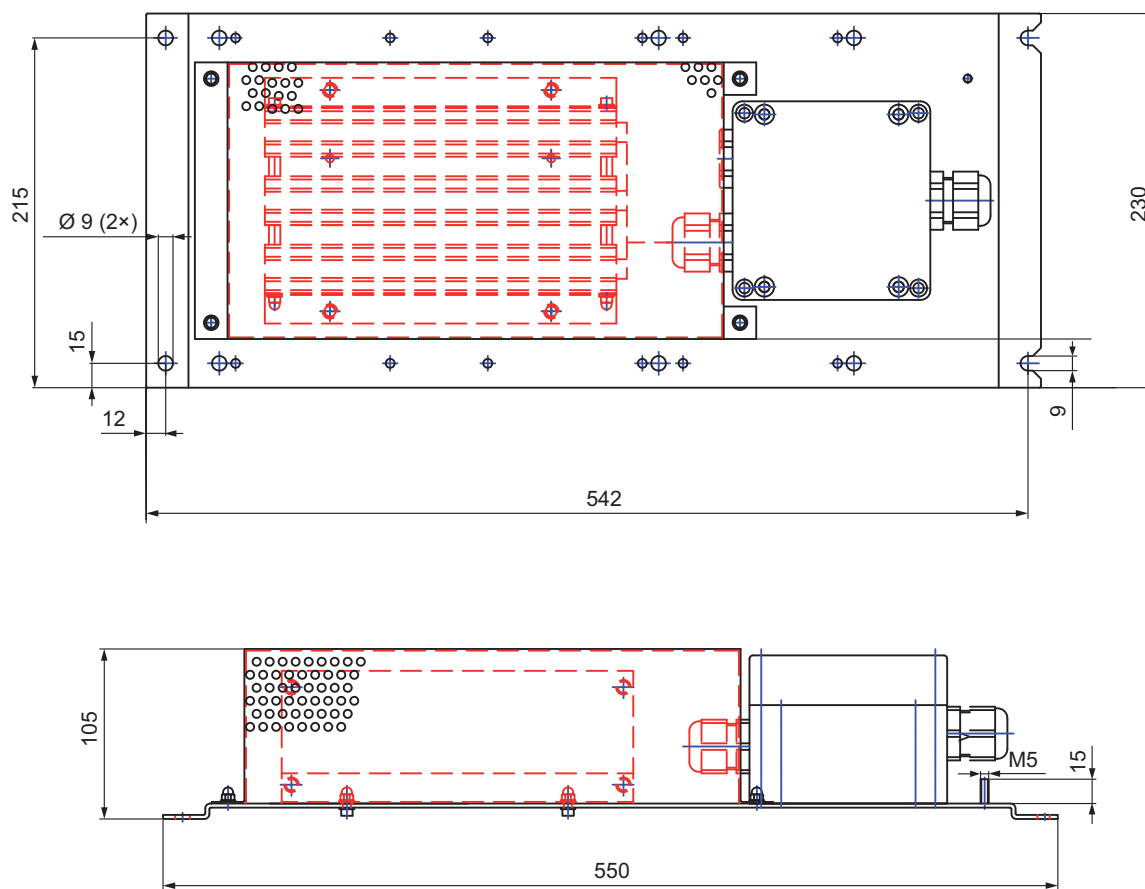


5 External braking resistors

Technical data

Size 1 braking resistors

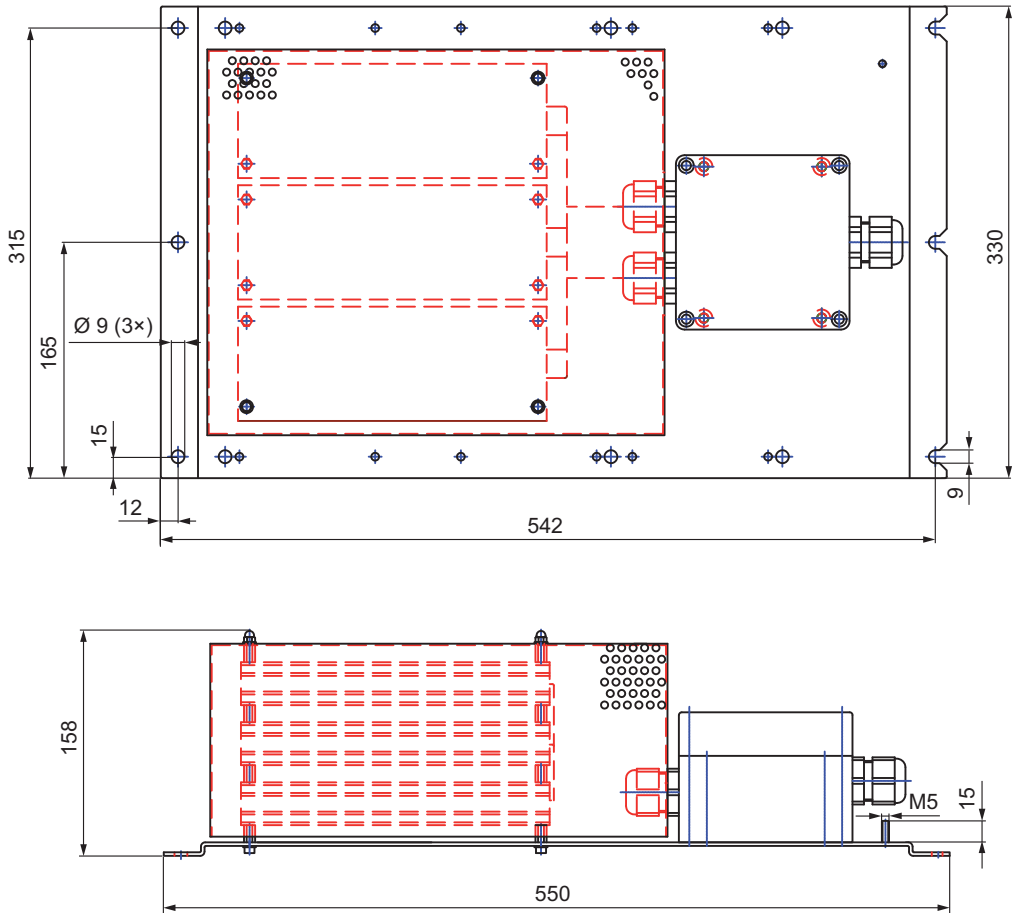
The dimension drawing shows the mechanical dimensions in mm:



9007201317080331

Size 2 braking resistors

The dimension drawing shows the mechanical dimensions in mm:



9007201317069579

6 Startup and operation

6.1 Requirements

The following requirements apply to startup:

- You have installed the device correctly both mechanically and electrically.
- The system and connected drives must be configured correctly.
- Safety measures prevent accidental drive startup.
- Safety measures prevent danger to persons or machines.

6.2 Startup and operation

The information about startup and operation can be found in the "MOVIDRIVE® technology" operating instructions.

7 Service

7.1 Inspection/maintenance



⚠ DANGER

Dangerous voltage levels may still be present inside the device and at the terminal strips up to 10 minutes after the inverter has been disconnected from the power supply.

Severe or fatal injuries from electric shock.

To prevent electric shocks:

- Disconnect the inverter from the power supply and wait 10 minutes before removing the safety covers.

Carry out maintenance on the following components at least once a year:

- Control cabinet mounting points
- Condition of seals at control cabinet opening
- Corrosion on control cabinet housing
- Air conditioning devices in accordance with the manufacturer's specifications
- Switching and safety elements in accordance with the manufacturer's specifications
- Tightness of clamped connections
- Condition of supply, motor and signal cables

INFORMATION



All repairs must be carried out by SEW-EURODRIVE only.

8 Technical data

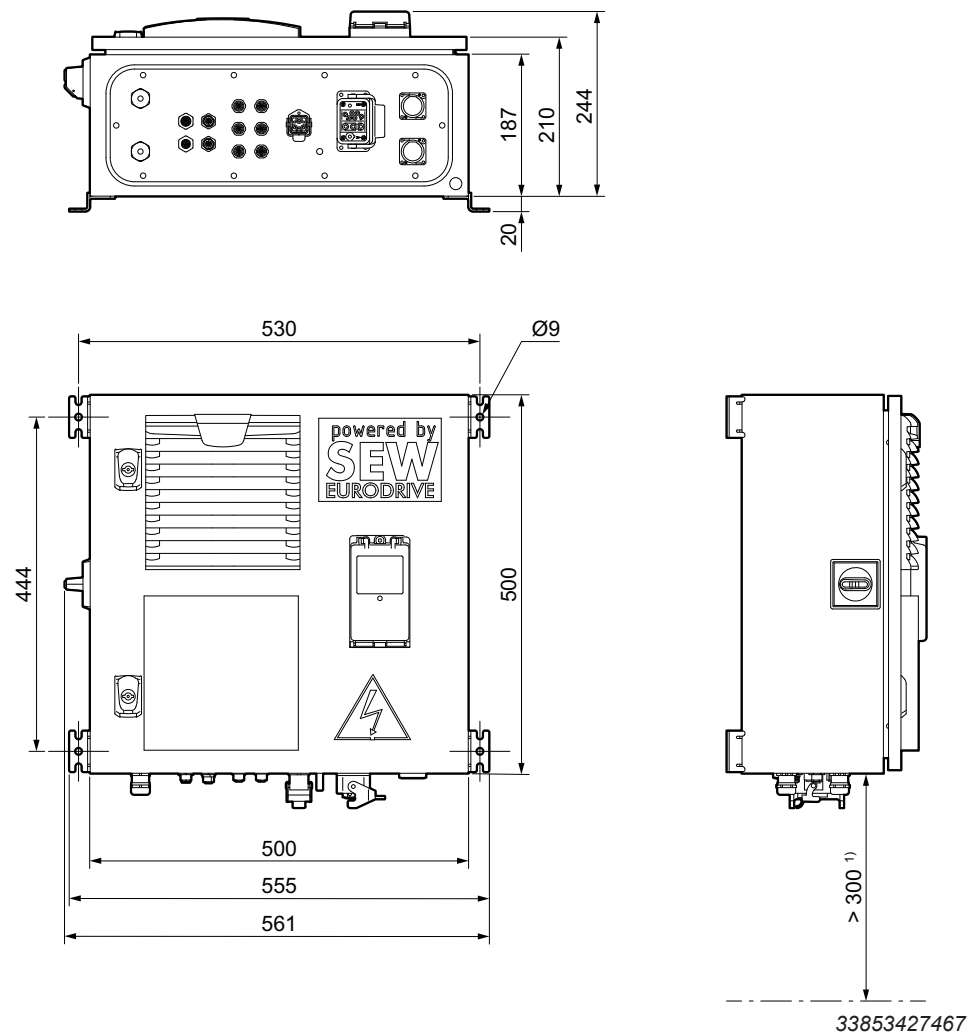
	Control cabinet with MOVIDRIVE® technology
Frequency inverter	MOVIDRIVE® technology
Fieldbus	CFN21A (PROFINET), CFE21A (Ethernet-IP), CFP21A (PROFIBUS)
Safety card	CSS31A (PROFISAFE with multi-encoder input)
Keypad	CBG21A
Brake control	BST 0.7S-400V-0B
Thermal circuit breaker	Not necessary if the specified braking resistors are installed ("External braking resistors" (→ 103))
Ventilation	Filter ventilation
Mounting	Wall mounting
Engineering	Via fieldbus, D-SUB 9-pin on control cabinet wall

Description	Control cabinet with MOVIDRIVE® technology											
	Size 1									Size 2		Size 3
in A	2	2.5	3.2	4	5.5	7	9.5	12.5	16	24	32	46
in kW	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	22
Frequency inverter	MOVIDRIVE® technology											
Ambient temperature	+5 – +35 °C ¹⁾											
Degree of protection	IP54											
Mass in kg	24.4				24.7			26		30		35
Dimensions W x H x D in mm	500 x 500 x 210									600 x 600 x 210		600 x 600 x 250
Line voltage V _{line}	3 AC 380 – 500 V											
Control voltage	DC 24 V											
Line frequency f _{line}	50 – 60 Hz ± 5%											
Terminal cross section Power supply in mm²	2.5 to 4									6 to 10		10 to 16
Maximum permitted back-up fuse in A	25									50		63

1) Contact SEW-EURODRIVE in the event of deviating ambient temperatures.

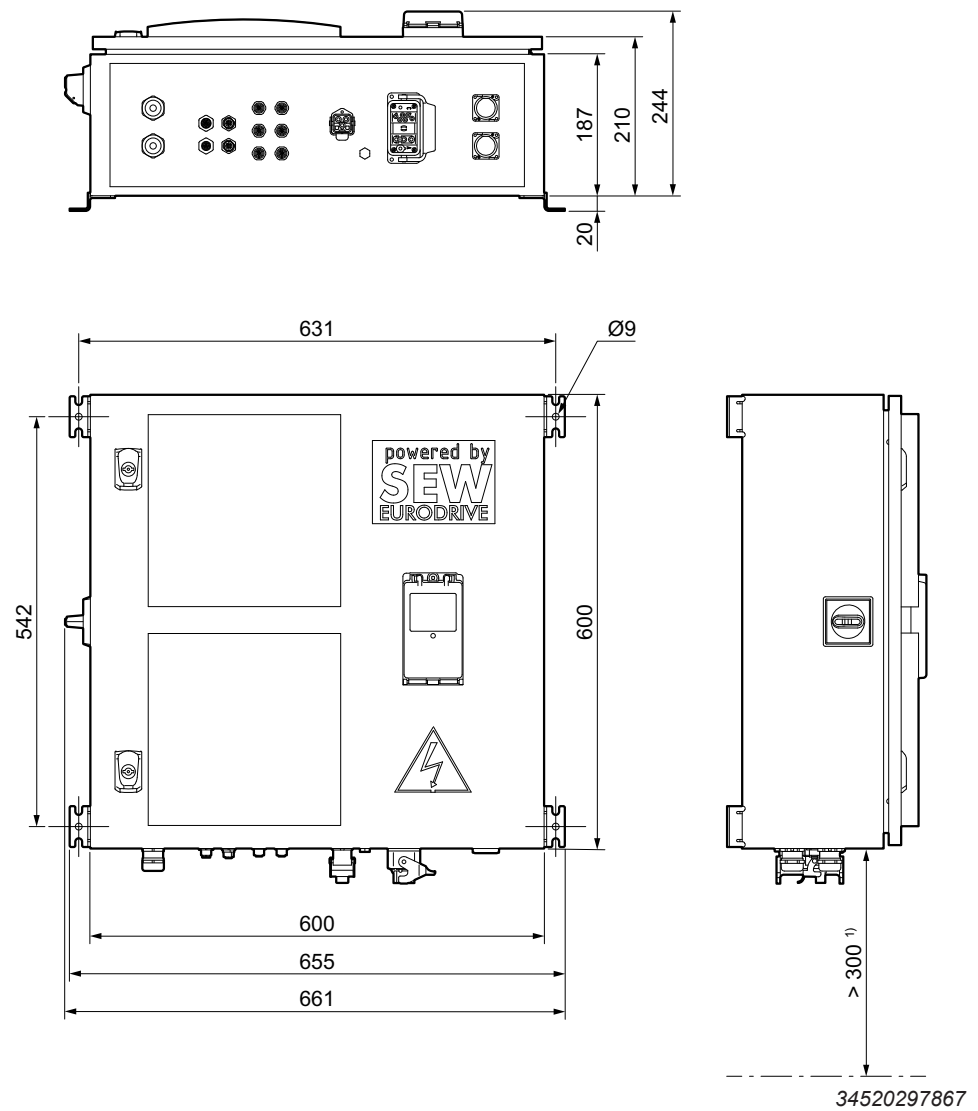
8.1 Dimension drawing size 1

The dimension drawing shows the mechanical dimensions of the device in mm:



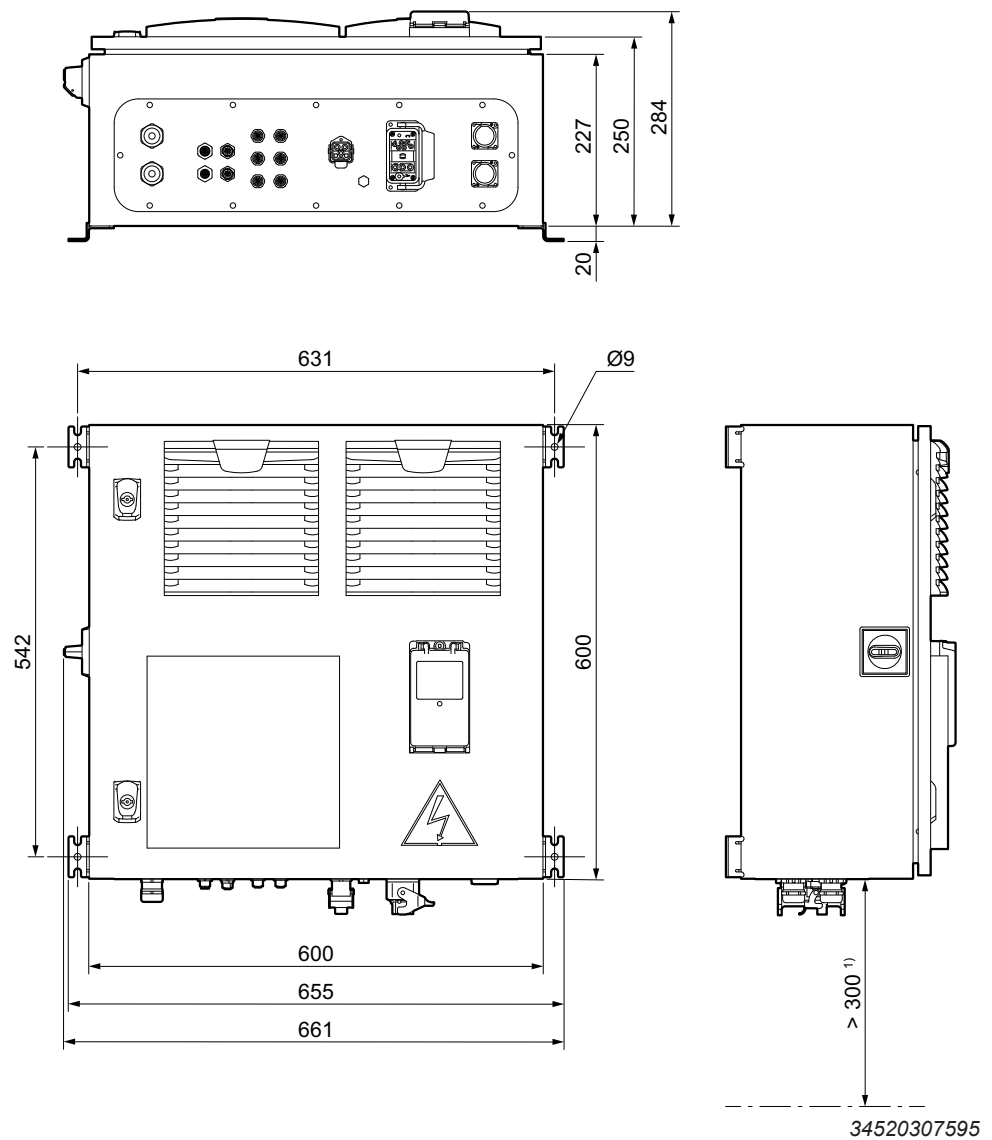
8.2 Dimension drawing size 2

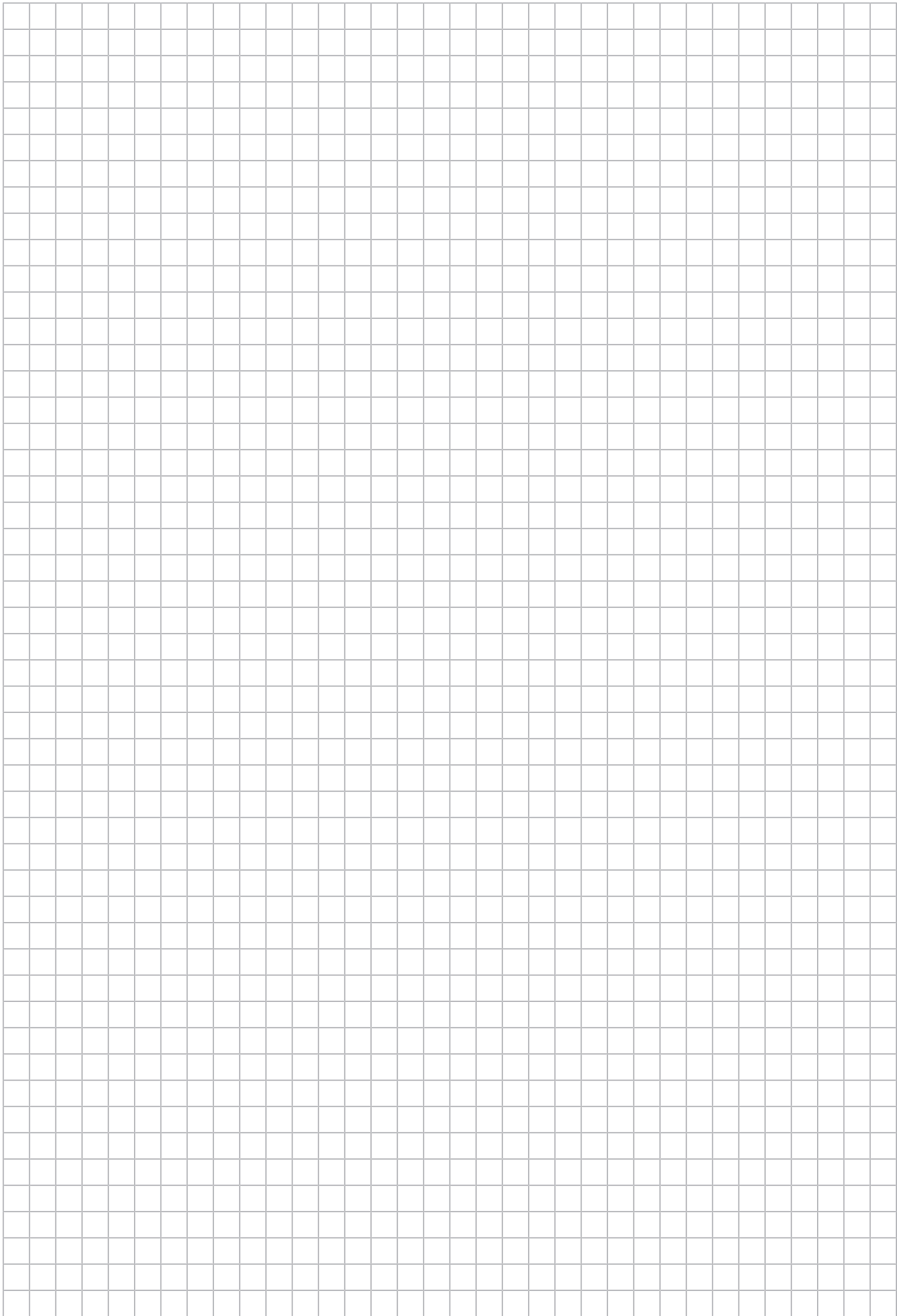
The dimension drawing shows the mechanical dimensions of the device in mm:

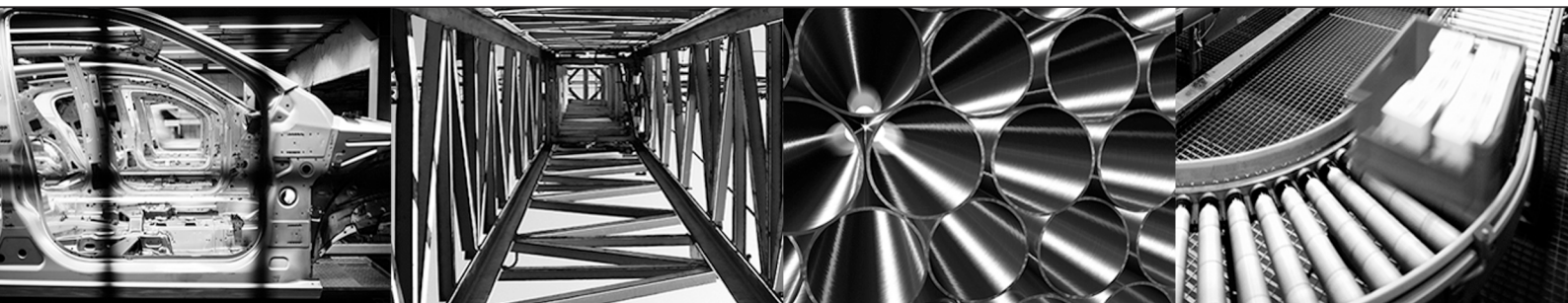


8.3 Dimension drawing size 3

The dimension drawing shows the mechanical dimensions of the device in mm:









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