SEW EURODRIVE

# Addendum to the Operating Instructions

## Maintenance Switch for DRC/MOVIGEAR® Installations

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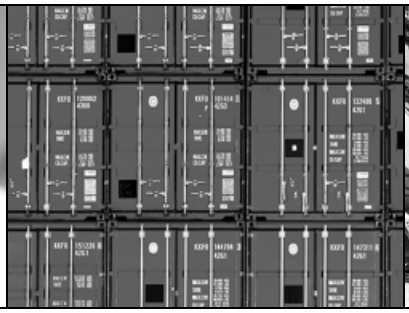



# 1 General Information

## *1.1 Structure of the safety notes*

### 1.1.1 Meaning of signal words

The following table shows the graduation and meaning of the signal words for safety notes, warnings regarding potential risks of damage to property, and other notes.

| Signal word | Meaning | Consequences if disregarded |
|---|---|---|
| ⚠ **DANGER!** | Imminent hazard | Severe or fatal injuries |
| ⚠ **WARNING!** | Possible dangerous situation | Severe or fatal injuries |
| ⚠ **CAUTION!** | Possible dangerous situation | Minor injuries |
| **NOTICE** | Possible damage to property | Damage to the drive system or its environment |
| **NOTE** | Useful information or tip: Simplifies handling of the drive system. | |

### 1.1.2 Design of the section-related safety notes

Section-related safety notes do not apply to a specific action, but to several actions pertaining to one subject. The symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:

**⚠ SIGNAL WORD!**

Type and source of danger.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the danger.

### 1.1.3 Design of the embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- ⚠ **SIGNAL WORD!** Type and source of hazard.

  Possible consequence(s) if disregarded.

  – Measure(s) to prevent the hazard.

## 1.2 Rights to claim under warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation. Therefore read the documentation before you start working with the unit.

## 1.3 Exclusion of liability

You must comply with the information contained in this documentation to ensure safe operation and to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

## 1.4 Product names and trademarks

All product names in this documentation are trademarks or registered trademarks of their respective titleholders.

## 1.5 Copyright



## 1.6 Other applicable documentation

You must also note the following documents:

- Operating instructions of the connected MOVIGEAR® and/or DRC drive units, such as:
  "MOVIGEAR® DBC B" operating instructions
  "MOVIGEAR® DAC B" operating instructions
  "MOVIGEAR® DSC B" operating instructions
  "MOVIGEAR® SNI B" operating instructions
  "DRC.-...-DBC" operating instructions
  "DRC.-...-DAC" operating instructions
  "DRC.-...-DSC" operating instructions
  "DRC.-...-SNI" operating instructions
- "MOVIFIT® FDC" operating instructions

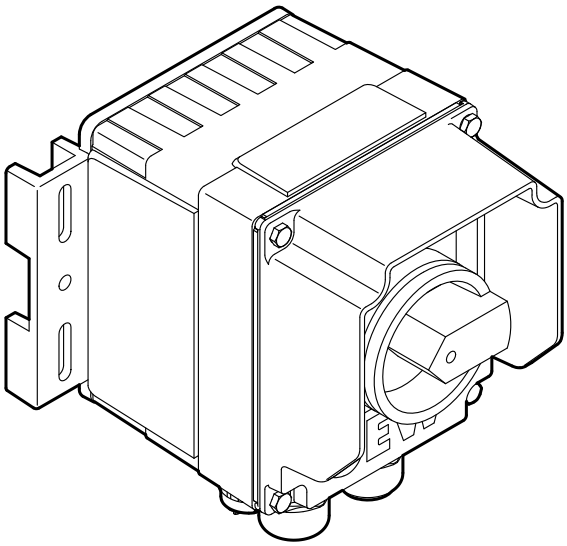
# 2 Unit structure

## 2.1 Description

The C SW maintenance switch is a 3-phase load disconnector with which you can switch off the power supply of the connected drive unit.

If the maintenance switch is used in an SNI line, only the power supply and communication to the connected drive unit is interrupted. The power supply and communication to the subsequent drive units in the string remain even when the drive unit is disconnected.

The following figure depicts the C SW maintenance switch:



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## 2.2 Variants

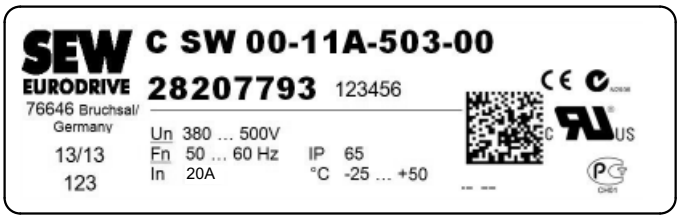
The C SW maintenance switch is available in the following variants:

| Part number | Connection technology | Loose items | Surface protection |
|---|---|---|---|
| 2 820 779 3 | 3 x terminal connection + EMC cable gland | 1 closing plug for cable gland (plastic) | Aluminum surface – untreated (standard) |
| 2 820 780 7 | 2 x terminal connection + EMC cable gland<br>1 x Intercontec plug connector with SNI coding | | |
| 2 820 781 5 | 2 x terminal connection + EMC cable gland<br>1 x Intercontec plug connector with DBC/DAC coding | | |
| 2 821 361 0 | 3 x terminal connection + EMC cable gland | 1 hexagon head screw plug (stainless steel) | HP200 coating (variant for wet areas) |
| 2 821 363 7 | 2 x terminal connection + EMC cable gland<br>1 x Intercontec plug connector with SNI coding | | |
| 2 821 362 9 | 2 x terminal connection + EMC cable gland<br>1 x Intercontec plug connector with DBC/DAC coding | | |

## 2.3 Type designation

### 2.3.1 Nameplate

You can find the nameplate in the housing of the maintenance switch. The following figure provides an example of the nameplate of the C SW maintenance switch:

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### 2.3.2 Type designation

The following table shows the type designation of the maintenance switch:

**C SW 0 0- 11 A - 50 3 - 00 / IV**

**Options**
IV = Plug connector

**Variant**
00 = Series

**Supply phases**
3 = 3-phase (AC)

**Supply voltage**
50 = AC 380 – 500 V

**Version A**

**Series**
11 = Standard
13 = Wet areas (HP200)

**Drive unit connection**
0 = Cable glands
1 = Plug connector (400 V)
2 = Plug connector (400 V + SNI)

**Communication**
0 = No communication
3 = DSC
4 = SNI
6 = DAC

**Device type**
SW = Switches

**Unit series**
C = Components/Accessories

## 2.4 Maintenance switch with optional variant for wet areas

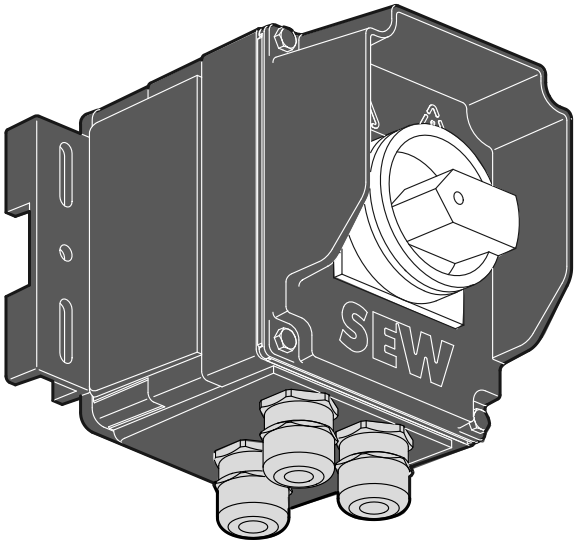
**INFORMATION**

Slight color differences are possible in the HP200 surface finish due to the treatment process (individual treatment of the components).

The following figure shows the additional features for the maintenance switch with the optional variant for wet areas:

- The variant for use in wet areas is delivered as standard with cable glands made of stainless steel.
- A screw plug made from stainless steel is provided with the maintenance switch. Use this if looping does not take place.

  To do so, replace the cable gland installed at the factory with the supplied screw plug. Observe the required tightening torque when doing so.

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In this publication, all illustrations depicting the variant for use in wet areas are displayed with a shading (= HP200 surface protection).

# 3 Mechanical installation

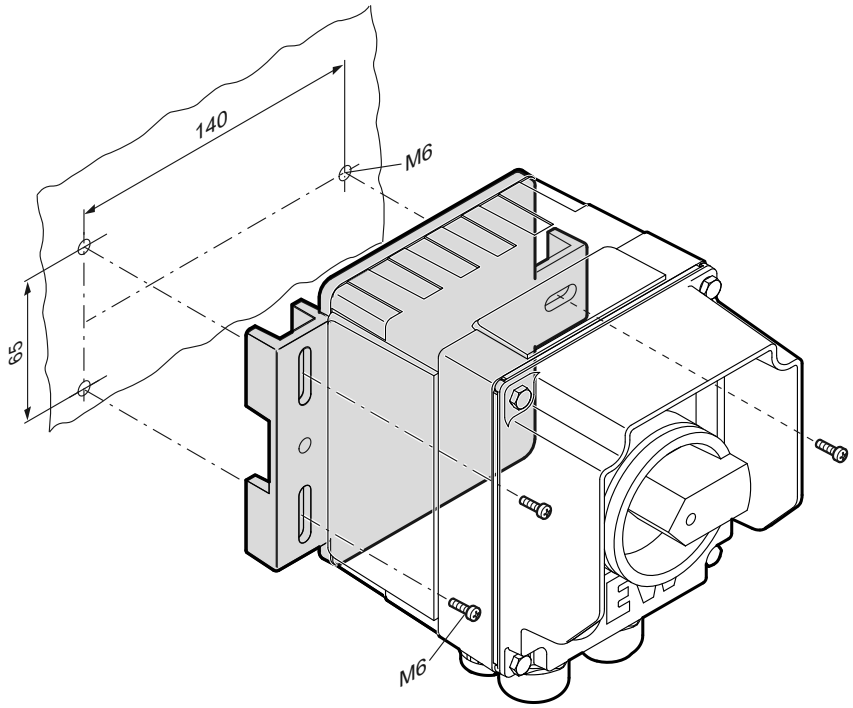
## 3.1 General information

Observe the following notes on mechanical installation:

- Only install the maintenance switch on a level, low-vibration, and torsionally rigid support structure.
- Observe the general safety notes for the drive units.
- Strictly observe all instructions as to the technical data and the permissible conditions regarding the place of installation.
- Use only the provided attachment options when mounting the unit.
- When selecting and dimensioning the mounting and safety elements, observe the applicable standards, the technical data of the unit, and the local circumstances.

## 3.2 Assembly

Install the maintenance switch with three M6 size screws in accordance with the figure below:

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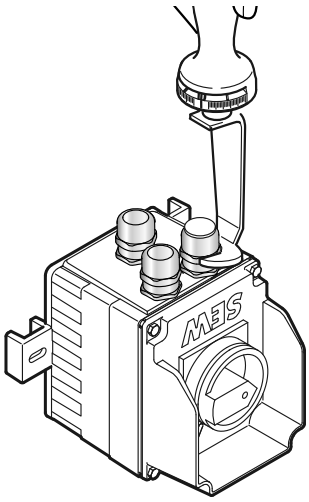
After the installation, the electrical connections and cable glands must be at the bottom of the maintenance switch as shown in the figure.

## 3.3 Tightening torques

### 3.3.1 Closing plug

Insert the closing plugs supplied by SEW-EURODRIVE in the cable gland and tighten the cable gland in accordance with the picture below with a torque of 6.0 to 7.5 Nm (53 – 66 lb.in):



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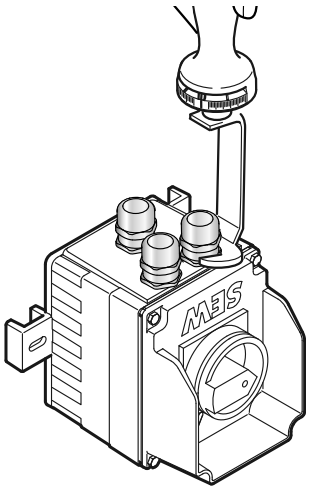
### 3.3.2 EMC cable glands

Tighten the EMC cable glands supplied by SEW-EURODRIVE with the following torques:



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| Screw fitting | Part number | Size | Tightening torque |
|---|---|---|---|
| EMC cable glands (nickel-plated brass) | 1 817 371 0 | M25 x 1.5 | 6.0 to 7.5 Nm (53 – 66 lb.in) |

The cable retention in the cable gland must withstand the following removal force of the cable from the cable gland:

- Cable with outer diameter > 10 mm: ≥ 160 N
- Cable with outer diameter < 10 mm: = 100 N

## 3.4 Variant for wet areas

**INFORMATION**

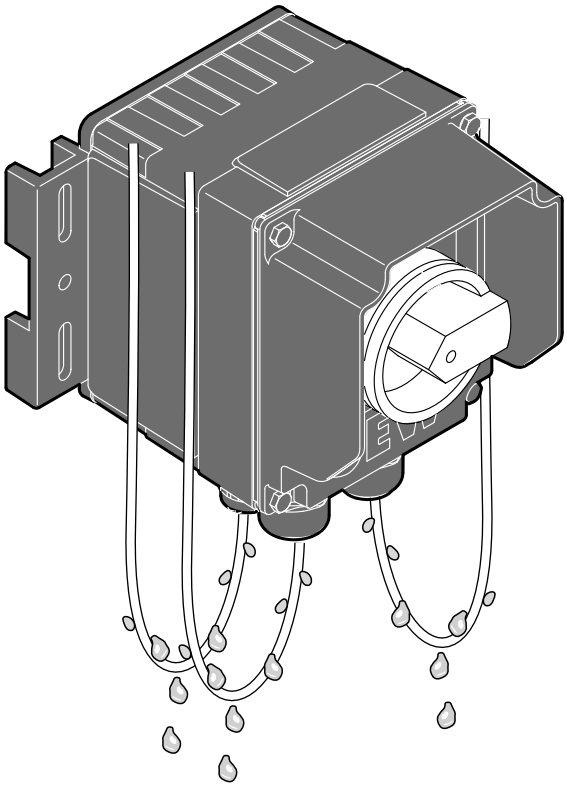
SEW-EURODRIVE guarantees that the specially treated surface is free from flaws. Report any transport damage immediately.

Although the housing surfaces have a high impact resistance, they are to be handled with care. The corrosion protection can be affected by damages as a result from improper handling during transport, installation, operation, cleaning, etc. SEW-EURODRIVE is not liable for such damage.

### 3.4.1 Installation Notes

Take note of the following additional information for the maintenance switch for use in wet areas:

- Make sure to prevent moisture and dirt from entering the unit during installation.
- After electrical installation and during assembly, check for damaged seals and sealing surfaces.
- Note the permitted mounting position, in which the electrical connections and cable glands are located at the bottom of the maintenance switch.
- Make sure to install the cables with a drip loop; see the following figure:



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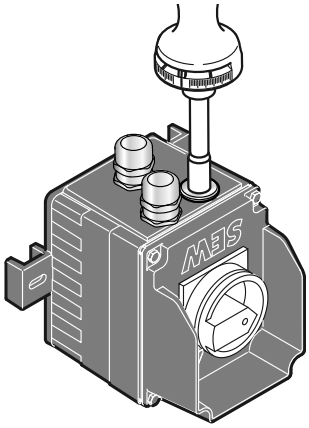
### 3.4.2 Tightening torques for the variant for wet areas

*Screw plugs* Tighten the screw plugs supplied by SEW-EURODRIVE with a torque of 6.0 – 7.5 Nm (53 – 66 lb.in).



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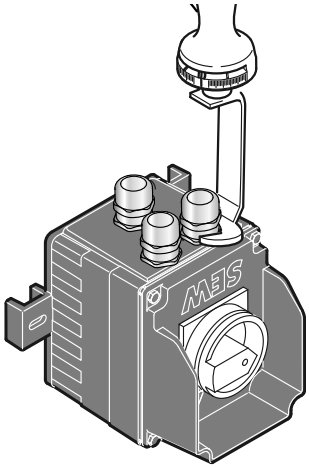
*EMC cable glands* Tighten the EMC cable glands supplied by SEW-EURODRIVE with the following torques:



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| Screw fitting | Part number | Size | Tightening torque |
|---|---|---|---|
| **EMC cable glands (stainless steel)** | 1 821 638 2 | M25 x 1.5 | 6.0 Nm to 7.5 Nm (53 – 66 lb.in) |

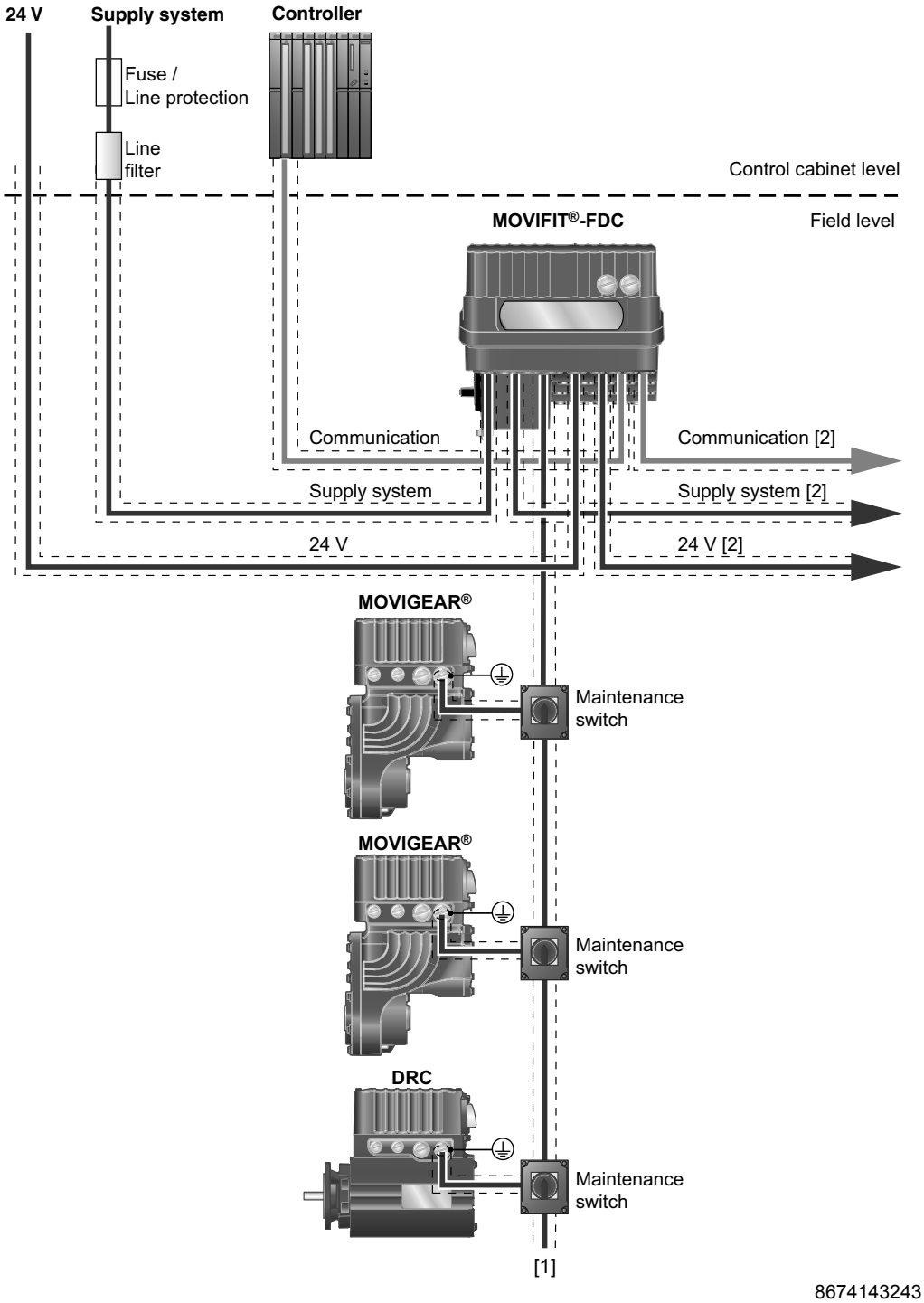
The cable retention in the cable gland must withstand the following removal force of the cable from the cable gland:

- Cable with outer diameter > 10 mm: ≥ 160 N
- Cable with outer diameter < 10 mm: = 100 N

# 4 Electrical installation

## 4.1 Installation topology (example)

The following figure illustrates the general installation topology with the C SW maintenance switch using SNI as an example:




[1] Max. 10 x drive units (MOVIGEAR® or DRC) in total
Permitted cable length between the controller and last drive unit max. 100 m
Permitted cable length between the maintenance switch and drive unit max. 2 m

[2] Looping through the communication, the power supply and the 24 V supply is only permitted when using the standard ABOX MTA...-S04-... Looping through is in preparation for ABOXes MTA...-S54-.. and MTA...-S64-...

## 4.2 Terminal assignment

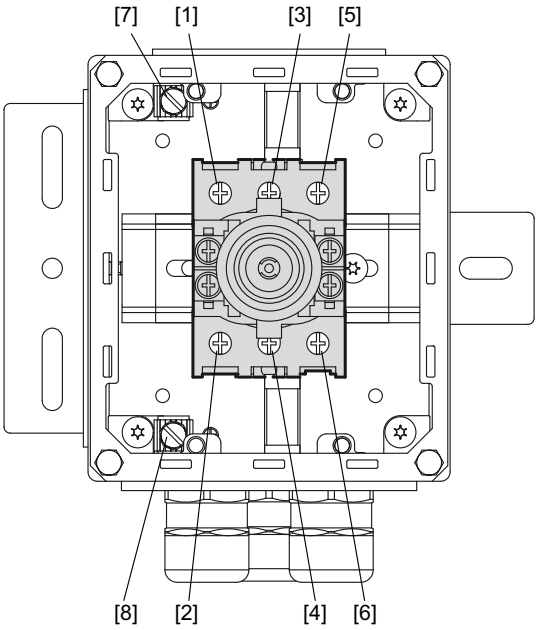
**⚠ WARNING**

Electric shock due to regenerative operation when turning the shaft.

Severe or fatal injuries.

- Secure the output shafts of the drive unit against rotation when the cover of the maintenance switch is removed.

The following figure depicts the terminal assignment in the C SW maintenance switch:

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| Assignment | | |
|---|---|---|
| **No.** | **Terminal designation** | **Function (permitted tightening torque)** |
| [1] | **1**<br>**L1** | Phase L1, IN/OUT (1.2 to 1.4 Nm) |
| [3] | **3**<br>**L2** | Phase L2, IN/OUT (1.2 to 1.4 Nm) |
| [5] | **5**<br>**L3** | Phase L3, IN/OUT (1.2 to 1.4 Nm) |
| [2] | **T1**<br>**2** | Actuator supply phase L1 (1.2 to 1.4 Nm) |
| [4] | **T2**<br>**4** | Actuator supply phase L2 (1.2 to 1.4 Nm) |
| [6] | **T3**<br>**6** | Actuator supply phase L3 (1.2 to 1.4 Nm) |
| [7] | ⏚ | Protective earth connection IN/OUT (2.0 to 3.3 Nm) |
| [8] | ⏚ | Protective earth connection for actuator supply phase (2.0 to 3.3 Nm) |

**INFORMATION**

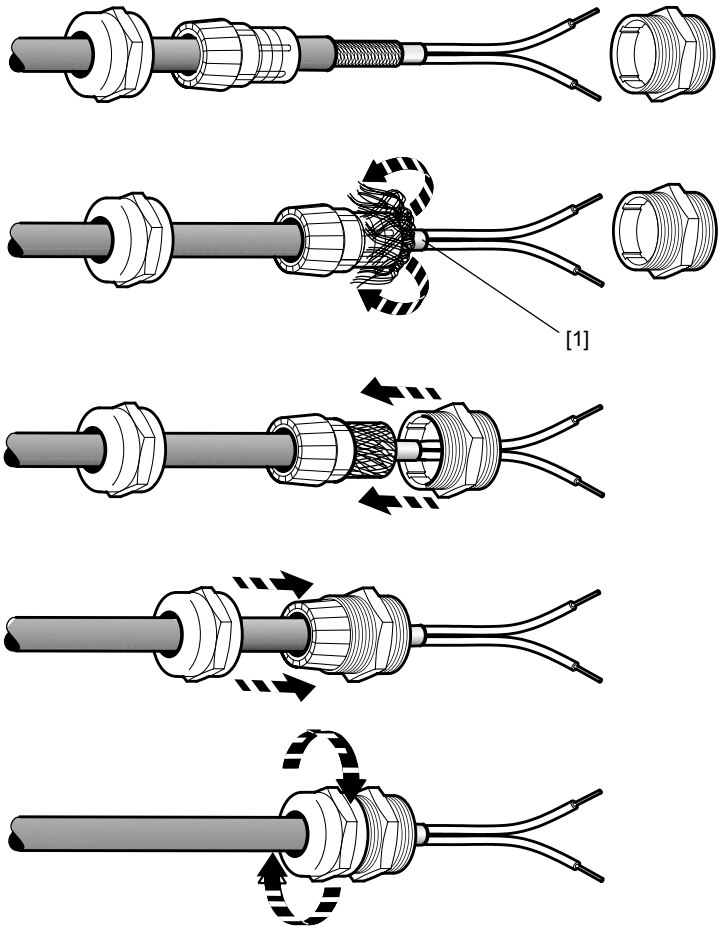
When the maintenance switch is switched, only the connection to the drive unit on the branched-off line is interrupted. The connection to the other line remains unchanged.

Due to the communication method, you must observe the order of the line phases L1, L2, L3 between the SNI controller and MOVIGEAR®/DRC-SNI drive units 1 to 10.

## 4.3 EMC cable glands

### 4.3.1 Assembly of EMC cable glands

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

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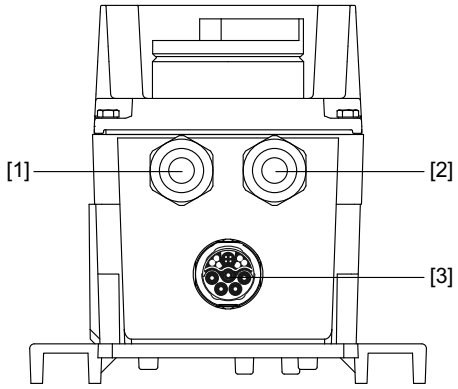
[1] Important: Cut off the insulating foil, do not just fold it back.

## 4.4 Plug connector

The wiring diagrams of the plug connectors depict the contact end of the connection.

### 4.4.1 Plug connector position

The following figure shows the positions of the plug connector and cable glands:

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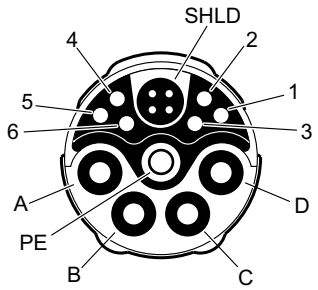
| | |
|---|---|
| [1] | Cable gland for AC 400 V supply IN |
| [2] | Cable gland for AC 400 V supply OUT |
| [3][1)] | Cable gland, drive unit connection |
| | X1241 drive unit connection, M23 plug connector, female, coding ring: Red |
| | X1203 drive unit connection, M23 plug connector, female, coding ring: Black |

1) The connection for the drive unit depends on the version of the maintenance switch.

### 4.4.2 X1241_1 and X1241_2: AC 400 V connection with SNI

The following table shows information about this connection:

| Function |
|---|
| AC 400 V connection for supplying the unit/for looping through<br>With Single Line Network Installation (SNI) |
| **Connection type** |
| M23, SEW insert, SpeedTec equipment, Intercontec, female, coding ring: red, protected against contact |
| **Wiring diagram** |

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**Assignment**

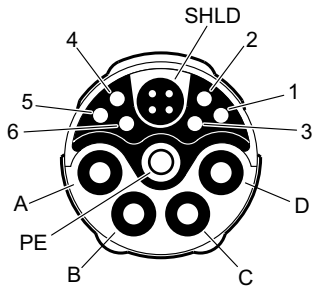
| No. | Name | Function |
|---|---|---|
| A | L1_SNI | Actuator supply phase L1 with SNI communication |
| B | L2_SNI | Actuator supply phase L2 with SNI communication |
| C | L3_SNI | Actuator supply phase L3 with SNI communication |
| D | n.c. | Not connected |
| PE | PE | PE connection |
| 1 | n.c. | Not connected |
| 2 | n.c. | Not connected |
| 3 | n.c. | Not connected |
| 4 | n.c. | Not connected |
| 5 | n.c. | Not connected |
| 6 | n.c. | Not connected |
| 7 | n.c. | Not connected |
| 8 | n.c. | Not connected |
| 9 | n.c. | Not connected |
| 10 | n.c. | Not connected |
| SHLD | n.c. | Not connected |

## INFORMATION

The communication method requires that you must observe the order of the line phases L1, L2, L3 between SNI controller and MOVIGEAR® / DRC SNI drive units 1 to 10.

### 4.4.3 X1203_1 and X1203_2: AC 400 V connection

The following table shows information about this connection:

| **Function** | | |
|---|---|---|
| AC 400 V connection for supplying the unit/for looping through | | |
| **Connection type** | | |
| M23, SEW insert, SpeedTec-capable, company: Intercontec, female, coding ring: black, protected against contact | | |
| **Wiring diagram** | | |
|  2497125387 | | |
| **Assignment** | | |
| **No.** | **Name** | **Function** |
| A | L1 | Line connection phase L1 |
| B | L2 | Line connection phase L2 |
| C | L3 | Line connection phase L3 |
| D | n.c. | Not connected |
| PE | PE | PE connection |
| 1 | n.c. | Not connected |
| 2 | n.c. | Not connected |
| 3 | n.c. | Not connected |
| 4 | n.c. | Not connected |
| 5 | n.c. | Not connected |
| 6 | n.c. | Not connected |
| 7 | n.c. | Not connected |
| 8 | n.c. | Not connected |
| 9 | n.c. | Not connected |
| 10 | n.c. | Not connected |
| SHLD | n.c. | Not connected |

# 5 Technical data

## 5.1 General technical data

| Maintenance switch type | | C SW |
|---|---|---|
| **Function** | | Load disconnector (for maintenance tasks, for example)<br>With emergency stop function in compliance with IEC 60204-1 |
| **Switching element coloring** | | Red (operating control)/Yellow (background) |
| **Supply voltages** | | 3 x AC 380 V -5 % to AC 500 V +10 % |
| **Line frequency** | | 50 – 60 Hz |
| **Current carrying capacity of terminals** | | Max. 20 A |
| **Permitted core cross section** | | 2.5 – 4.0 $mm^2$/AWG13 – AWG11<br>A reduction of the core cross section between the maintenance switch and the MOVIGEAR®/DRC drive unit is not permitted! |
| **Permitted cable length for the T-junction** | | Max. 2 m |
| **Ambient temperature** | $\vartheta_A$ | -25 – +50°C, non-condensing, no moisture condensation |
| **Climate class** | | EN 60721-3-3, class 3K3 |
| **Storage temperature** | $\vartheta_S$ | -30 – +85°C (EN 60721-3-3, class 3K3) |
| **Permissible oscillation and impact load** | | According to EN 61800-5-1 |
| **Degree of protection** | | IP65 according to EN 60529<br>(Housing closed and all cable glands and plug connections sealed) |
| **Type of cooling (DIN 41751)** | | Self-cooling |
| **Overvoltage category** | | III according to IEC 60664-1 (VDE 0110-1) |
| **Pollution class** | | 2 according to IEC 60664-1 (VDE 0110-1) |
| **Installation altitude** | **h** | Up to h ≤ 1000 m without restrictions.<br>The following restrictions apply to heights ≥ 1000 m:<br>• From 1000 m to max. 4000 m:<br>– $I_N$ reduction by 1% per 100 m<br>• From 2000 m to max. 4000 m:<br>– $V_N$ reduced by AC 6 V per 100 m<br>Over 2000 m only overvoltage class 2; external measures are required for overvoltage class 3. Overvoltage classes according to DIN VDE 0110-1. |
| **Mass** | **m** | Approx. 2.5 kg |
| **Dimension** | **W x H x D** | Approx. 150 x 140 x 120 mm |

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**Driving the world**

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