SEW EURODRIVE

Addendum to the Operating Instructions

AC Motors with MOVILINK® DDI Interface

DRN.., DR2S, DR2L, DR2C, DRU..

Edition 07/2025

33093563/EN

Table of contents

33093563/EN – 07/2025

33093563/EN – 07/2025

33093563/EN – 07/2025

1 General information

This document describes the differences between the motors with a MOVILINK® DDI interface and the standard DR.. motors.

This document is an addendum to the following documents:

- Operating instructions "DR.. 56 – 315 AC Motors"

The operating instructions are still valid.

33093563/EN – 07/2025

2 Safety notes

2.1 Functional safety

The product does not include a safety sub-function. As an option, functionally safe motor options can be installed on the product.

The product is not permitted to perform any safety function without higher-level safety systems.

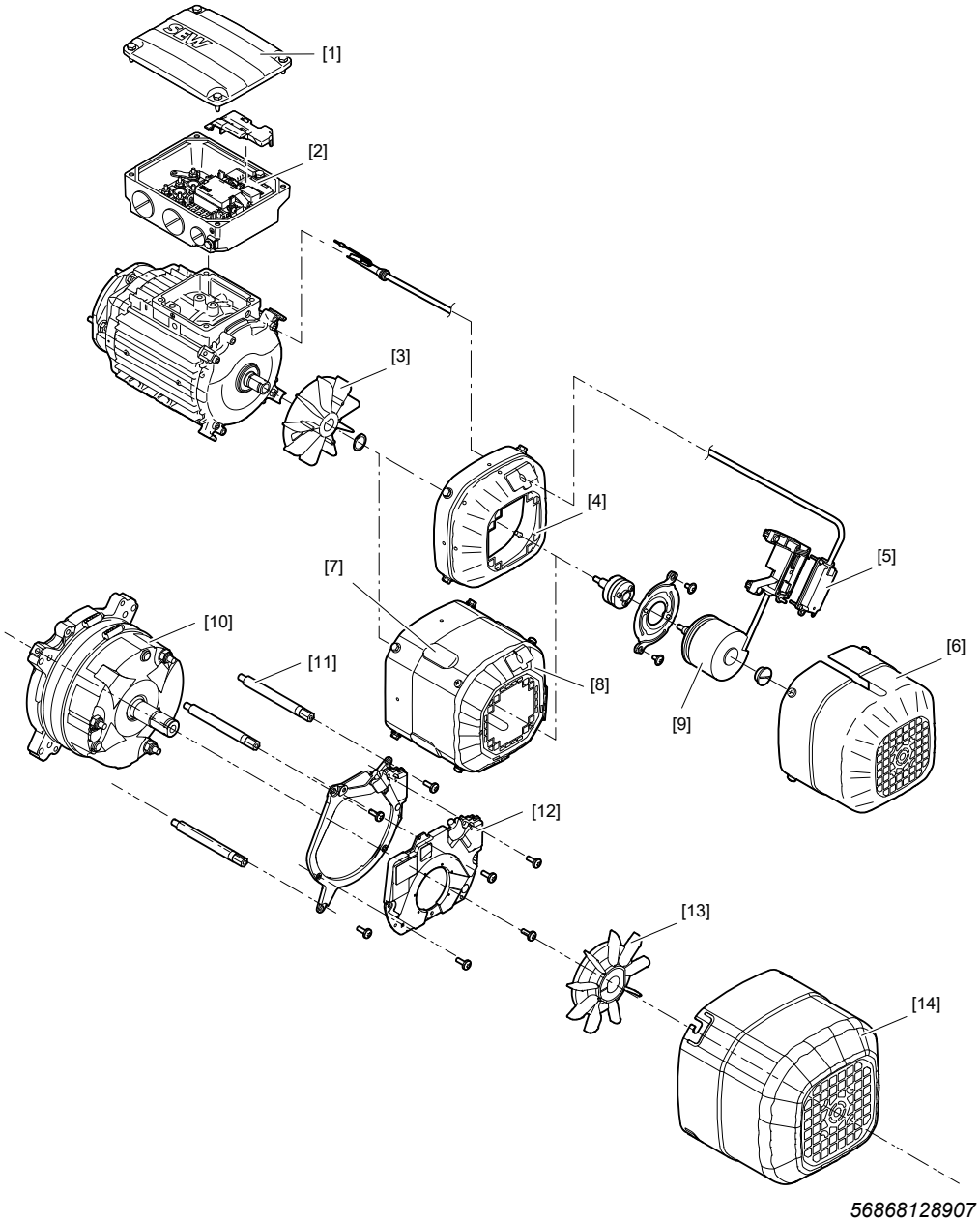
To use the functionally safe motor options, refer to the product manual and the additional operating instructions for the motor options of the present motor. To use safety sub-functions, please refer to the product manual of the inverter used.

33093563/EN – 07/2025

3 Motor structure

3.1 Basic structure of DR.71 – DR.225 motors

The following figures are merely schematic representations. Discrepancies may occur depending on the size and design.



56868128907

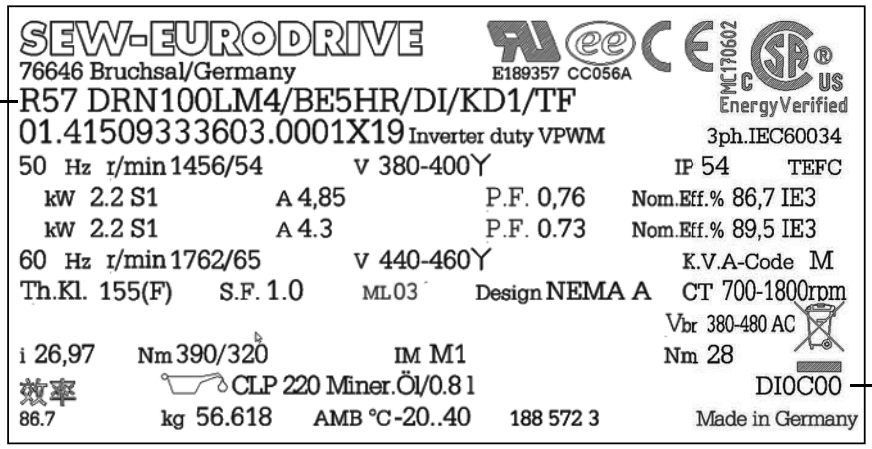
[1] Terminal box cover
[2] MOVILINK® DDI communication unit
[3] Fan
[4] Fan guard
[5] Encoder connection unit
[6] Encoder safety cover
[7] Covers for brake releasing lever slots
[8] Brake fan guard
[9] Encoder
[10] Brake (optional)
[11] Spacer bolt
[12] Encoder module EI8[1)]
[13] Fan with pole ring socket
[14] Fan guard

1) Only for DR.71 – DR.132S

33093563/EN – 07/2025

3.2 Nameplate on the motor

The following figure shows an example of a nameplate for a unit with MOVILINK® DDI interface:



9007229789274635

[1] • Type designation
[2] • Type code of the MOVILINK® DDI interface

3.3 Type designation of the motor with MOVILINK® DDI

The following table shows an example of a type designation:

R47DRN90L4BE05/DI/KD1/TF/EI8Z/2W	
R	Gear unit type
47	Gear unit size
DRN	Motor series
90	Motor size
L	Motor length
4	Number of poles
BE05	Brake with size specification
DI	MOVILINK® DDI interface
KD1	M23 hybrid connector (cable cross section 1.5 mm² – 4 mm²)
TF	Thermal motor protection
EI8Z	Encoder
2 W	Shaft design

33093563/EN – 07/2025

3.4 Type designation of the MOVILINK® DDI interface

The type designation of the MOVILINK® DDI interface describes the characteristics of the MOVILINK® DDI communication unit integrated in the motor. The type designation does not describe the equipment of the motor. The equipment is defined by the motor type code.

DI0E00	
DI	DI = MOVILINK® DDI
0	0 = Motor-external or inverter-integrated brake control and supply 1 = BS1Z motor-integrated brake control via MOVILINK® DDI 2 = BG1Z motor-integrated brake control via MOVILINK® DDI
E	B = Temperature detection, no extended electronic nameplate, no encoder function C = Extended electronic nameplate, motor temperature or thermal motor protection, no encoder functionality E = Extended electronic nameplate, motor temperature or thermal motor protection and encoder functionality F = Extended electronic nameplate, encoder functionality, no motor temperature and no thermal motor protection
00	00 = No further optional equipment 10 = DriveRadar® DU1Z sensor modules mounted in the terminal box

Example DI0E00

Motors of the DR.. or CM.. series with MOVILINK® DDI without a motor-integrated brake control.

The motor can be configured and used in a control cabinet topology or in a decentralized topology. Depending on the inverter assignment, the motor can be operated with one of the following inverters:

- MOVITRAC® advanced control cabinet inverter
- MOVIDRIVE® technology, MOVIDRIVE® modular, MOVIDRIVE® system control cabinet inverters
- MOVIMOT® flexible decentralized inverter
- MOVIMOT® advanced decentralized inverter (DR.. motor)
- MOVIMOT® performance decentralized inverter (CM3.. motor)

Example DI2E10

Motors of the DR.. series with MOVILINK® DDI without encoder, but with motor-integrated BG1Z brake control and the DU1Z DriveRadar® SensorModule.

The motor can be used in a control cabinet topology. Depending on the inverter assignment, the motor can be operated with one of the following inverters:

- MOVITRAC® advanced control cabinet inverter
- MOVIDRIVE® technology, MOVIDRIVE® modular, MOVIDRIVE® system control cabinet inverters

33093563/EN – 07/2025

Example DI1E00

Motors of the CM.. series with MOVILINK® DDI, encoder and motor-integrated BS1Z brake control

The motor can be used in a control cabinet topology. Depending on the inverter assignment, the motor can be operated with one of the following inverters:

- MOVITRAC® advanced control cabinet inverter
- MOVIDRIVE® technology, MOVIDRIVE® modular, MOVIDRIVE® system control cabinet inverters

33093563/EN – 07/2025

4 Designs and options

4.1 Asynchronous motors

Designation	Description
DRN.., DR2S.., DR2L.., DR2C.., DRU..	Series
71, 80, 90, 100, 112, 132, 180, 200, 225	Sizes
S, MS, MK, M, L, LS	Lengths
2, 4, 6, 8	Number of poles

4.2 Brakes and brake control

4.2.1 Brakes and brake options

Designation	Description
/BE[1)]	Spring-loaded brake with increased working capacity

1) Optionally available as a safety brake.

4.2.2 Motor-integrated brake control

Designation	Description
BG1Z[1)]	Integrated brake control for MOVILINK® DDI, motor-external brake supply AC 200 – 500 V with installed 230 V brake, condition monitoring of the brake, brake diagnostics, wear detection.

1) Not compatible for controlling a safety brake.

For further information, refer to chapter "Brake voltages for BG1Z brake control" (→ 🗎 61).

4.3 Temperature sensor/temperature detection

Designation	Description
/PK	Pt1000 temperature sensor
/PI	Motor protection/thermal information (Pt1000)
/TF	Thermal motor protection

4.4 Encoder

Designation	Description	Capability class
/EI8Z	Incremental encoder 12 bit, MOVILINK® DDI	Medium class
/EK8Z[1)]	Incremental encoder 18 bit, MOVILINK® DDI	High class
/EK9Z[2)1)]	Single-turn, MOVILINK® DDI	High class
/AK8Z[1)]	Absolute encoder, MOVILINK® DDI Single-turn 18 bits Multi-turn 16 bits absolute	High class

1) Optionally available as safety encoder.

2) Only for DR2C.. motors.

33093563/EN – 07/2025

4.5 Connection variants

Designation	Description
/KD1	M23 hybrid connector motor/brakemotor (motor, brake, communication) for MOVILINK® DDI Axial or angled connector on the motor side Can be selected for nominal motor current up to 23 A
/KD	Cable gland on terminal box For motor/brakemotor hybrid cable (motor, brake, communication) for MOVILINK® DDI For separate power and signal cables With hybrid cables for nominal motor current of up to 49 A With separate power and signal cables for higher nominal motor currents
/KDB	M40 hybrid connector for motor/brakemotor (motor, brake, communication) for MOVILINK® DDI Axial connector on the motor side Can be selected for nominal motor current up to 49 A
/KDD	Terminal box with straight signal connector (M23) for MOVILINK® DDI Motor and brakemotor cables connected via cable gland, signal cable plug-gable

4.6 Monitoring

Designation	Description
/DU1Z	DriveRadar® SensorModule Sensor unit for extended diagnostics and condition monitoring of the drive with measurement of temperature, vibrations, accelerations, humidity, pressure and their signal preprocessing.

The option designation is not specified in the type designation due to the limited length available, however, it is encoded in the type code of the MOVILINK® DDI identification.

4.7 Fan

Designation	Description
/VR	Forced cooling fan

4.8 Cable glands of the terminal boxes

Designation	Motor size	Brake control	Metric thread	Inch thread
KDD	71 to 132	–	1 × M24 and 1 × M16 1 × M32 and 1 × M16	1 × 3/4´´ and 1 × 1/2´´ 1 × 3/4´´ and 2 × 1/2´´
KDD	132 to 225	–	1 × M32 and 2 × M16 1 × M40 and 2 × M16 1 × M50 and 2 × M16	1 × 1 1/4´´ and 1 × 1/2´´ 2 × 1 1/2´´ and 1 × 1/2´´

33093563/EN – 07/2025

5 Mechanical installation

5.1 Terminal box

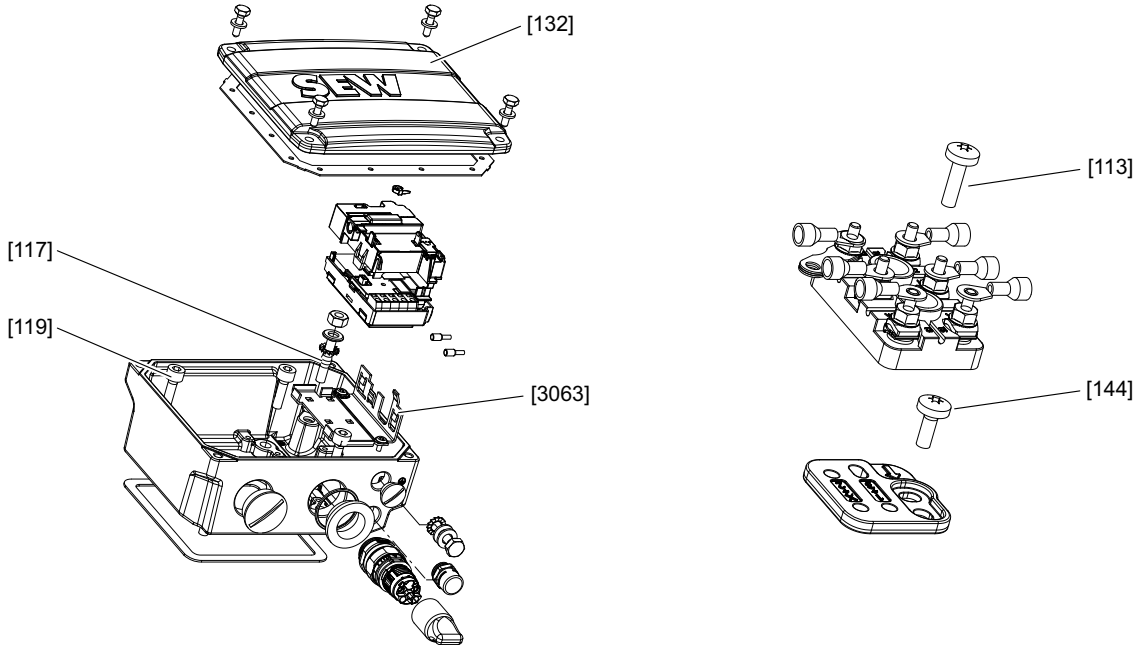
The terminal box of the motor can also be rotated after delivery in sizes 71 – 132S. Note the assembly instructions here. If modifying other sizes, contact SEW-EURODRIVE Service. This makes it possible to align the cable outlet position and adapt the terminal box to the installation situation in the application.

Observe the information on disassembling, rotating and assembling the terminal box in the instructional video.

DE: https://www.youtube.com/watch?v=8_VlRgFERkY

EN: https://www.youtube.com/watch?v=34BD671Yja4

Tightening torques



49804501899

Item number	Tightening torque in Nm
113	2
117	4
119	5
132	4

33093563/EN – 07/2025

Item number	Tightening torque in Nm
144	5
3063	2

33093563/EN – 07/2025

6 Electrical installation

6.1 Wiring diagram overview

The wiring diagrams listed below are a selection for motors with MOVILINK® DDI. You can access further wiring diagrams using the serial number of the drive in the SEW-EURODRIVE OnlineSupport.

6.1.1 Wiring diagrams for connection with KD terminal strip

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63377527	W13K	KD	–	Δ, 6-pin Terminal strip
63377535	W13P	KD	–	Y/Δ, 6-pin Terminal strip
63377551	W13Y	KD	–	Y, 6-pin Terminal strip

6.1.2 Wiring diagrams for connection with KD1 plug connector (M23)

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63328593	R613K	KD1 (M23)	–	Δ, 6-pin terminal board
63328623	R613Y	KD1 (M23)	–	Y, 6-pin terminal board
63328631	R676Y	KD1 (M23)	–	Y, 6-pin terminal board

6.1.3 Wiring diagrams for connection with plug connector KDB (M40)

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63328739	R713K	KDB (M40)	–	Δ, 6-pin terminal board
63328747	R713Y	KDB (M40)	–	Y, 6-pin terminal board
63328755	R776Y	KDB (M40)	–	Δ, 6-pin terminal board

6.1.4 Wiring diagrams for motors without a brake or brakemotors with external brake control, MOVILINK® DDI type designation DI0..

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63329050	Z200	KD	External	–
63329077	Z200A	KD1 (M23)	External	–
63329093	Z200B	KDB (M40)	External	–

6.1.5 Wiring diagrams for brakemotor with integrated BG1Z brake control, MOVILINK® DDI type designation DI2..

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63329069	Z201	KD	BG1Z	–
63329085	Z201A	KD1 (M23)	BG1Z	–
63329115	Z201B	KDB (M40)	BG1Z	–

6.1.6 Wiring diagrams for connection of the motor via cable gland and with KDD signal plug connector

Part number	Wiring diagram	Terminal box	Brake control	Wiring
63338734	Z200C	KDD (M23)	–	–
63338742	Z201C	KD1 (M23)	BG.Z	–

33093563/EN – 07/2025

6.2 Installation notes for brakes

For the electrical fusing of the integrated brake controls, use at least one fuse as cable protection according to the electrical characteristic values of the selected brake. SEW-EURODRIVE recommends using a power circuit breaker in addition.

6.2.1 Combinable brake controls

The brake is typically powered through a brake control. The following options are available for MOVILINK® DDI:

- Operation using an external brake control from the local AC voltage supply system or the DC link of control cabinet inverters
  - Supply with rectified AC voltage through brake control from SEW-EURODRIVE for control cabinet installation (BMS., BME., BMP., BMH., and BMK(B). series)
  - Supply from the DC link of frequency inverters for the control cabinet through safe brake control from SEW-EURODRIVE (BST. or SBM. series)
- Operation from local DC voltage supply systems
  - Supply of the brakes with DC voltage (DC 24 V) through brake control from SEW-EURODRIVE for control cabinet installation (BMV. series)
  - Supply of the brakes with DC voltage without brake control (only for sizes BE03 to BE2 as well as BE1H and BE2H)
- Operation using integrated BG1Z brake control and wide-range voltage supply from the local voltage supply system (AC 200 – 500 V)

  For further information, refer to chapter "Brake voltages for BG1Z brake control" (→ 🗎 61).
- Operation using HV brake control B and supply from the DC link of the decentralized frequency inverter from SEW-EURODRIVE (MOVIMOT® flexible and MOVIMOT® advanced device series).

Observe the specifications for the brake control and for the supply voltage on the nameplate of the motor when connecting. For an overview of the permitted external brake controls for installation in the control cabinet, refer to the operating instructions of the motor.

If brakes BE03 to BE2 as well as BE1H and BE2H are being supplied from the local DC voltage supply system without brake control, suitable overvoltage protection must be implemented on the system side using varistors. The varistors are not included in the scope of delivery of the motor. Observe the project planning notes in the motor catalog from SEW-EURODRIVE.

Braking operation using other supply types (e.g., through brake controls that are not from SEW-EURODRIVE or through voltage supply from the terminal board of the motor) is not permitted.

Some SEW-EURODRIVE brakes are also available in a safety brake version. These safety brakes can also be combined with MOVILINK® DDI. Note that in this combination, only brake controls in the control cabinet are permitted for the safety brake. Detailed descriptions of the safety brakes can be found in the associated documentation.

33093563/EN – 07/2025

6.2.2 Protection against damage due to overvoltage or short circuit

Make sure that the fusing of the supply line is sufficiently dimensioned to avoid damage due to overvoltage (e.g. due to short circuit).

When the brakes are supplied by the DC link of SEW-EURODRIVE frequency inverters, the controls of the series BST. and SBM. (control cabinet installation) and the HV brake control B have the appropriate protection devices.

If the brakes are being supplied from the local voltage supply system (AC or DC), the protection must be realized on the system side.

Observe the operating currents of the brakes and the type of supply when dimensioning:

- For external brake controls (e.g. BME., BMH., BMK(B). or DC supply from the local voltage supply system), observe the project planning notes in the motor catalog.
- The integrated B.1Z brake control has extensive monitoring and protection functions for the brake. Configure the fusing appropriately as line protection for the supply cable. When dimensioning the connection cables, observe the accelerator current and the holding current of the brake as specified in chapter "Technical data of brake controls BG.Z, BS.Z, B" (→ 🗎 59).

  Determine the nominal holding current based on the nominal voltage of the local voltage grid according to the information in chapter "Operating currents with BG1Z" (→ 🗎 65).

Also observe the additional project planning notes in the catalog "AC motors DRN63 – 315, DR2S56 – 225, DR2L71 – 225" or consult SEW-EURODRIVE.

33093563/EN – 07/2025

6.3 Terminal box connections

Observe the possible combinations of the brake control options according to chapter "Technical data for brake controls BG.Z, BS.Z, B.." (→ 🗎 59).

Note that connection work in the terminal box is required only if the motor was ordered with the following connection options:

- KD: Cable gland on the terminal box for hybrid cables
- KDD: Motor connection and brake connection via cable gland, M23 signal plug connector on the terminal box

This connection work is not permitted to be carried out for connection options with hybrid plug connectors.

Depending on the motor size and selected connection type, a terminal board or a terminal strip may be used in the motor.

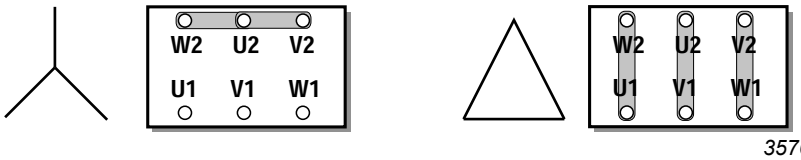
1. Connect the motor with a star or delta connection type according to the following diagram and the wiring diagrams in chapter "Wiring diagram overview" (→ 🗎 16).

Motor size	Connection option	Connection type	I_{nom}	
			Terminal strip KCW	Terminal board
71 – 132S	KD1	Y or YY or Δ	–	≤ 20 A
	KDB		–	≤ 49 A
	KD	Y/Δ or Y or Δ	≤ 20 A	≤ 49 A
		YY	–	≤ 49 A
	KDD	Y/Δ or Y or YY or Δ	–	> 20 A
132M – 225	KD1	Y or YY or Δ	–	≤ 23 A
	KDB		–	≤ 49 A
	KD	Y/Δ or Y or YY or Δ	–	[1]
	KDD		–	All available currents

1) Current limit at 94 A: > 49 A motor power and MOVILINK® DDI signal separate

Regardless of the connection types Y, Δ, YY, the respective connection option may only be used up to the specified nominal motor current.

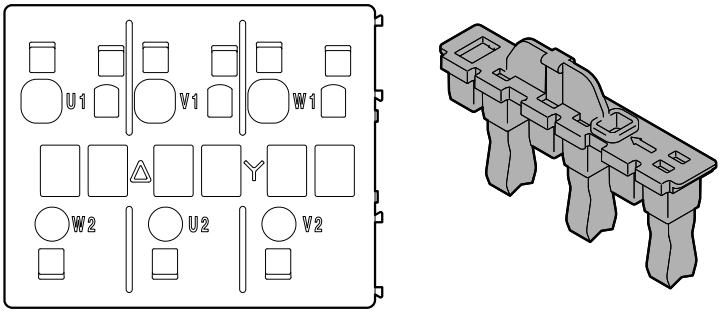
Connection assignment for connection with terminal board



35762386827

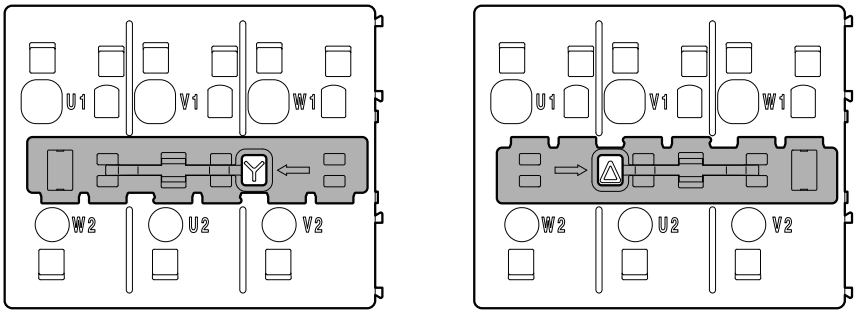
Connection assignment for connection with terminal strip KCW

When connecting with a terminal strip, the supplied terminal link must be inserted so that the symbol for the star or delta connection is visible in the inspection window of the terminal link. Press the terminal link into the terminal according to the selected connection type until the terminal link clicks into place. When doing so, observe the arrow symbol and the inspection window on the terminal link.



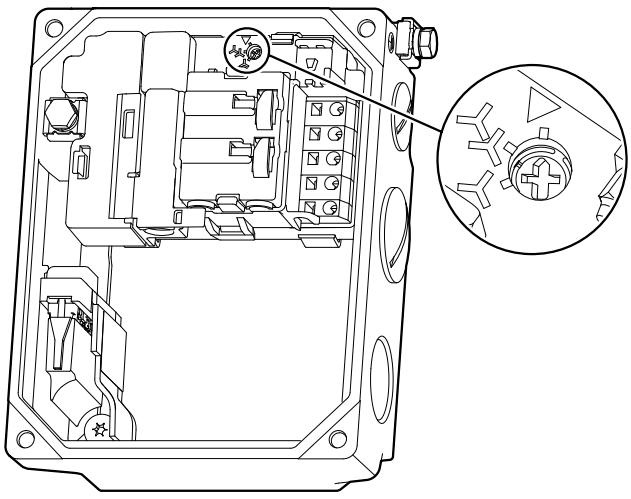
Terminal strip without inserted terminal link

40957571467



Terminal strip in star connection (left) and delta connection (right) with inserted terminal link

40957569035



18014433656888715

2. Set the previously wired connection type on the terminal board or terminal strip on the star/delta rotary switch highlighted in the diagram.

INFORMATION

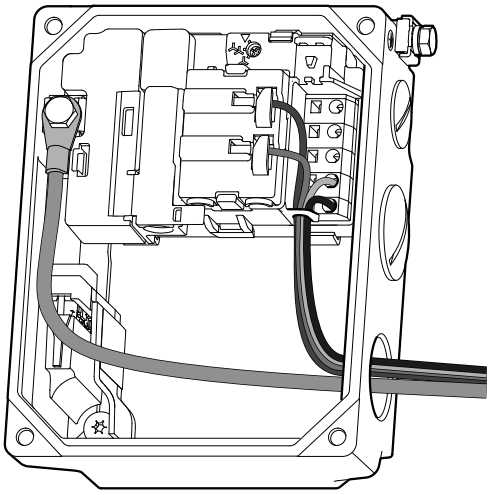
Ensure that the wired star or delta connection type matches the rotary switch. If not, the drive could malfunction.

33093563/EN – 07/2025

INFORMATION

If the motor was ordered as star or delta, note that it is also delivered prewired in the star or delta connection type and the star or delta rotary switch position is preselected. If the motor was ordered neutrally as star/delta, there is no prewiring, but the rotary switch is preset to star.

3. For the brake connection, use cables with a cross section of 1.0 mm^2 (for a motor power cross section of up to 4 mm^2) or 1.5 mm^2 (for a motor power cross section of 6 mm^2 or greater) with a single-core conductor end sleeve with a plastic collar. The connection of the brake to the PE connection of the motor is ensured internally. An additional PE connection is not required.

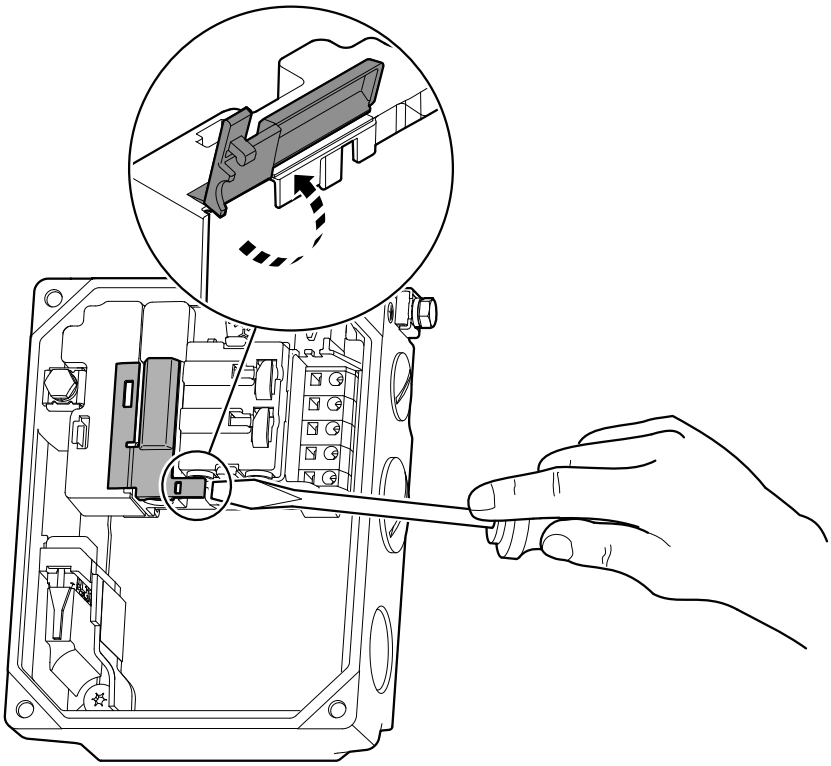


27021633006224651

- ✓ All unconnected conductors, e.g., brake conductors, must be individually insulated and mechanically fixed in the terminal box.
- ✓ The unused conductors must not be connected to PE, ground or the shielding.
- ✓ PE from the MOVILINK® DDI hybrid cable or the motor power cable is connected securely to the grounding point of the motor terminal box as shown. Use ring cable lugs.
- ✓ Use EMC cable glands to connect the shield of the MOVILINK® DDI hybrid cable or the motor brake power cable to the terminal box housing.
- ✓ The enclosed insulating caps can be used for insulation.

4. Store the unused conductors of the brake cable in the supplied insulation clamps as shown in the diagram. (The appropriate clamps for storing the unused brake cables are supplied with the motor.)
   - ⇨ When using a brakemotor, make sure that the conductor end sleeves are insulated.
   - ⇨ When screwing the PE cable in place, make sure that the cable does not protrude over the sealing surface of the cover gasket.

33093563/EN – 07/2025



27021632911633035

5. Use a screwdriver to release the catch mechanism at the point highlighted in the graphic.
6. Insert the FAKRA compatible coaxial connector until it engages in place.
7. Close the cover.

33093563/EN – 07/2025

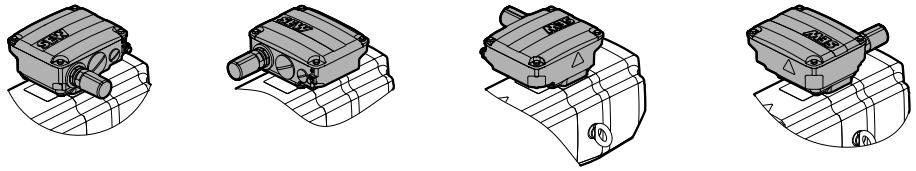
6.4 Connection with plug connectors

The power and signal cables are inserted via connectors.

Comply with the permitted bending radii of the cables.

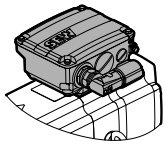
Using the fully digital MOVILINK® DDI interface by SEW-EURODRIVE allows for connecting motors using single-cable technology. With this technology, all data of the motor, such as encoder data, temperature data, startup data, and data of further sensors is digitally transferred via a hybrid cable.

You can align the terminal box with hybrid connector KD1/KDB and the signal connector KDD in all desired positions.



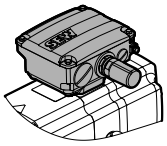
40045109131

The KD1 hybrid connectors are also optionally available in angled positions. You can align the KD1 right-angle connector in a similar way to the SD1 connectors.



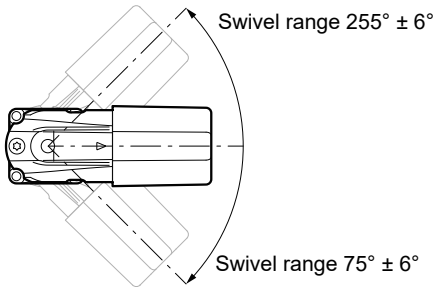
40237377035

The KDD terminal box design is available for motors with high motor power and currents. The signal connector is used to connect the MOVILINK® DDI interface. The motor and brake power supply is ensured via a cable gland in the terminal box.



40237379467

The right-angle connector has the following alignment range:



56011328267

33093563/EN – 07/2025

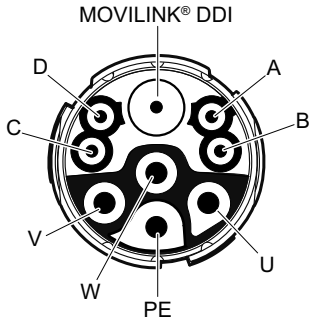
6.4.1 Connection with KD1 hybrid plug connector (M23)

The connection diagram of the connector depicts the contact end of the connections.

Function
Motor connection for motors with MOVILINK® DDI interface

Connection type
M23, male, male thread, TE Connectivity – Intercontec products, series 723, used by SEW-EURODRIVE, SpeedTec equipment, coding ring: none, protected against contact

Connection diagram



Motor assignment

Contact	Signal	Without brake	With BE.. and BE.H brake with external brake control
U	U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W
A	Reserved	Do not connect	Do not connect
B	Reserved	Do not connect	Brake 15
C	Reserved	Do not connect	Brake 13
D	Reserved	Do not connect	Brake 14
PE	PE	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

Motor assignment

Contact	Signal	With BE.. and BE.H brake with BG1Z brake control	With BE.. and BE.H brake with DC 24 V supply voltage and external brake control
U	U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W
A	Reserved	Do not connect	Brake 15
B	Reserved	BG1Z N supply system (L2)	Do not connect
C	Reserved	Do not connect	Brake 14
D	Reserved	BG1Z L1 (phase) supply system	Brake 13
PE	PE	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

33093563/EN – 07/2025

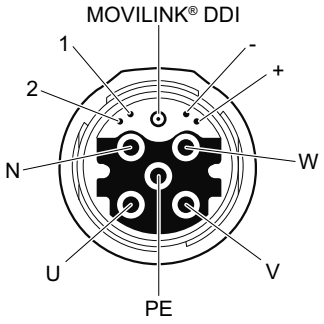
6.4.2 Connection with KDB hybrid plug connector (M40)

The connection diagram of the connector depicts the contact end of the connections.

Function
Motor connection for motors with MOVILINK® DDI interface

Connection type
M40, male, male thread, TE Connectivity – Intercontec products, series 740, used by SEW-EURODRIVE, SpeedTec equipment, coding ring: none, protected against contact

Connection diagram



Motor assignment

Contact	Signal	Without brake	With BE.. and BE.H brake with external brake control
U	U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W
1	Reserved	Do not connect	Do not connect
+	Reserved	Do not connect	Brake 15
-	Reserved	Do not connect	Do not connect
N	Reserved	Do not connect	Brake 13
2	Reserved	Do not connect	Brake 14
PE	PE	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

Motor assignment

Contact	Signal	With BE.. and BE.H brake with BG1Z brake control	With BE.. and BE.H brake with DC 24 V supply voltage and external brake control
U	U	Motor phase U	Motor phase U
V	V	Motor phase V	Motor phase V
W	W	Motor phase W	Motor phase W
1	Reserved	Do not connect	Brake 15
+	Reserved	BG1Z N supply system (L2)	Do not connect
-	Reserved	Do not connect	Do not connect
N	Reserved	Do not connect	Brake 14
2	Reserved	BG1Z L1 (phase) supply system	Brake 13
PE	PE	Protective earth	Protective earth
DDI	MOVILINK® DDI	MOVILINK® DDI	MOVILINK® DDI

33093563/EN – 07/2025

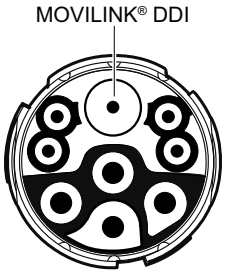
6.4.3 KDD plug connector (M23) connection

The connection diagram of the connector depicts the contact end of the connections.

Function
Motor connection for motors with MOVILINK® DDI interface

Connection type
M23, male, male thread, TE Connectivity – Intercontec products, series 723, used by SEW-EURODRIVE, SpeedTec equipment, coding ring: none, protected against contact

Connection diagram



Motor assignment		
Contact	**Signal**	**With/without brake**
DDI	MOVILINK® DDI	MOVILINK® DDI

33093563/EN – 07/2025

6.5 UL-compliant installation

INFORMATION

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

6.5.1 Branch Circuit Protection

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes (US) or Canadian Electrical Code, Part 1 (CA).

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

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

Model	Non Semiconductor Fuses (currents are maximum, voltages minimum values), any Listed	Inverse-Time Circuit Breaker (currents are maximum, voltages minimum values), any Listed
BG1Z	40 A	40 A
BGext[1)]	40 A	40 A

1) External brake control

6.5.2 Surrounding Air Temperature Rating

Rated for Surrounding Air Temperature of 80 °C in the terminal box of the device they are mounted in.

33093563/EN – 07/2025

7 Connection technology

7.1 Cables for MOVILINK® DDI

The MOVILINK® DDI interface requires a coaxial cable for data transmission between the motor and the inverter. Depending on the motor cable cross section that is required, the coaxial cable is in the form of a hybrid cable (up to 10 mm^2) or in separate cables (> 10 mm^2).

The coaxial cable requires a FAKRA connector at the inverter and motor sides. SEW-EURODRIVE provides prefabricated cables with connectors already fitted. In addition, bulk cables are offered on rolls. In this case, the connectors must be installed by the customer. The FAKRA connectors can be assembled using the "MOVILINK® DDI Tool Set 1".

More information can be found in the "MOVI-C® Modular Automation System – Digital Motor Integration" manual.

Single-cable technology up to 10 mm^2

Prefabricated hybrid cables for motors with MOVILINK® DDI interface are structured as follows:

- 1 conductor for the PE connection
- 3 conductors for controlling the motor
- 4 cores for brake control
- 1 coaxial cable for MOVILINK® DDI

With this universal hybrid cable, all variants of the brake can be controlled.

Multi-cable technology larger than 10 mm^2

For cross sections larger than 10 mm^2, the coaxial cable is routed separately in a cable. Individual coaxial cables are available as prefabricated cables.

The coaxial cable at the motor side is always connected using an M23 connector.

Number of plugging positions

The coaxial technology of MOVILINK® DDI allows multiple plugging positions. Up to 4 plugging positions (up to 200 m) or 6 plugging positions (up to 100 m) are permitted. For additional plugging positions, contact SEW-EURODRIVE.

The plugging positions of the FAKRA plug connector within the motor in the terminal box, on the encoder module, or on the inverter itself are not counted.

Examples for the numbering system of the plugging positions:

- Cable from MOVIDRIVE® to the motor with SD1 (M23 plug connector): 1 plugging position
- Cable from MOVITRAC® advanced to the motor with SDB (M40 connector) connected to an extension cable M40 to M40: 2 plugging positions
- Cable from MOVIDRIVE® to the motor with KD1 (M23 connector): 1 plugging position
- Cable from MOVIMOT® flexible with M23 to the motor with KD1 (M23 connector): 2 plugging positions
- Cable from MOVIDRIVE® to the motor with KD1 (M23 connector) connected to an extension cable M23 to M23: 2 plugging positions

33093563/EN – 07/2025

- Cable from MOVIMOT® flexible with M23 to the motor with KD1 (M23 connector) connected to an extension cable M23 to M23: 3 plugging positions
- Cable from MOVIDRIVE® to motor with KD (hybrid cable gland without plug connector): 0 plugging positions

Interlocking of the plug connectors

MOVILINK® DDI cables with plugs are supplied as standard with quick-locking SpeedTec plugs. Please note that this interlocking must be fully closed to ensure interference-free signal transmission via MOVILINK® DDI.

Inverter in decentralized design

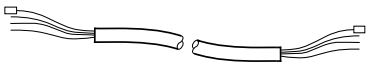
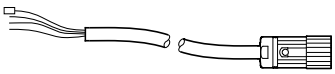
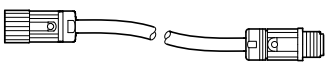
Influencing factors: Depending on the decentralized inverter, there is a general cable length limit. Please refer to the product documentation for the decentralized inverter MOVIMOT® flexible and MOVIPRO® technology.

Inverter in control cabinet

Influencing factors: Depending on the control cabinet inverter, there is a cable length limit based on the PWM frequency and the inverter design. Please refer to the product documentation for the respective control cabinet inverter MOVIDRIVE® technology, modular or system as well as MOVITRAC® advanced.

7.1.1 Overview of options for motor cables

If the cable is specified as open, the motor power and braking power supply is implemented via conductor end sleeves. The signal connection is made via the FAKRA coaxial plug.

Motor cable		Description
Inverter side	Motor side	
		Open end power cores and FAKRA coaxial connector to open end power cores and FAKRA coaxial connector
		Open end power cores and FAKRA coaxial connector to M23 Open end power cores and FAKRA coaxial connector to M40
		M23 to open end power cores and FAKRA coaxial connector M40 to open end power cores and FAKRA coaxial connector M23 to FAKRA coaxial plug
		M23 to M23 M40 to M40 M23 to M40 M40 to M23

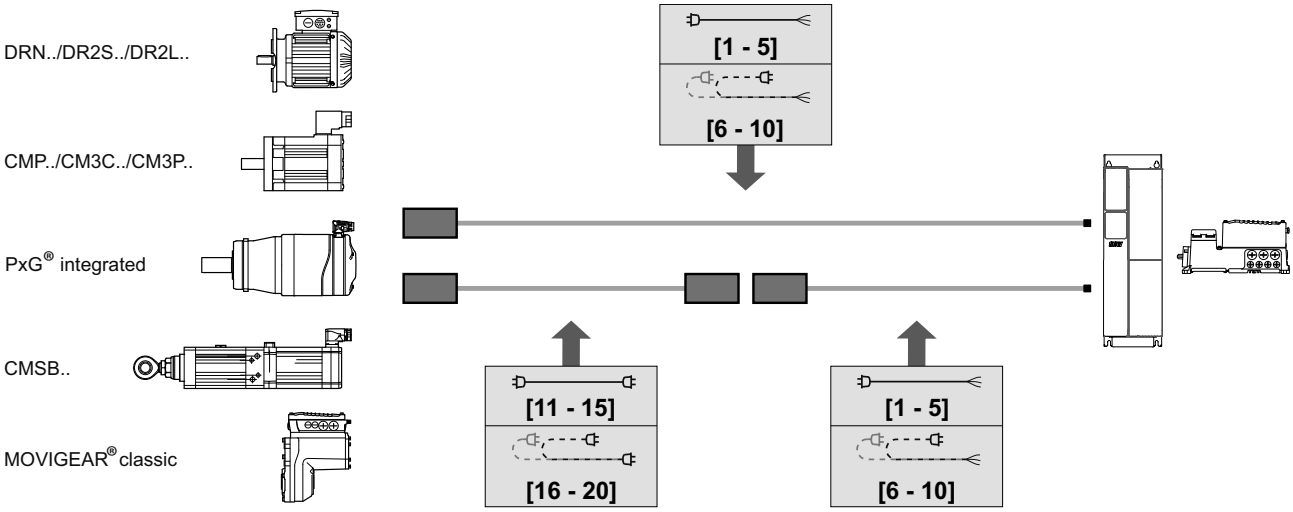
7.1.2 Legend

Symbol	Meaning
	Fixed installation
	Cable carrier installation
	Cables with connector
	Cable with open end, cut off or with conductor end sleeves

7.1.3 Hybrid cables with connector on the motor side, open end on the inverter side

The cable is used for the following inverters:

- MOVIDRIVE®
- MOVITRAC® advanced
- MOVIMOT® flexible



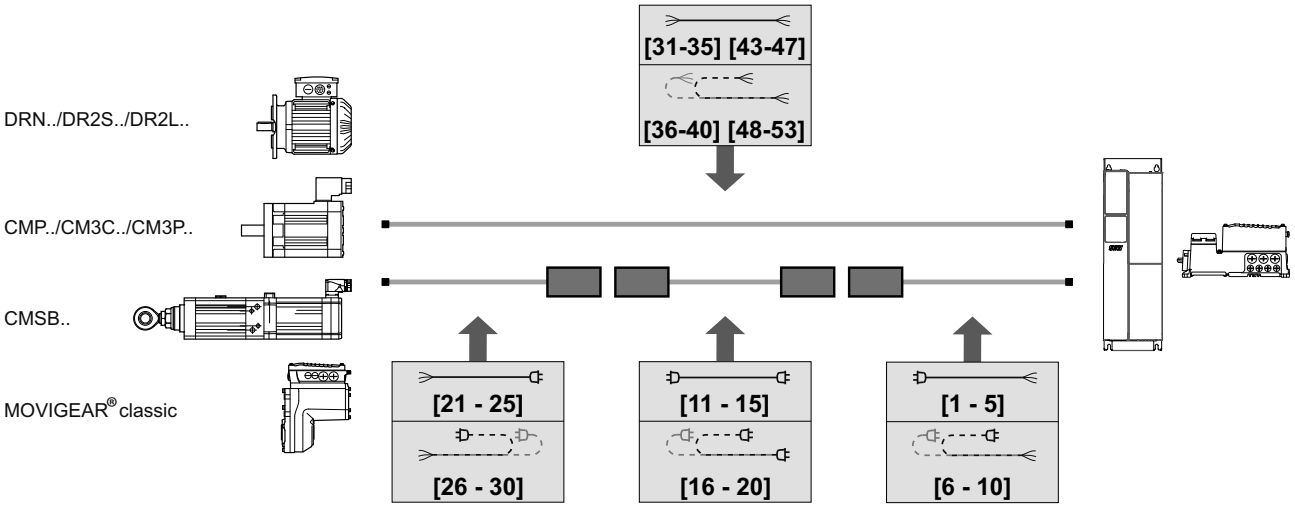
54043225020098571

7.1.4 Hybrid cables with open end on the motor side, open end on the inverter side

The cable is used for the following inverters:

- MOVIDRIVE®
- MOVITRAC® advanced
- MOVIMOT® flexible

33093563/EN – 07/2025

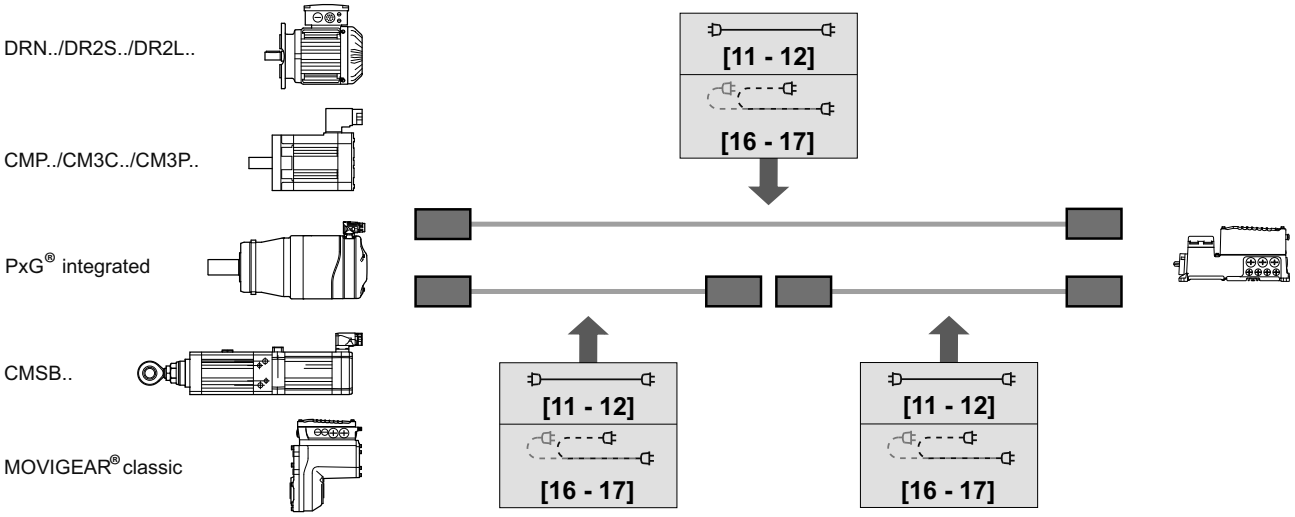


63050424274841995

7.1.5 Hybrid cables with connector on the motor side, connector on the inverter side

The cable is used for the following inverters:

- MOVIMOT® flexible

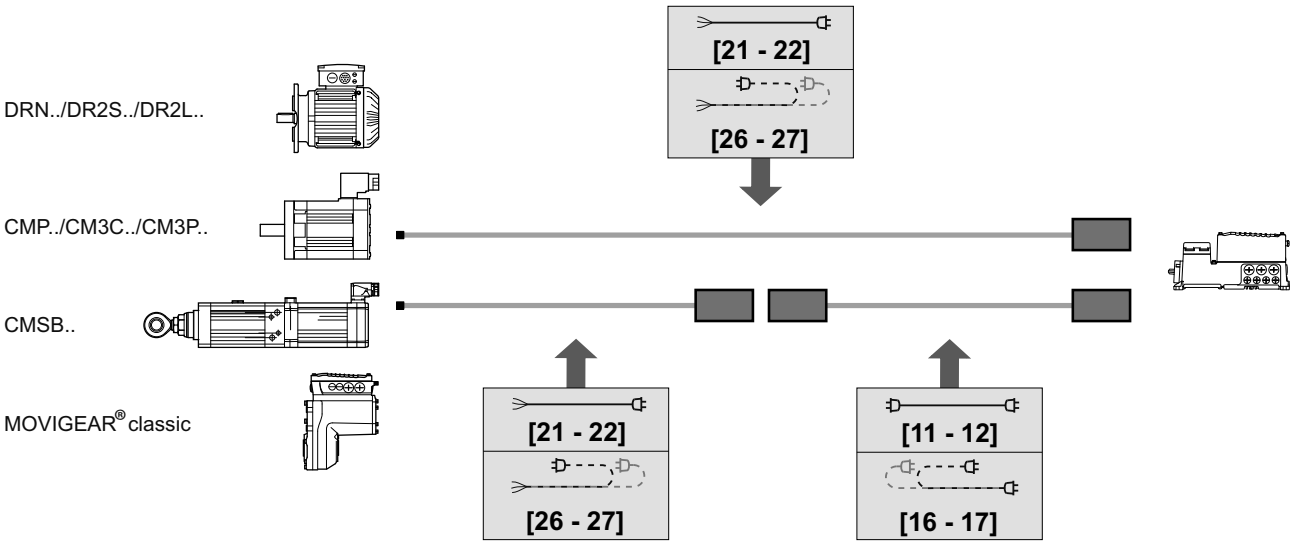


27021630061911051

7.1.6 Hybrid cables with open end on the motor side, connector on the inverter side

The cable is used for the following inverters:

- MOVIMOT® flexible



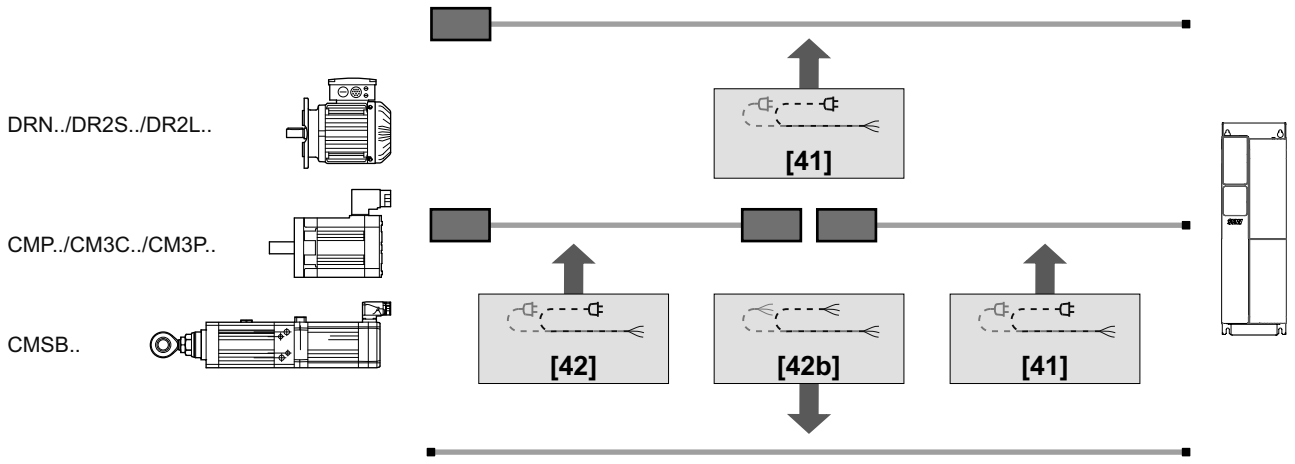
18014430807172491

7.1.7 Coaxial signal cable with plug or open end on motor side, with open end on inverter side

The coaxial cable is required for a cross section greater than 10 mm² for the conductors for controlling the motor and contains the data line for the MOVILINK® DDI connection. The cable for connecting the motor and the brake must be laid separately.

The cable is used for the following inverters:

- MOVIDRIVE®
- MOVITRAC® advanced



36028829860007947

7.1.8 Cable tables

The prefabricated cables with open ends on the motor side and on the inverter side can also be supplied as cable reels in lengths of 30 m, 100 m and 200 m (lines 43 – 52). These cables are not prefabricated.

For more information on assembly, refer to the addendum to the "MOVILINK® DDI Tool Set 1" operating instructions.

Cables with hybrid connectors or open ends for power and FAKRA coaxial connectors

The following table shows prefabricated cables for MOVILINK® DDI.

"Open" means that the power conductors for the motor and brake are open and MOVILINK® DDI is connected via a FAKRA coaxial connector. If there is purely an open signal cable, only the FAKRA coaxial connector is present.

No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[1]	28123808	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[2]	28123816	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[3]	28123824	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	Open
[4]	28123832	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	Open
[5]	28123840	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	Open
[6]	28123743	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	open
[7]	28123751	4 × 2.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	open
[8]	28123778	4 × 4 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	open
[8b][1)]	28148576	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23[1)]	open
[9]	28123786	4 × 6 + 2 × (2 × 1.5) + coaxial cable	Cable carrier installation	SDB/KDB	M40	open
[10]	28123794	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	Open
[11]	28123905	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[12]	28123913	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[13]	28123921	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	SD1/KD1	M23	M23
[14]	28123948	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	M40
[15]	28123956	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	SDB/KDB	M40	M40
[16]	28123859	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[17]	28123867	4 × 2.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[18]	28123875	4 × 4 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	SD1/KD1	M23	M23
[18b]	28147170	4 × 4 + 2 × (2 × 1) + coaxial cable (motor phases replaced)	Cable carrier installation	SD1/KD1	M23	M23
[19]	28123883	4 × 6 + 2 × (2 × 1.5) + coaxial cable	Cable carrier installation	SDB/KDB	M40	M40
[20]	28123891	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	SDB/KDB	M40	M40
[21]	28124367	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23
[22]	28124375	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23
[23]	28124383	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	M23
[23b]	28183908	4 × 1 + coaxial cable (brake + coaxial cable only)	Fixed installation	KD	open	M23
[24]	28143884	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	M40
[25]	28143892	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	M40
[26]	28124332	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	M23
[27]	28124340	4 × 2.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	M23
[28]	28124359	4 × 4 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	M23
[29]	28143868	4 × 6 + 2 × (2 × 1.5) + coaxial cable	Cable carrier installation	KD	open	M40
[30]	28143876	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	M40
[31]	28152395	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[32]	28152409	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[33]	28152417	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	Open	Open
[34]	28152425	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open
[35]	28152433	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	Open	Open

No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[36]	28152441	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	open
[37]	28152468	4 × 2.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	open
[38]	28152476	4 × 4 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	open	open
[39]	28152484	4 × 6 + 2 × (2 × 1.5) + coaxial cable	Cable carrier installation	KD	open	open
[40]	28152492	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	Open	Open
[41]	28129431	Coaxial cable	Cable carrier installation	SMCD/SBCD/ KDD	M23	Open
[42]	28138376	Coaxial cable	Cable carrier installation	SMCD/SBCD/ KDD	M23	M23
[42b]	28183762	Coaxial cable	Cable carrier installation	KD	Open	Open

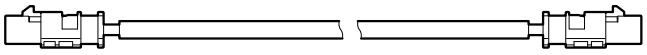
1) Version as right-angle connector.

Cable for independently creating an open end with FAKRA coaxial plug

No.	Part number	Cross section in mm²	Installation type	Motor connection	Motor side	Inverter side
[43]	28123395	4 × 1.5 + 4 × 1 + coaxial cable	Fixed installation	KD	cut off	cut off
[44]	28123409	4 × 2.5 + 4 × 1 + coaxial cable	Fixed installation	KD	cut off	cut off
[45]	28123417	4 × 4 + 4 × 1 + coaxial cable	Fixed installation	KD	cut off	cut off
[46]	28123425	4 × 6 + 4 × 1.5 + coaxial cable	Fixed installation	KD	cut off	cut off
[47]	28123433	4 × 10 + 4 × 1.5 + coaxial cable	Fixed installation	KD	cut off	cut off
[48]	28123336	4 × 1.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	cut off	cut off
[49]	28123344	4 × 2.5 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	cut off	cut off
[50]	28123352	4 × 4 + 2 × (2 × 1) + coaxial cable	Cable carrier installation	KD	cut off	cut off
[51]	28123360	4 × 6 + 2 × (2 × 1.5) + coaxial cable	Cable carrier installation	KD	cut off	cut off
[52]	28123379	4 × 10 + 4 × 1.5 + coaxial cable	Cable carrier installation	KD	cut off	cut off
[53]	25672568	Coaxial signal cable	Cable carrier installation	KD	cut off	cut off

7.1.9 Adapter cable for MOVILINK® DDI FAKRA plug connector to FAKRA plug connector

Adapter cables are available for connecting the open FAKRA plug connector. This enables the connection of self-prefabricated cables with an open end and a FAKRA plug connector. The FAKRA plug connector is compatible with all prefabricated cables for MOVILINK® DDI with open end from SEW-EURODRIVE.



40957566603

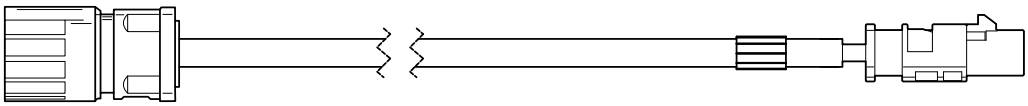
Part number	Installation type	Length	Connection	Motor side	Inverter side
28170792	Fixed	200 mm	FAKRA Coaxial	male	male

7.1.10 Cabling the connection box with MOVILINK® DDI signal connectors

	28177428	28177436
	[1]	[2]
Structure	M23 female front wall mounting > FAKRA code L male	FAKRA code L female > M23 male front wall mounting
Length	145 mm Connected to [2]: 280 mm (Connector overlapping)	145 mm Connected to [1]: 280 mm (Connector overlapping)
Operating temperature	-20 °C to +80 °C	
Degree of protection	IP66 (plugged in)	
Motor side	M23, female contact	FAKRA code L, female contact
Inverter side	FAKRA code L male connector	M23, male connector

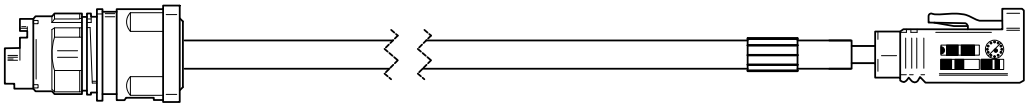
33093563/EN – 07/2025

28177428



57579843083

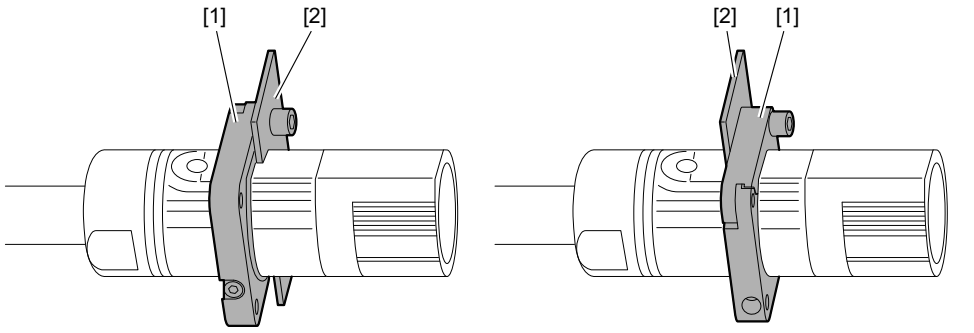
28177436



57614266251

7.1.11 Hybrid cables with connectors at the housings

TE Connectivity offers hinged flanges for routing prefabricated hybrid cables for MOVILINK® DDI with connectors in unit housings. These can be ordered directly from TE Connectivity under the following designation and item number.



40221713163

[1] Hinged flange for rear wall mounting (left)
Hinged flange for front wall mounting (right)

[2] Housing wall

Observe the assembly instructions from TE Connectivity.

Manufacturer	Part number	Type	Operating temperature	Degree of protection
TE Connectivity	E0.0222.002-P00	Flange, hinged, two-piece for M23 connectors, 723/923 series	-20 °C to +60 °C	IP65/IP67 with blind hole mounting
TE Connectivity	E0.0058.002-000	Flange, hinged, two-piece for M40 straight connectors, 740/940 series	-20 °C to +60 °C	IP65/IP67 with blind hole mounting

33093563/EN – 07/2025

7.2 Pin assignment of the motor cables for MOVILINK® DDI interface

7.2.1 Hybrid cables for motors without brake

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2../DRU.. AC motors
- CMP../CM3C../CM3P../CMSB.. synchronous motors
- PxG® integrated precision planetary gearmotor
- Drive unit MOVIGEAR® classic

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side							Inverter side	
Contact			Signal	Core color	Core color IEC 60757	Marking	Contact	Description
M23	M40	open					open	
U	U	U	U	Black	BK	U/L1	U	Motor phase U
V	V	V	V	Black	BK	V/L2	V	Motor phase V
W	W	W	W	Black	BK	W/L3	W	Motor phase W
A	1	Insulate	Reserved	Yellow	YE	A	Insulate	Do not connect
B	+	Insulate	Reserved	Orange	OG	B	Insulate	Do not connect
C	N	Insulate	Reserved	Pink	PK	C	Insulate	Do not connect
D	2	Insulate	Reserved	Violet	VT	D	Insulate	Do not connect
PE	PE	PE	PE	Yellow/green	GNYE	–	PE	Protective earth
DDI	DDI	Coaxial con-nector	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

MOVIMOT® flexible

Motor side							Inverter side
Contact		Signal	Core color	Core color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2		Motor phase V
W	W	W	Black	BK	W/L3		Motor phase W
A	1	A	Yellow	YE	A		Connection A
B	+	B	Orange	OG	B		Connection B
C	N	C	Pink	PK	C		Connection C
D	2	D	Violet	VT	D		Connection D
PE	PE	PE	Yellow/green	GNYE	–		Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

33093563/EN – 07/2025

7.2.2 Hybrid cables for motors with BE.. or BZ.. brake with DC 24 V supply voltage

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2../DRU.. AC motors
- CM3C../CM3P.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side							Inverter side	
Contact			Signal	Core color	Core color IEC 60757	Marking	Contact	Description
M23	M40	open					open	
U	U	U	U	Black	BK	U/L1	U	Motor phase U
V	V	V	V	Black	BK	V/L2	V	Motor phase V
W	W	W	W	Black	BK	W/L3	W	Motor phase W
A	1	Yellow	15	Yellow	YE	A	Yellow	Brake 15
B	+	Orange	Reserved	Orange	OG	B	Orange	Do not connect
C	N	Pink	14	Pink	PK	C	Pink	Brake 14
D	2	Violet	13	Violet	VT	D	Violet	Brake 13
PE	PE	PE	PE	Yellow/green	GNYE	–	PE	Protective earth
DDI	DDI	Coaxial con-nector	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

MOVIMOT® flexible

Motor side							Inverter side
Contact		Signal	Core color	Core color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	U	Motor phase U
V	V	V	Black	BK	V/L2	V	Motor phase V
W	W	W	Black	BK	W/L3	W	Motor phase W
A	1	A	Yellow	YE	A	Yellow	Brake 15
B	+	B	Orange	OG	B	Orange	Do not connect
C	N	C	Pink	PK	C	Pink	Brake 14
D	2	D	Violet	VT	D	Violet	Brake 13
PE	PE	PE	Yellow/green	GNYE	–	PE	Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

7.2.3 Hybrid cables for motors with BE.. or BZ.. brake

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2../DRU.. AC motors
- CM3C../CM3P.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side							Inverter side	
Contact			Signal	Core color	Core color IEC 60757	Marking	Contact	Description
M23	M40	open					open	
U	U	U	U	Black	BK	U/L1	U	Motor phase U
V	V	V	V	Black	BK	V/L2	V	Motor phase V
W	W	W	W	Black	BK	W/L3	W	Motor phase W
A	1	Yellow	Reserved	Yellow	YE	A	Yellow	Do not connect
B	+	Orange	15	Orange	OG	B	Orange	Brake 15
C	N	Pink	13	Pink	PK	C	Pink	Brake 13
D	2	Violet	14	Violet	VT	D	Violet	Brake 14
PE	PE	PE	PE	Yellow/green	GNYE	–	PE	Protective earth
DDI	DDI	Coaxial con-nector	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

MOVIMOT® flexible

Motor side							Inverter side
Contact		Signal	Core color	Core color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2		Motor phase V
W	W	W	Black	BK	W/L3		Motor phase W
A	1	A	Yellow	YE	A		A
B	+	B	Orange	OG	B		B
C	N	C	Pink	PK	C		C
D	2	D	Violet	VT	D		D
PE	PE	PE	Yellow/green	GNYE	–		Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

33093563/EN – 07/2025

7.2.4 Hybrid cables for motors with BE.., BE.H or BZ.. brake and with integrated BG1Z brake control

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2../DRU.. AC motors
- CM3C../CM3P.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side							Inverter side
Contact		Signal	Core color	Conductor color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2		Motor phase V
W	W	W	Black	BK	W/L3		Motor phase W
A	1	Reserved	Yellow	YE	A		Do not connect
B	+	N (L2)	Orange	OG	B		Brake neutral conductor N (phase L2)
C	N	Reserved	Pink	PK	C		Do not connect
D	2	L1 (phase)	Violet	VT	D		Brake phase L1
PE	PE	PE	Yellow/green	GNYE	–		Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

33093563/EN – 07/2025

7.2.5 Hybrid cables for motors with integrated braking resistor

Connecting cables with connectors on the motor side for the following motors:

- MOVIGEAR® classic drive unit

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

Motor side							Inverter side
Contact		Signal	Core color	Conductor color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2		Motor phase V
W	W	W	Black	BK	W/L3		Motor phase W
A	1	Reserved	Yellow	YE	A		Do not connect
B	+	Braking resistance	Orange	OG	B		Braking resistance
C	N	Braking resistance	Pink	PK	C		Braking resistance
D	2	Reserved	Violet	VT	D		Do not connect
PE	PE	PE	Yellow/green	GNYE	–		Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

MOVIMOT® flexible

Motor side							Inverter side
Contact		Signal	Core color	Conductor color IEC 60757	Marking	Assembly	Description
M23	M40						
U	U	U	Black	BK	U/L1	Not prefabricated	Motor phase U
V	V	V	Black	BK	V/L2		Motor phase V
W	W	W	Black	BK	W/L3		Motor phase W
A	1	A	Yellow	YE	A		A
B	+	B	Orange	OG	B		B
C	N	C	Pink	PK	C		C
D	2	D	Violet	VT	D		D
PE	PE	PE	Yellow/green	GNYE	–		Protective earth
DDI	DDI	MOVILINK® DDI	Violet	VT	–	Coaxial connector	MOVILINK® DDI

Insulate each unconnected conductor end.

33093563/EN – 07/2025

7.2.6 Connection of MOVILINK® DDI coaxial signal cable for motors without hybrid cable

The power cable and signal cable can only be routed together up to a cable cross section of 10 mm^2. With larger cable cross sections, the power cable is routed separately from the signal cable.

Connecting cables with connectors on the motor side for the following motors:

- DRN../DR2../DRU.. AC motors
- CMP../CM3C../CM3P../CMSB.. synchronous motors

The following table shows the conductor assignment of the cables:

MOVIDRIVE® modular/system/technology, MOVITRAC® advanced

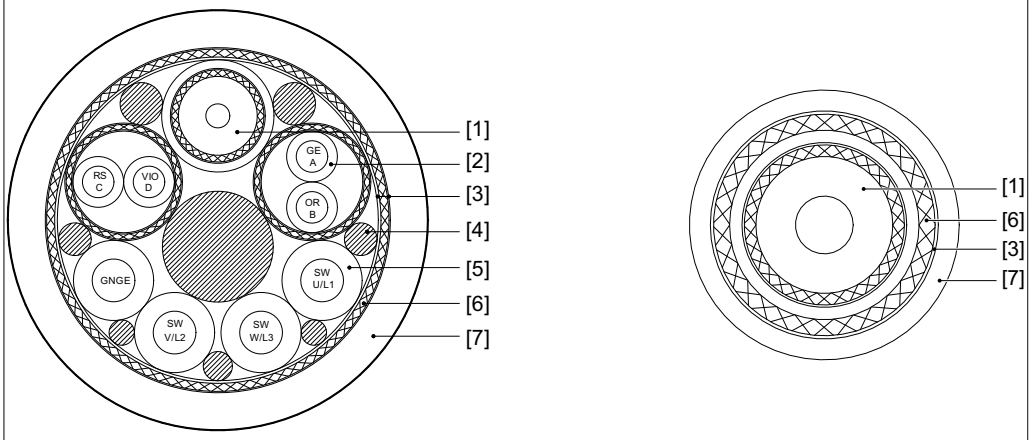
Motor side							Inverter side			
Contact			Signal	Core color	Core color IEC 60757	Marking	Contact			Description
M23	M40	open					M23	M40	open	
Reserved			Reserved	Black	BK	U/L1	Do not connect			Do not connect
				Black	BK	V/L2				
				Black	BK	W/L3				
				Yellow	YE	A				
				Orange	OG	B				
				Pink	PK	C				
				Violet	VT	D				
				Yellow/green	GNYE	–				
DDI	DDI	Coaxial connector	MOVILINK® DDI	Violet	VT	–	Coaxial connector			MOVILINK® DDI

Insulate each unconnected conductor end.

33093563/EN – 07/2025

7.3 Cable specification of the motor hybrid cables for MOVILINK® DDI

7.3.1 Cable carrier installation

Type		LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005951
Part number of bulk cable, not prefabricated		28123336	28123344	28123352	28123360	28123379	25672568
Cross section		4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²	–
Mechanical design							
		 *29346392715*					
[1]	Coaxial cable	Coax Z50 in accordance with RG58					
	Conductor	Stranded copper wire, tinned, 19 × 0.182 mm					
	Dielectric	Polypropylene Ø 2.95					
	Shielding	Braided copper wire, tinned, 0.128 mm					
		Optical coverage min. 90%					
	Sheath	TPE					
	Diameter	4.2 mm					
	Color	Violet					
[2]	Cores	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.0 mm²	2 shielded conductor pairs 2 × 1.5 mm²	Shielded element 4 × 2.5 mm[1]	–
		Stranded copper wire, bare					–
		Single wire 0.15 mm					–
		In accordance with DIN EN 60228 Class 6					–
		IEC 60228 Class 6					–
	Insulation	Polypropylene					–
	Shielding	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.10 mm, tinned	Braided copper wire 0.128 mm, tinned	–
		Optical coverage at least 85%					–
	Diameter	2.1 mm	2.1 mm	2.1 mm	2.4 mm	2.4 mm	–
	Colors	Yellow with black A label					–
		Orange with black B label					–
		Pink with black C label					–
		Violet with black D label					–
[3]	Banding	–					–
[4]	Filler	–					–

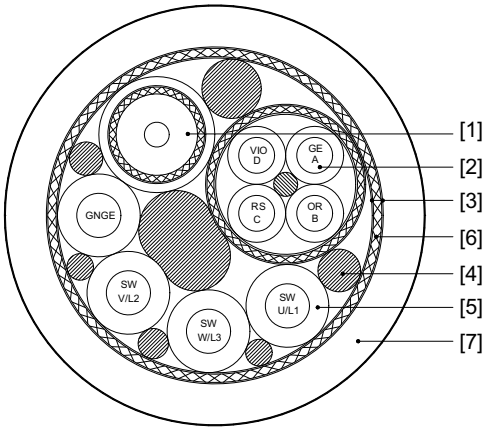
33093563/EN – 07/2025

Type		LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005951
Part number of bulk cable, not prefabricated		**28123336**	**28123344**	**28123352**	**28123360**	**28123379**	**25672568**
Cross section		**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**	**–**
[5]	Cores	4 × 2.5 mm[1]	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²	–
	Conductor	Stranded copper wire, bare					–
		Single wire 0.15 mm	Single wire 0.15 mm	Single wire 0.15 mm	Single wire 0.2 mm	Single wire 0.2 mm	–
		In accordance with DIN EN 60228 Class 6					–
		IEC 60228 Class 6					–
	Diameter	3.0 mm	3.6 mm	3.75 mm	4.6 mm	5.8 mm	–
	Insulation	Polypropylene					–
	Colors	Green-yellow with black label: U/L1; V/L2; W/L3					–
[6]	Shield	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.2 mm	Braided tinned copper wires, 0.2 mm	Braided tinned copper wires, 0.128 mm
		Optical coverage at least 85%					Nom. optical coverage 90%
[7]	Outer cable jacket	Polyurethane, flame retardant, halogen-free					
	Color	Matt orange					Matt black
	Label	SEW-EURODRIVE 28123336 4 × 1.5 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123344 4 × 2.5 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123352 4 × 4.0 + 2 × 2 × 1C + 1 × Z50	SEW-EURODRIVE 28123360 4 × 6.0 + 2 × 2 × 1.5C + 1 × Z50	SEW-EURODRIVE 28123379 4 × 10 + 4 × 1.5C + 1 × Z50	SEW-EURODRIVE 25672568 1 × Z50
		LEHC005769 Rev. 0 E522945-Bizlink c UL us	LEHC005770 Rev.0 E522945-Bizlink c UL us	LEHC005771 Rev.0 E522945-Bizlink c UL us	LEHC005772 Rev.0 E522945-Bizlink c UL us	LEHC005773 Rev.0 E522945-Bizlink c UL us	LEHC005951 Rev.0 E522945-Bizlink c UL us
		AWM STYLE 21223 I/II A/B 80 °C 1000V FT1 Week/year of production					AWM STYLE 11892 I/II A/B 80 °C 300V FT1 Week/year of production
	Diameter	15.7 mm	16.7 mm	17.0 mm	19.7 mm	22.1 mm	7.0 mm
Electrical properties							
	Operating voltage conductors U_0/V	0.6 kV/1.0 kV					0.3 kV/0.3 kV
	Operating voltage	Max. 1000 V (according to UL Style 21223)					Max. 300 V (according to UL Style 11892)
	Surge impedance coaxial cable	50 Ω ± 2 Ω					
Mechanical properties							
	Bending radius	Min. 3 × outer diameter for one-time installation Min. 5 × outer diameter for fixed installation Min. 7.5 × outer diameter in the cable carrier					Min. 5 × outer diameter for one-time installation Min. 8 × outer diameter for fixed installation Min. 20 × outer diameter in the cable carrier
	Travel speed	Max. 5 m/s					3 m/s
	Acceleration	Max. 50 m/s²					Max. 20 m/s²
	Bending cycles	Min. 5 × 10⁶					Min. 3 × 10⁶
	Horizontal length	Max. horizontal travel 20 m					–
	Torsional stability	±180 °/m					–
	Torsional cycles	Maximum 1 million cycles (at ±180 °/m)					–
	Suspended installation	Maximum vertically suspended installation: 45 m (Strain relief required for connection plugs and cable glands)					

Type		LEHC 005769	LEHC 005770	LEHC 005771	LEHC 005772	LEHC 005773	LEC 005951
Part number of bulk cable, not prefabricated		**28123336**	**28123344**	**28123352**	**28123360**	**28123379**	**25672568**
Cross section		**4 × 1.5 mm²**	**4 × 2.5 mm²**	**4 × 4.0 mm²**	**4 × 6.0 mm²**	**4 × 10 mm²**	**–**
	Installation in loops	Yes (Minimum bending radius of the loops 15 × outer diameter)					
	Mass	332 kg/km	392 kg/km	444 kg/km	626 kg/km	827 kg/km	73 kg/km
Thermal characteristics							
	Operating temperature	Fixed installation: -40 °C to +90 °C (20000 h) Fixed installation: -40 °C to +105 °C (3000 h) Cable carrier installation: -30°C to +90°C					–
	Operating temperature according to cURus	Fixed installation: -40°C to +80°C Cable carrier installation: -30°C to +80°C					
Chemical characteristics							
	Oil resistance	DIN VDE 0282-10/HD 22.10 S2					DIN EN 50363-10-2
	Flame retardance	UL 1581 section 1060 Vertical Flame Test (FT1) CSA C22.2 No.3-92 Vertical Flame Test (FT1) IEC 60332-1-2					
Other characteristics							
		EU Directive 2011/65/EU (RoHS), Free of paint-wetting impairment substances, Halogen-free according to IEC 60754-1, General fuel resistance, General resistance to acids, alkalis, and cleaning agents, General resistance against dusts, General resistance against microbes and fungi, Generally hydrolysis-resistant, General resistance against UV radiation					
Approvals							
		UL Subject 758, Style 21223 CSA - C22.2 No. 210 cURus E522945 UL Style 21223 80 °C 1000 V FT1 cUL AWM I/II A/B 80 °C 1000 V FT1					UL Subject 758, Style 11892 CSA - C22.2 No. 210 cURus E522945 UL Style 11892 80 °C 300 V FT1 cUL AWM I/II A/B 80 °C 300 V FT1

33093563/EN – 07/2025

7.3.2 Fixed installation

Type		LEHC 005775	LEHC 005776	LEHC 005777	LEHC 005778	LEHC 005779
Part number of bulk cable, not prefabricated		28123395	28123409	28123417	28123425	28123433
Cross section		4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²
Mechanical design						
		 29346395147				
[1]	Coaxial cable	Coax Z50 in accordance with RG58				
	Conductor	Stranded copper wire, tinned, 19 × 0.182 mm				
	Dielectric	Polypropylene Ø 2.95				
	Shielding	Braided copper wire, tinned, 0.128 mm				
		Optical coverage at least 90%				
	Sheath	TPE				
	Diameter	4.2 mm				
	Color	Violet				
[2]	Cores	Shielded element 4 × 1.0 mm²	Shielded element 4 × 1.0 mm²	Shielded element 4 × 1.0 mm²	Shielded element 4 × 2.5 mm¹	Shielded element 4 × 2.5 mm¹
		Stranded copper wire, bare				
		Single wire 0.20 mm	Single wire 0.20 mm	Single wire 0.20 mm	Single wire 0.25 mm	Single wire 0.25 mm
		In accordance with DIN EN 60228 Class 5				
		IEC 60228 Class 5				
	Insulation	Polypropylene				
	Shielding	Braided copper wire 0.128 mm, tinned				
		Optical coverage at least 85%				
	Diameter	2.1 mm	2.1 mm	2.1 mm	2.35 mm	2.35 mm
	Colors	Yellow with black A label				
		Orange with black B label				
		Pink with black C label				
		Violet with black D label				
[3]	Banding	–	–	–	–	–
[4]	Filler	–	–	–	–	–
[5]	Cores	4 × 2.5 mm¹	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²
	Conductor	Stranded copper wire, bare				
		Single wire 0.25 mm	Single wire 0.25 mm	Single wire 0.30 mm	Single wire 0.30 mm	Single wire 0.40 mm
		In accordance with DIN EN 60228 Class 5				
		IEC 60228 Class 5				
	Diameter	3.0 mm	3.6 mm	3.75 mm	4.7 mm	5.8 mm
	Insulation	Polypropylene				
	Colors	Green-yellow with black label: U/L1; V/L2; W/L3				
[6]	Shield	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.15 mm	Braided tinned copper wires, 0.20 mm	Braided tinned copper wires, 0.20 mm
		Optical coverage at least 85%				

Type		LEHC 005775	LEHC 005776	LEHC 005777	LEHC 005778	LEHC 005779
Part number of bulk cable, not prefabricated		28123395	28123409	28123417	28123425	28123433
Cross section		4 × 1.5 mm²	4 × 2.5 mm²	4 × 4.0 mm²	4 × 6.0 mm²	4 × 10 mm²
[7]	Outer cable jacket	PVC				
	Color	Orange				
	Label	SEW-EURODRIVE 28123395 4 × 1.5 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123409 4 × 2.5 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123417 4 × 4.0 + 4 × 1C + 1 × Z50	SEW-EURODRIVE 28123425 4 × 6.0 + 4 × 1.5C + 1 × Z50	SEW-EURODRIVE 28123433 4 × 10 + 4 × 1.5C + 1 × Z50
		LEHC005775 Rev. 0 E522945-Bizlink c UL us	LEHC005776 Rev. 0 E522945-Bizlink c UL us	LEHC005777 Rev.0 E522945-Bizlink c UL us	LEHC005778 Rev.0 E522945-Bizlink c UL us	LEHC005779 Rev.0 E522945-Bizlink c UL us
		AWM STYLE 2570 I/II A/B 80 °C 1000V FT1 Week/year of production				
	Diameter	15.2 mm	16.1 mm	16.4 mm	19.0 mm	21.8 mm
Electrical properties						
	Operating voltage conductors V_0/V	0.6 kV/1.0 kV				
	Operating voltage according to UL style 21223	Max. 1000 V				
	Surge impedance coaxial cable	50 Ω ± 2 Ω				
Mechanical properties						
	Bending radius	Min. 3 × outer diameter for one-time installation Min. 5 × outer diameter for fixed installation Min. 10 × outer diameter if moved occasionally				
	Suspended installation	Maximum vertically suspended installation: 45 m (Strain relief required for connection plugs and cable glands)				
	Installation in loops	Yes (Minimum bending radius of the loops 15 × outer diameter)				
	Mass	322 kg/km	361 kg/km	412 kg/km	576 kg/km	791 kg/km
Thermal characteristics						
	Operating temperature	Fixed installation: -40 °C to +90 °C (20000 h) Fixed installation: -40 °C to +105 °C (3000 h) If moved occasionally: -10°C to +90°C				
	Operating temperature according to cURus	Fixed installation: -40°C to +80°C If moved occasionally: -10°C to +80°C				
Chemical characteristics						
	Oil resistance	DIN EN 50363-4-1 (test method according to DIN EN 60811-404)				
	Flame retardance	UL 1581 section 1060 Vertical Flame Test (FT1) CSA C22.2 No.3-92 Vertical Flame Test (FT1) IEC 60332-1-2				
Other characteristics						
		EU Directive 2011/65/EU (RoHS)				
Approvals						
		UL Subject 758, Style 2570 CSA - C22.2 No. 210 cURus E522945 UL Style 2570 80 °C 1000 V FT1 cUL AWM I/II A/B 80 °C 1000 V FT1				

33093563/EN – 07/2025

7.4 Self-assembly of the DDI cable

SEW-EURODRIVE offers assembled hybrid cables. The cable side with the M23 or M40 connector can only be assembled by SEW-EURODRIVE. The open side can be assembled by the customer if, for example, a cable needs to be shortened.

When doing this, a special tool set is required for the coaxial cable; all other conductors are crimped with standard ring lugs or standard cable lugs.

The "MOVILINK® DDI Tool Set 1" contains stripping and crimping pliers to crimp the coaxial connector according to the FAKRA standard. The tool set contains the material required for 50 plug-in connections. The coaxial connector on the cable is the same for the connection to a motor or inverter.

You can assemble the MOVILINK® DDI cables yourself by using the following information.

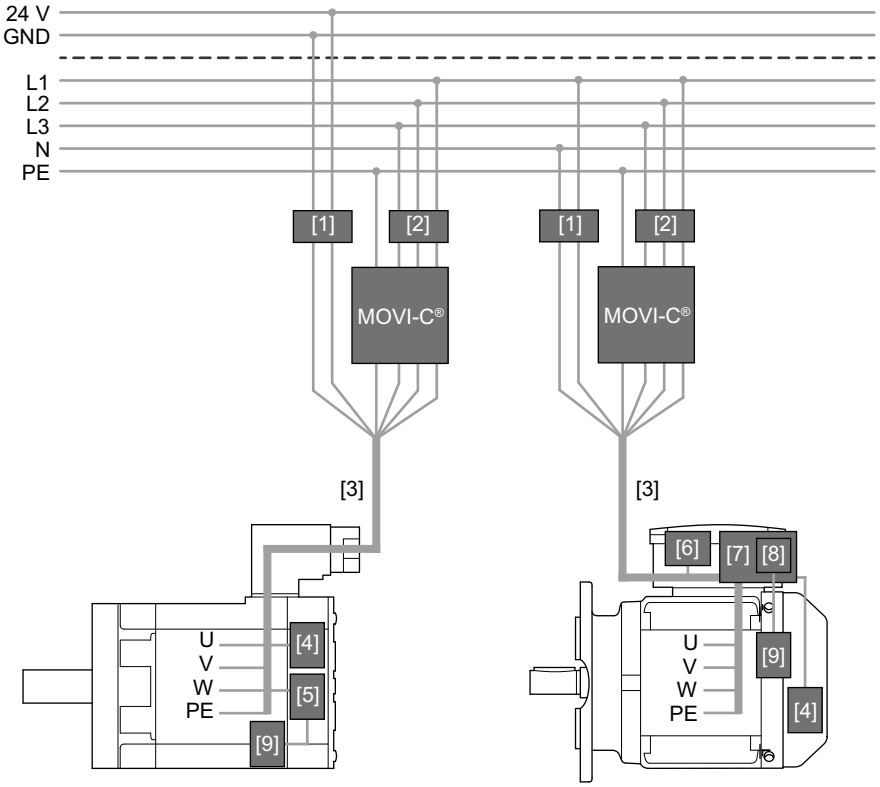
33093563/EN – 07/2025

8 Technical data

8.1 Topology diagram

The following figure shows an example of a topology diagram:

- Observe the operating instructions of the frequency inverter.



56617247115

[1] Miniature circuit breaker of the brake
[2] Miniature circuit breaker of the inverter
[3] Hybrid cable/multi-cable technology
[4] Encoder
[5] BS1Z
[6] DU1Z
[7] MOVILINK® DDI communication unit
[8] BG1Z
[9] Brake

8.2 General technical data for drives with MOVILINK® DDI

8.2.1 Connection options with MOVILINK® DDI

	Connection options	
Connection technology	**KD1:**	Hybrid connector M23 on terminal box (straight or angled, adjustable) 1.5 – 4 mm² motor connection, 1 mm² brake connection
	KDB:	M40 hybrid connector on terminal box (straight) 6 – 10 mm² motor connection, 1.5 mm² brake connection
	KD:	Cable gland on the terminal box for hybrid cables 1.5 – 10 mm² motor connection, 1 – 1.5 mm² brake connection
	KDD:	Motor and brake connection via cable gland M23 signal plug connector (straight) at the terminal box

33093563/EN – 07/2025

	Connection options
Cable length	≤ 200 m (depending on inverter type, brake, brake control and PWM frequency of the motor control)

8.2.2 Supply voltage for MOVILINK® DDI electronics

Supply voltage for MOVILINK® DDI electronics

The motor-integrated electronics of MOVILINK® DDI are generally supplied with a voltage of 24 V by an inverter from the MOVI-C® modular automation system. The inverters provide at least 150 mA of current. Depending on the 24 V configuration of the entire drive train, and taking the optional equipment of the motor and the selected inverter into account, the inverter may require an external 24 V backup voltage supply.

The following table provides an overview of the options of the MOVILINK® DDI modular system. The listed values are maximum permitted values that may be required by the options at the minimum permissible supply voltages.

Option	Power demand 24 V supply via MOVILINK® DDI
Without encoder	60 mA
EI8Z built-in encoder	115 mA
EK8Z encoder	110 mA
EK9Z encoder	110 mA
AK8Z encoder	110 mA
EK8Z safety encoder	120 mA
EK9Z safety encoder	120 mA
AK8Z safety encoder	120 mA
Integrated BG1Z brake control	40 mA
DriveRadar® SensorModule DU1Z	25 mA

Example:

A motor with MOVILINK® DDI and EI8Z built-in encoder as well as integrated brake control has an electronic power requirement of 155 mA and must be operated with an additional 24 V backup voltage on the inverter, taking into account the 24 V project planning of the selected inverter.

8.2.3 Derating of standard motors with MOVILINK® DDI

Note the derating depending on the ambient temperature and the motor series. For more information, refer to the "MOVI-C® Modular Automation System – Digital Motor Integration with MOVILINK® DDI" manual.

8.2.4 Use of the integrated BG1Z brake control in the wide voltage range

The brake control system operates with a brake and can operate it in the wide voltage range. The control process adjusts adaptively to the external supply voltage. This results in noticeable noise emissions depending on the voltage. These can vary in frequency and volume depending on changes in the supply voltage. This characteristic is caused by the adaptive adjustment technology.

For further information, refer to chapter "Brake voltages for BG1Z brake control" (→ 🗎 61).

33093563/EN – 07/2025

8.3 Parameter access for MOVILINK® DDI options

To access the parameters of the MOVILINK® DDI options, use the SEW-EURODRIVE module "SEW_MOVI-C_SingleParameterAccess" from version 1.7. The module can be found in the Online Support Portal of SEW-EURODRIVE under "Software" in the package "TIA example project MOVI-C®: Individual parameter access".

Link: https://t1p.de/mvpj4

The following tables contain the definitions of the parameters of the options for MOVILINK® DDI brakes. The parameters are composed of the parameter index and the subindex.

Example: Parameter 10056.20 (10056=Parameter index, 20=Subindex)

In this example, the subindex indicates how often the brake control has opened since the counter of the brake was last reset.

8.4 Safety encoders with MOVILINK® DDI function parameters

The safety encoders with MOVILINK® DDI, in conjunction with the safety options from the MOVI-C® modular automation system, electronically determine the remaining service life while taking the thermal aging into account. The remaining service life until the motor with safety encoder must be shut down is counted from the production date.

The following relation can be used to check whether the remaining service life is sufficient for the safety encoder.

The safety encoder must be shut down if the following conditions apply:

- **Parameter "Prediction of remaining service life" - Times without voltage supply - Brake correction value ≤ 0**
  - For synchronous motors with BK.. brake and EK0Z or AK0Z safety encoder: Brake correction value = 10 years
  - For all other motors and brakes: Brake correction value = 0 years

Examples:

- CM3C../BK../AK0Z: P10060.161 = 15 years; times without voltage supply = 5 years; brake correction value = 10 years → 0 years remaining service life
- DRN../BE../AK8Z: P10060.161 = 17 years; times without voltage supply = 3 years; brake correction value = 0 years → 14 years remaining service life

The safety encoder may be used as long as none of the other factors (bearing service life, number of emergency stop braking operations) has been exceeded.

The following table lists the parameters that contain the forecast of the remaining service life and the histogram of the operating times in the respective temperature range. The parameters can be read using the MOVISUITE® engineering software and using a controller via parameter access:

Display text	Index	Subindex	Offset	Unit
Prediction of remaining service life	10060	161	–	Minutes
Runtime in temperature range < 90 °C	10060	162	0	Minutes
Runtime in temperature range 90 °C < 95 °C	10060	162	1	Minutes
Runtime in temperature range 95 °C < 100 °C	10060	162	2	Minutes
Runtime in temperature range 100 °C < 105 °C	10060	162	3	Minutes
Runtime in temperature range 105 °C < 110 °C	10060	162	4	Minutes
Runtime in temperature range 110 °C < 115 °C	10060	162	5	Minutes
Runtime in temperature range > 115 °C	10060	162	7	Minutes

33093563/EN – 07/2025

Observe the following additional documents for the respective motor:

- "Built-in encoders, add-on encoders, and safety encoders for DR.., DRN.., DRU.., DR2.., EDR.., EDRN.. AC motors" product manual
- Addendum to the operating instructions "Safety encoders and safety brakes – CMP.., CMPZ.., CM3C.., ECM3C.., CM3P.., CM3G.. – Functional safety"

33093563/EN – 07/2025

8.5 DriveRadar® SensorModule DU1Z with MOVILINK® DDI interface

8.5.1 Functional description

The DU1Z DriveRadar® SensorModule is used to record sensor measured variables and to pre-process them for calculating key performance indicators in an AC motor of the DR.. series.

The measured values and the pre-processed measurement results of the DU1Z can be used to draw conclusions about the condition of the gearmotor and its environment.

Using the DU1Z enables the following functions:

- Condition monitoring of the motor and its environment
- Predictive maintenance
- Monitoring and safeguarding the function of systems

Typical areas of use and applications include:

- Hygienic applications
  - Food and beverage processing
  - Chemical industry
- Applications in critical infrastructure and complex systems where a failure of system components is dangerous or costly
  - Networked production of high-quality goods
  - Systems with synchronized production sections
  - Power supply
- Applications in which maintenance is difficult (e.g., due to inaccessibility)
  - Cranes
  - Materials handling technology in secured areas
- Applications with coordinated maintenance times (e.g., for networked system components that can or may only be taken out of service together for maintenance)
  - Food industry
  - Networked production of high-quality goods
  - Systems used in freezer applications
- Applications in challenging operating conditions (e.g., extreme ambient temperatures, strong mechanical loads such as vibrations and shocks, highly fluctuating operating parameters and ambient conditions of the drive and similar)
  - Port and offshore facilities
  - Locks
  - Cooling systems

33093563/EN – 07/2025

8.5.2 Measured values

The measured values of the DU1Z DriveRadar® SensorModule are classified as follows according to chapter "Parameters of the DU1Z SensorModule" (→ 🗎 56):

- Slowly changing measured values without pre-processing
- Rapidly changing measured values without pre-processing
- KPIs (key performance indicators as pre-processed measured variables)

8.5.3 Access types

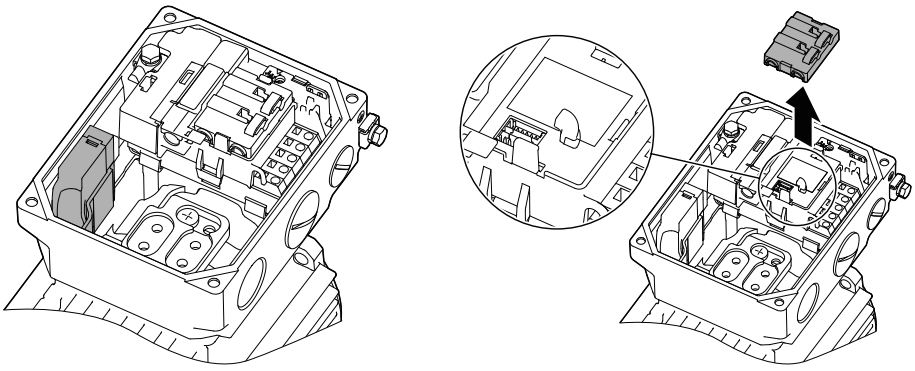
The following options are available for data acquisition and data evaluation in a higher-level system:

- Single parameter access via PROFINET IO (see chapter "Parameter access for MOVILINK® DDI options" (→ 🗎 50))
- Data collection (parameters & scope) with the DriveRadar® SmartDataCollector
- Time-synchronized scopes with the inverter (in preparation)
- Data transmission to the DriveRadar® IoT Suite (in preparation)
- Data analysis with the DriveRadar® EdgeProcessingUnit for applications (in preparation)

8.5.4 Retrofitting options

The DU1Z DriveRadar® SensorModule (see figure on the left) can be retrofitted by SEW-EURODRIVE if the gearmotor that was already delivered fulfills the following characteristics.

- 2025 or later as the year of construction of the motor with MOVILINK® DDI
- From size DR..132M, the corresponding mounting adapter is required.
- The MOVILINK® DDI communication unit must include the connection options for DU1Z. The housing cover contains holding terminals for unused brake cores (see figure on the right).
- The connector plug of the DriveRadar® SensorModule DU1Z is also integrated and visible when the cover is removed (see figure on the right).



Please contact SEW-EURODRIVE service if you require a retrofit.

8.5.5 Disassembly and assembly

Contact SEW-EURODRIVE service in the event of fault.

33093563/EN – 07/2025

8.5.6 Startup information

Starting with version 2.60 of MOVISUTE®, the SensorModule is recognized as a subcomponent of the MOVILINK® DDI interface in the motor. No manual setup is required due to auto startup. For identification purposes, the DU1Z is listed in the final report of the startup wizard as an option for digital motor integration.

Basic data on the SensorModule is provided in the parameter tree of the connected MOVI-C® inverter. In this way, the metadata such as firmware versions and the function status can be viewed under the "Device properties".

The rapidly changing measured values of the DU1Z are translated into observable performance indicators (KPIs). The recording interval for the conversion can be set under "Functions".

Selected live data is visualized under "Diagnostics". For one thing, the quality of communication to the DU1Z can be checked. For another, dynamic measured values of the sensor module can be visualized for functional testing.

Accessing individual measured values of the DU1Z via PROFINET IO requires the routing information of the SensorModule, which can be read out via MOVISUTE®. This information can be viewed in the parameter tree under "Device properties". For further details, refer to the documentation "TIA sample project MOVI-C®: Single parameter access" (see chapter "Parameter access for MOVILINK® DDI options" (→ 🗎 50)).

The SensorModule can be integrated into a higher-level system for condition monitoring with the DriveRadar® SmartDataCollector. The integration takes place via a network scan. After selection, the DU1Z is displayed as a new MOVILINK® DDI subcomponent under the connected MOVI-C® inverter and is available as a data source.

For data acquisition, an endpoint must be defined and a data container must be created. Two types of containers are available: Parameter containers for recording KPIs and actual values, and scope containers for recording time signals. It is recommended to use the "General Library MOVI-C®" available in SEW-EURODRIVE's online support because it offers preconfigured standard containers. The recorded data is transferred to the defined endpoint in JSON format.

For further details on DriveRadar® SmartDataCollector, its use and the standard containers, refer to the following documentation:

- The manuals "DriveRadar® SmartDataCollector" and "DriveRadar® SmartDataCollector General Library"

  Link: https://t1p.de/1vi6e
- Online learning portfolio on DriveRadar® SmartDataCollector

  Link: https://t1p.de/u2daa

33093563/EN – 07/2025

8.5.7 Technical data and function parameters

Technical data

		DU1Z
Inverter		MOVI-C® modular automation system: MOVITRAC® advanced MOVIDRIVE® modular MOVIDRIVE® technology MOVIDRIVE® system
		MOVI-C® modular automation system: MOVIMOT® flexible
Motor series and size		DRN../DRU../DR2.71 – 225
Brake control installation		Motor-internal in the terminal box
Interface		MOVILINK® DDI, coaxial
MOVILINK® DDI type code		DI..10
Electronic nameplate		ET2000 (MOVILINK® DDI, integrated)
Voltage supply		DC 24 V (MOVILINK® DDI, integrated)
Current requirement (DC 24 V via MOVILINK® DDI)	mA	25
Sensor technology		• Temperature: -40 – +125 °C (±0.6 °C at -20 – +90 °C; ±1 °C at < -20 °C and > +90 °C) • Relative humidity: 0 – 100% relative humidity (±2.5% rel. humidity at 0 – 90 °C; ±3.5% rel. humidity at 90 – 100 °C) • Absolute humidity (calculated value): g/m^3 • Air pressure: 260 – 1260 hPa (±0.5 hPa) • Vibrations: Measuring range ±16 g; resolution approx. 0.005 m/s^2; effective bandwidth 6 kHz (1 g = 9.81 m/s^2) • Microphone: in preparation
Derived sensor values		See chapter "Parameters of the DU1Z SensorModule" (→ 🗎 56)
Run-up time after switching on	ms	< 3000
Vibration resistance according to EN 60068-2-6	g	≤ 10 g (f > 18.5 Hz)
Shock resistance in accordance with EN 60068-2-27	g	≤ 100 g (t = 6 ms, 18 pulses)
Degree of protection in accordance with EN 60529		IP66
Corrosion and surface protection		KS, OS1 – OS4, OSG
Installation altitude[1)]	m	≤ 3866
Ambient temperature of motor[1)]	°C	With MOVI-C® control cabinet inverters and MOVIMOT® flexible decentralized inverter: -20 to +60
Cable length, maximum[2)]	m	200
Connection technology		• KD1: M23 hybrid connector on the terminal box, 1.5 – 4.0 mm^2 motor connection, 1.0 mm^2 brake connection • KDB: M40 hybrid connector on the terminal box, 6.0 – 10.0 mm^2 motor connection, 1.5 mm^2 brake connection • KD: Cable gland on the terminal box for hybrid cables with 1.5 – 10 mm^2 motor connection and 1 – 1.5 mm^2 brake connection • KDD: Motor and brake connection via cable gland; M23 signal connector on the terminal box

1) Observe the restrictions regarding the ambient temperature and potential derating of the respective motor/inverter when used at an increased ambient temperature and/or depending on the installation altitude.

2) Also dependent on the selected inverter type and configured PWM frequency and/or brake type; see documentation of the respective devices

33093563/EN – 07/2025

Parameters of the DU1Z SensorModule

Control word

The following functionality can be controlled via the control word.

If the drive with installed DU1Z is in an environment with temperatures below 0 °C and strong temperature fluctuations, condensation can occur. In such cases, it is recommended that the heating element be activated to dry the sensor membrane before humidity measured values are read out.

Index	Subindex	Bit	Description	Unit
10057	5	16	Activate heating element	1

Status word

The status of the individual sensors can be called up via the status word parameter 10057.6. If the corresponding bit is set, the sensor is present on the DU1Z and is functional. Even if one of its sensors malfunctions, the DU1Z will not cause a system error in the inverter or drive train.

Index	Subindex	Bit	Description	Unit
10057	6	1	Acceleration sensor technology status [1 = OK; 0 = fault]	1
10057	6	2	Reserved	1
10057	6	3	Air pressure sensor technology status [1 = OK; 0 = fault]	1
10057	6	4	Humidity sensor technology status [1 = OK; 0 = fault]	1
10057	6	16	Heating element for humidity sensor technology, status [1 = OK; 0 = fault]	1

Storage cycles and securing data against power failures

Note that pure actual value measurement data is not saved in a power failure-proof way. The actual value measurement data is continuously measured anew.

Statistical data, such as a mean value, is cyclically stored as specified in a manner that is safe in the event of a power failure. This data remains in the DU1Z even if the inverter is replaced.

Slowly changing measured values

This includes measured values that are read in a communication cycle of at least a few seconds.

These values are mapped as 32-bit floating-point numbers. Only read access is possible. The measured value evaluation does not need to be configured.

Index	Subindex	Description	Unit
10057	1	Temperature	°C
10057	2	Relative humidity	%
10057	3	Air pressure	mbar / hPa
10057	9	Absolute humidity (derived from temperature, rel. humidity and air pressure)	g/m^3

33093563/EN – 07/2025

Rapidly changing measured values and KPIs

Key performance indicators (KPIs) map a rapidly changing measured value to a slowly changing and observable value. To do so, a recording interval is set in the DU1Z.

Please note the mathematical calculation bases for the KPIs in the following section.

Index	Subindex	Description	Unit
10057	4	Recording interval (default = 200 ms; 10 – 8000 ms adjustable)	ms

The following KPIs can be recorded, pre-processed and read out by the DU1Z SensorModule.

The measured values for acceleration always also include gravitational acceleration. These measured values can be used to determine the mounting position of the drive.

Index	Subindex	Description	Unit
10057	10	Acceleration actual value (for scope) x-axis	m/s^2
10057	11	Acceleration minimum value x-axis	m/s^2
10057	12	Acceleration maximum value x-axis	m/s^2
10057	13	Acceleration mean value x-axis	m/s^2
10057	14	Acceleration effective value x-axis	m/s^2
10057	15	Acceleration crest factor x-axis	–
10057	16	Acceleration standard deviation x-axis	m/s^2
10057	17	Acceleration kurtosis value x-axis	–
10057	18	Speed of oscillation, ISO filtered, x-axis	m/s
10057	19	Acceleration skew x-axis	–
10057	30	Acceleration actual value (for scope) y-axis	m/s^2
10057	31	Acceleration minimum value y-axis	m/s^2
10057	32	Acceleration maximum value y-axis	m/s^2
10057	33	Acceleration mean value y-axis	m/s^2
10057	34	Acceleration effective value y-axis	m/s^2
10057	35	Acceleration crest factor y-axis	–
10057	36	Acceleration standard deviation y-axis	m/s^2
10057	37	Acceleration kurtosis value y-axis	–
10057	38	Speed of oscillation, ISO filtered, y-axis	m/s
10057	39	Acceleration skew y-axis	–

The mathematical calculation bases of the KPIs correspond to the following definitions.

KPI	Calculation basis
Minimum value/maximum value	$x_{min} = \min\{x_1, x_2, ..., x_N\}$ $x_{max} = \max\{x_1, x_2, ..., x_N\}$
Mean value	$\bar{x} = \frac{1}{N}\sum_{i=1}^{N} x_i$

33093563/EN – 07/2025

KPI	Calculation basis
Effective value (RMS)	$x_{eff} = \sqrt{\frac{1}{N}\sum_{i=1}^{N} x_i^2}$
Crest factor	$k_s = \frac{\lvert x \rvert_{max}}{x_{eff}}$
Standard deviation	$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N} (x_1 - \bar{x})^2}$
Kurtosis value	$\hat{\omega} = \frac{N(N+1)}{(N-1)(N-2)(N-3)} \sum_{i=1}^{N} \left(\frac{x_i - \bar{x}}{s} \right)^4$
ISO filtering	Value recorded and filtered according to ISO standard
Skew	$\hat{\gamma}_m = \frac{N}{(N-1)(N-2)} \sum_{i=1}^{N} \left(\frac{x_i - \bar{x}}{s} \right)^3$

33093563/EN – 07/2025

8.6 Technical data of brake controls BG.Z, BS.Z, B

8.6.1 Functional description

Brake controls with an extended functional scope are available in the MOVILINK® DDI option portfolio. The options of the BG.Z, BS.Z, and B series are brake controls that are integrated in the drive or inverter.

The BG.Z and BS.Z series are connected in the control cabinet via the MOVILINK® DDI interface in the MOVI-C® modular automation system, while the HV brake control B is an option for decentralized MOVI-C® inverters.

In addition to the basic function of brake monitoring, these brake controls have implemented functions for condition monitoring of the brake and its wear condition and for self-monitoring of the brake control as standard.

At the same time, the BG.Z, BS.Z brake controls and option B are assistance systems which are intended to simplify maintenance and fault diagnostics. This does not replace or override standard prescribed maintenance intervals.

With the MOVI-C® control cabinet inverters, the brake control and the brake are permanently supplied from the local supply voltage network. The brake switching function takes place via the MOVILINK® DDI interface and the BG..Z or BS..Z brake controls. With decentralized MOVI-C® inverters, the brake is controlled directly from the DC link of the inverter via the integrated HV brake control.

BG.Z brake control

With their wide voltage input (supply with low voltage according to IEC 60050 in the specified range), the BG.Z brake controls enable the operation of spring-loaded brakes from the BE.., BE.H (with DR.. AC motors by SEW-EURODRIVE) and BZ.. series. (for CM3C.. servomotors by SEW-EURODRIVE) in a wide range of supply voltages. Previously, it was necessary to select a rated brake voltage to adapt to the local AC voltage network.

With these brake controls, the use of a rated brake voltage is possible over the entire supply voltage range in a completely network-independent way. This gives you logistical and maintenance advantages, since only one type of brake in a rated brake voltage with a brake control must be used. The same type of brakemotor and the same spare parts can be used.

For further information, refer to chapter "Brake voltages for BG1Z brake control" (→ 🗎 61).

HV brake control B

The HV brake control B is an option of the decentralized inverters from the MOVI-C® modular automation system for inverter-integrated control of spring-loaded brakes. It combines the network-independent brakemotor version with the advantages of the decentralized infrastructure, and it represents a fully integrated solution for brake control and brake diagnostics that can be implemented without a separate brake supply. With its wide voltage input (supply with low voltage according to IEC 60050 in the specified range), the HV brake control B enables spring-loaded brakes from the BE.. and BE.H, as well as BZ.. series to be operated in a large supply voltage range. Previously, it was necessary to select a rated brake voltage to adapt to the local AC voltage network. With these brake controls, the use of a rated brake voltage is possible over the entire supply voltage range in a completely network-independent way. This provides you with an advantage in terms of logistics and maintenance, since only one brake type needs to be used in one rated brake voltage with one brake control. The same type of brakemotor and the same spare parts can be used.

33093563/EN – 07/2025

8.6.2 Technical data

Combination options of brake control with inverters from the MOVI-C® modular automation system

The combination of a BG1Z brake control (MOVILINK® DDI type code DI2..) or a BS1Z brake control (MOVILINK® DDI type code DI1..) with a decentralized inverter of type MOVIMOT® flexible is not possible. MOVIMOT® flexible uses the integrated brake control B (HV brake control). If MOVIMOT® flexible is used, no BG1Z brake control (MOVILINK® DDI type code DI0...) may be integrated.

The combination of a BG1Z brake control (MOVILINK® DDI type code DI2..) or a BS1Z brake control (MOVILINK® DDI type code DI1..) is possible with control cabinet inverters MOVIDRIVE® and MOVITRAC® from the MOVI-C® modular automation system, but no motor-external brake control may be used if a BG1Z brake control is used. If no BG1Z brake control is integrated (MOVILINK® DDI type code DI0...), motor-external brake controls can be used.

It cannot be combined with MOVIDYN®.

Note that the wide voltage range of the supply from AC 200 V to 500 V is realized when using the integrated BG1Z brake control with a brake (brake coil variant). Depending on the brake type and the brake size, certain brakes are installed. For details refer to the following table:

		BS1Z[1]	**BG1Z**[1]	**B**[2] **(HV brake control)**
Inverter	–	MOVI-C® modular automation system: MOVITRAC® advanced MOVIDRIVE® modular MOVIDRIVE® technology MOVIDRIVE® system		MOVI-C® modular automation system: MOVIMOT® flexible MOVIMOT® advanced MOVIMOT® performance
Motors, motor sizes, brake types[3]	–	CMP50 – 63: BK.. CM3C63 – 100: BZ..Z, BK.. CM3P63 – 100: BZ..Z, BK.. CMSB50 – 63: BK..	CM3C63 – 100: BZ.. CM3P71 – 100: BZ.. DRN, DR2., DRU 71 – 132M: BE.. and BE.H	CM3C63 – 100: BZ.. CM3P71 – 100: BZ.. DRN, DR2., DRU 71 – 132M: BE.. and BE.H
Electrical interface	–	MOVILINK® DDI, coaxial		
Power demand (24 V supply via MOVILINK® DDI)	–	40 mA		–
Motor	MOVILINK® DDI-type designation	DI1..	DI2..	DI0..
Brake control installation	–	Motor-internal in the installation space of the encoder (B-side)	Motor-internal in the terminal box	Integrated in the inverter
Operating temperature range	Ambient temperature of the motor	-40 °C to +60 °C		(-30 °C)[4] -20 to +60 °C
Supply voltage	Voltage at the input terminal of the brake control	DC 24 V ±10%[5]	AC 200 – 500 V ±10%	AC 110 – 500 V ±10%
Brake voltage	Nominal voltage of the brake winding	DC 24 V	BZ05 – BZ5: AC 110 V BE03 – BE5: AC 230 V BE11 – BE32: AC 184 V BE1H – BE2H: AC 230 V	AC 110 V AC 230 V AC 400 V AC 500 V
Operating current and Operating current factor	–	For more information, refer to chapter "Fusing against damage due to overvoltage and short circuit"		
Functional safety	Availability with safety brakes	No		
Explosion protection	Availability for applications in an explosion-protected area	No		
Supported brake types	–	BK.., BZ.Z	BZ.., BE.., BE.H	BZ..1 BE.., BE.H

33093563/EN – 07/2025

		BS1Z[1]	BG1Z[1]	B[2] (HV brake control)
Brake control	Supported braking torques[3]	Per brake type/size: All standard braking torques		
	Control functions	Release, application (normal de-excitation), Rapid application (rapid excitation)		Release, rapid application (rapid excitation)
	Monitoring functions of the brake control and the brake	Output stage (hardware and temperature faults) Brake monitoring (temperature, short circuit and interruption) Startup (initialization) Computer and memory errors		
Cable length, maximum[6]	–	The cable lengths depend on the brake type.	≤ 200 m	≤ 15 m

1) Only available in combination with EZ4Z, AZ4Z, EZ2Z or AZ2Z encoder system.
2) Brake controls B and BG.Z: Operation takes place with low voltage in accordance with IEC 60050 within the specified supply range.
3) For the technical data of the brakes, see the catalogs/operating instructions for the respective motor types.
4) In preparation
5) In addition, depending on the selected inverter type, the configured PWM frequency, the brake type, and the given voltage range, observe the system manual of the respective inverter.
6) In addition, depending on the selected inverter type, the configured PWM frequency, the brake type and the given voltage range, observe the system manual of the respective inverter.

Brake voltages for the BG1Z brake control

Brake	Supply voltage	Selection in the product configurator	Operating voltage of the brake	
	in AC V	in AC V	in AC V	in DC V
BE03	200 – 500	230	230	90
BE05			230	90
BE1			230	90
BE1H			230	90
BE2			230	90
BE2H			230	90
BE11			184	75
BE20			184	75
BE30			184	75
BZ05			110	45
BZ1			110	45
BZ3			110	45
BZ5			110	45

The supply voltage is applied externally as a supply for the brake system. The brake voltage is always selected based on the specified value in the SEW-EURODRIVE product configurator. The AC operating voltage of the brake is the configured brake voltage as is displayed in the "Drive train" field of the MOVISUITE® engineering software.

The voltage applied to the brake coil is generated by the BG1Z brake control and can be smaller than the DC voltage of the brake due to the energy-saving operation of the BG1Z.

33093563/EN – 07/2025

Function parameters of the BG1Z brake control

Note that the parameters of the integrated brake control cannot currently be measured with the scope function of MOVISUITE®. This function is in preparation.

Note that measured actual value data is not saved so that it is safe in case of power failure. These values are continuously re-measured. Static data, such as the enable hour counter, is stored cyclically in a fail-safe manner. This data still exists in the brake control, even if the inverter is replaced.

		Data type and unit	Parameters of BG1Z	BG1Z
Brake supply voltage	–	[int32] in V	8584.23	Input voltage applied to B.1Z
Output stage temperature	–	[int32] in 1e-2 °C	8584.61	Temperature of B.1Z printed board assembly
Switching operations	Brake control	[uint32] Switching operations	10056.20	Number of brake openings by the brake control
Status of Brake control	–	[int32]	8437.1	Shows the status of the brake control. The status of the brake can vary, e.g., due to manual brake release. Possible states: • 0: Closed • 1: Opening in progress • 2: Open • 3: Closing in progress
Working air gap	–	[float32] in mm	10056.18	Currently measured air gap of brake Accuracy ± 0.15 mm
Brake condition monitoring (Condition monitoring)	Condition monitoring functions	–	–	Air gap measurement, brake lining reserve Brake temperature Relative thermal brake coil utilization
	Air gap measurement, brake lining reserve[1)] (ratio size, specification in %)	[int32] in %	10056.19	100% brake lining reserve: minimum air gap (no wear) 0% brake lining reserve: maximum air gap (maximum wear) Counting increment and air gap range depending on brake type and size (the diagnosis refers to the air gap of the brake)
	Thermal brake load (ratio size, specification in %)	[uint32] in %	10056.3	0%: ≤ 20 °C or no measured value available 100%: ≥ Maximum temperature of the respective brake coil
	Drive running hours counter	[uint32] in min	8328.2	Number of minutes in which the brake was released (storage cycle 1 minute)
	Power-applied hours counter	[uint32] in min	8328.1	Number minutes that the device was supplied with operating voltage via MOVILINK® DDI (storage cycle 1 minute)
	Reset operating hours counter	[int32]	8328.10	Resetting the power-applied hours and drive running hours • 0: No • 1: Yes
	Switching operations Brake	[uint32] Switching operations	10056.21	Number of brake openings since last reset of counter
	Switching operations Reset brake	[int32]	10056.25	Reset of switching operations to 0 (e.g. after a maintenance interval) • 0: No • 1: Yes
Status bits	–	[int32]	8437.2	Status bits for control status of brake control. The status of the brake can vary, e.g., due to manual brake release. • 0: Apply brake • 1: Release brake Status bits for validity of measured values: • 3: Brake temperature valid • 4: Brake lining reserve valid • 5: Thermal brake load valid Status bits for internal error: • 6: Air gap detection error

33093563/EN – 07/2025

		Data type and unit	Parameters of BG1Z	BG1Z
Error memory T0 to T4	Error code	[uint32]	834(1-5).2	Number of the error that has occurred Structure of error code: • Bit 0 – 7: Suberror • Bit 8 – 15: Main error
	Error timestamp	[uint32]	834(1-5).4	Without set system time: Parameter corresponds to power-applied hours in seconds With set system time: Parameter corresponds to time in seconds based on 01.01.2000 (EtherCAT®, SBus-PLUS)
	Power-applied hours	[uint32] in min	834(1-5).5	Number of power-applied hours at the time when the error occurred
	Input voltage	[float32] in V	834(1-5).25	Input voltage at the time of the error
	Output stage temperature	[int32] in 1e-2 °C	834(1-5).26	Output stage temperature at the time of the error
	State	[int32]	834(1-5).60	State of the brake control at the time of the error 0: Closed 1: Opening in progress 2: Open 4: Closing in progress
	Error code	[uint32]	8365.1	Currently pending error Structure of error code: • Bit 0 – 7: Suberror • Bit 8 – 15: Main error
Clear error memory	–	[int32]	8340.1	Deletion of error memory and automatic reset to "No" • 0: No • 1: Yes

1) Measured value available after first release procedure.

Function parameters of B brake control

Note that the parameters of the integrated brake control cannot currently be measured with the scope function of MOVISUITE®. This function is in preparation.

Note that measured actual value data is not saved so that it is safe in case of power failure. These values are continuously re-measured. Static data, such as the enable hour counter, is stored cyclically in a fail-safe manner. This data still exists in the brake control, even if the inverter is replaced.

		Data type and unit	Inverter parameters	B[1] (HV brake control)
Switching operations	Brake control	[uint32] Switching operations	8437.20	Number of brake openings by the brake control
Status of Brake control	–	[int32]	8437.1	Shows the status of the brake control. The status of the brake can vary, e.g., due to manual brake release. Possible states: • 0: Closed • 1: Opening in progress • 2: Open • 3: Closing in progress
Working air gap	–	[float32] in mm	8437.13	Currently measured air gap of brake Accuracy ± 0.15 mm
Brake condition recording[2] (Condition monitoring)	Functions for condition recording	–	–	Air gap measurement, brake lining reserve Brake temperature Relative thermal brake coil utilization
	Air gap measurement, brake lining reserve[3] (ratio size, specification in %)	[int32] in %	8437.11	100% brake lining reserve: minimum air gap (no wear) 0% brake lining reserve: maximum air gap (maximum wear) Counting increment and air gap range depending on brake type and size (the diagnosis refers to the air gap of the brake)
	Thermal brake load (ratio size, specification in %)	[uint32] in %	8437.12	0%: ≤ 20 °C or no measured value available 100%: ≥ Maximum temperature of the respective brake coil
	Drive running hours counter	[uint32] in min	–	–
	Power-applied hours counter	[uint32] in min	–	–
	Reset operating hours counter	[int32]	–	• 0: No • 1: Yes
	Switching operations Brake	[uint32] Switching operations	8437.21	Number of brake openings since last reset of counter
	Switching operations Reset brake	[int32]	8437.25	Reset of switching operations to 0 (e.g. after a maintenance interval) • 0: No • 1: Yes
Status bits	–	–	8437.2	Status bits for control status of brake control. The status of the brake can vary, e.g., due to manual brake release. • 0: Apply brake • 1: Release brake Status bits for validity of measured values: • 3: Brake temperature valid • 4: Brake lining reserve valid • 5: Thermal brake load valid Status bits for internal faults: • 6: Air gap detection error

1) Brake controls B and BG.Z: Operation takes place with low voltage in accordance with IEC 60050 within the specified supply range.
2) Other functions on request.
3) Measured value available after first release procedure.

33093563/EN – 07/2025

8.6.3 Operating currents with BG1Z

The tables in this chapter show the operating currents of the BE.. and BE.H brakes when supplied from the local AC supply system with BG1Z brake control.

The acceleration current I_B (= inrush current) flows only for a short time (depending on brake sizes between 100 – 500 ms) when the brake is released.

The values for the holding currents I_H are effective values. Only use devices for the current measurement that are suitable for the measurement of effective values.

The operating currents specified below are nominal values. They relate to a coil temperature of +20 °C. If the heat rises above a coil temperature of +20 °C, the operating current increases because the closed loop system integrated into the BG1Z or BS1Z must compensate for the rise in winding resistance due to the temperature.

Key

The following tables list the operating currents of the brakes at different voltages. The following values are specified:

- V_N Nominal voltage (rated voltage range) of the brake in V (AC or DC).
- I_H Brake holding current in A (AC or DC). Effective value of the supply current in the supply cable to the brake control by SEW-EURODRIVE
- I_B Acceleration current in A (AC or DC) when operated with SEW-EURODRIVE brake control for high-speed excitation.
- I_B/I_H Inrush current ratio ESV.

	BE03	BE05	BE1	BE1H	BE2	BE2H	BE5	BE11	BE20	BE30	BE32	BE60	BE62
Inrush current ratio ESV	3.9	3.4	4.2	4.2	4.5	4.5	2.9	3.6	3.5	3.9	3.9	3.0	3.0

Nominal voltage (rated voltage range) U_N	**BE03**	**BE05**	**BE1**	**BE1H**	**BE2**	**BE2H**	**BE5**	**BE11**	**BE20**	**BE30**	**BE32**	**BE60**	**BE62**
	Nominal holding current I_H												
AC V	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**	**AC A**
200 V to 500 V	0.06	0.08	0.08	0.08	0.09	0.09	0.15	0.35	0.40	0.48	0.48	0.52	0.52

33093563/EN – 07/2025

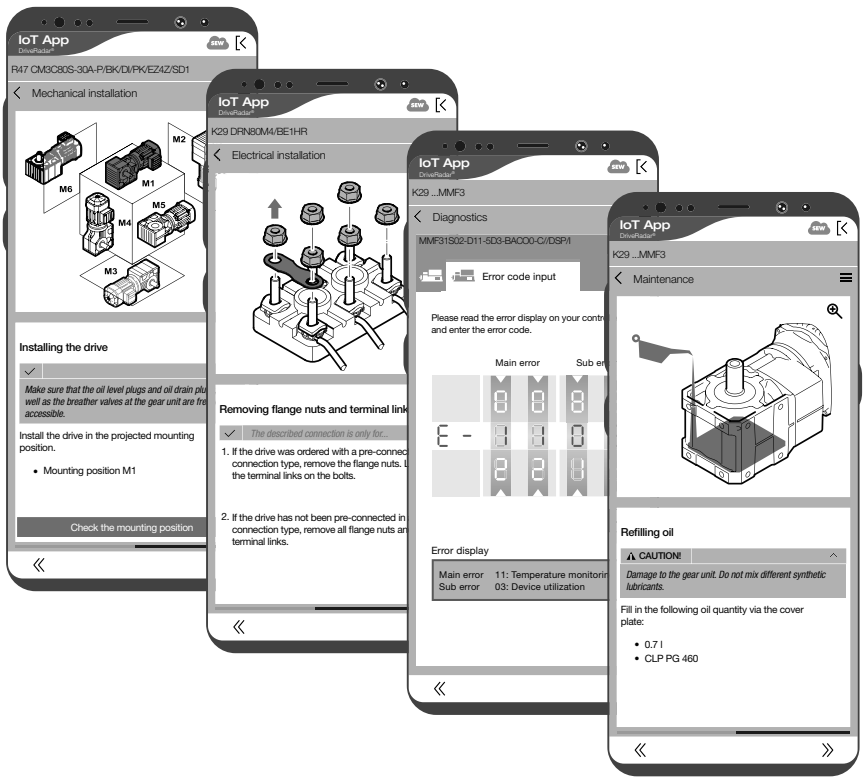
9 Dimension sheets

9.1 Reference to dimension sheets

The dimension sheets can be found in the catalog of the corresponding motor.

33093563/EN – 07/2025

IoT App
DriveRadar®



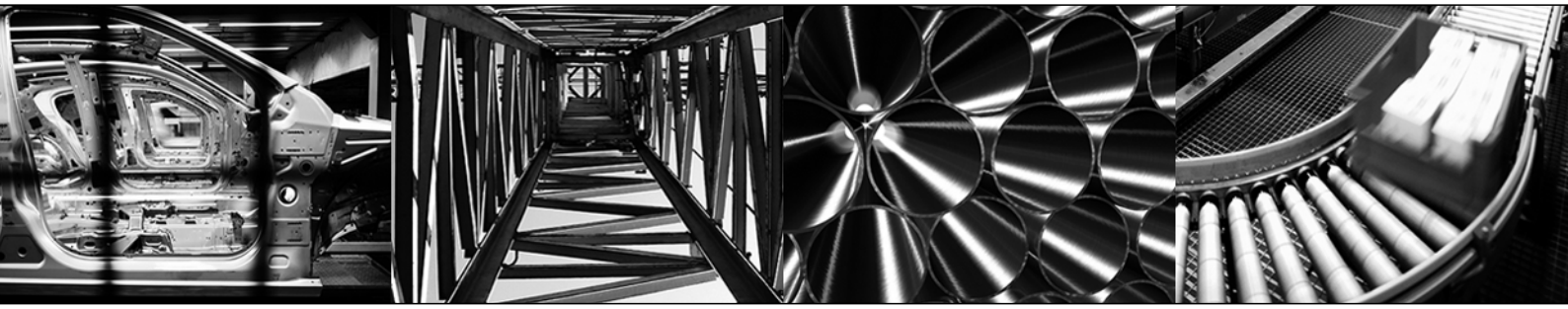
https://iotapp.io

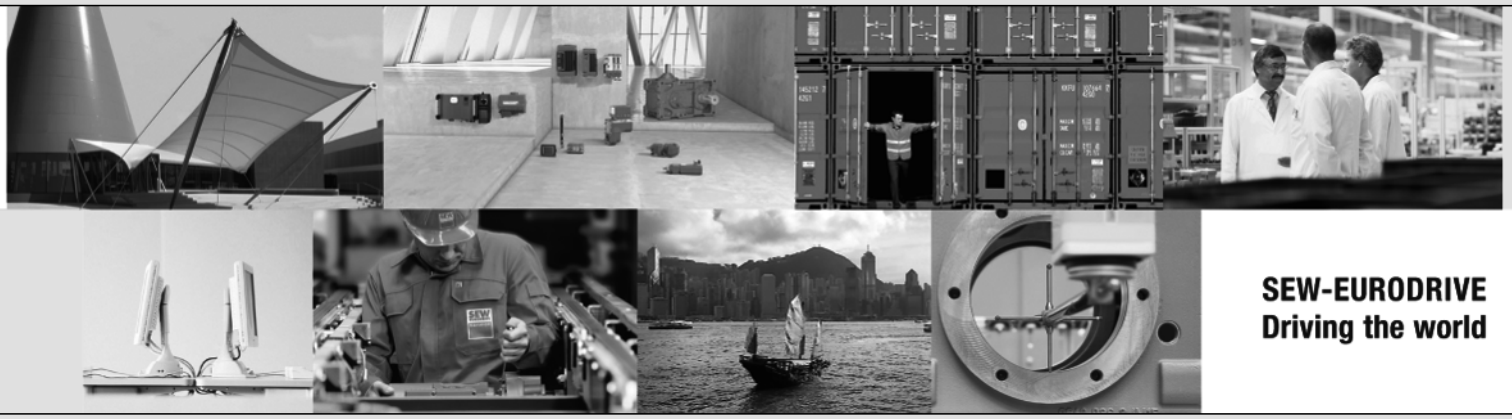
Google Play

App Store

THE GREEN SIDE OF DRIVE

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





SEW-EURODRIVE
Driving the world

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Str. 42
76646 BRUCHSAL
GERMANY
Tel. +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
➞ www.sew-eurodrive.com