



Addendum to the Operating Instructions



Drive Power Solution
MOVI-DPS Discharge Unit



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1 General information

1.1 About this documentation

This documentation is an integral part of the product. The documentation is intended for all employees who perform assembly, installation, startup, and service work on the product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the entire documentation and understood it. If you are unclear about any of the information in this documentation, or if you require further information, contact SEW-EURODRIVE.

1.2 Structure of the safety notes

1.2.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety 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 |
| INFORMATION | Useful information or tip: Simplifies handling of the drive system. | |

1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard 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 hazard.






Possible consequence(s) if disregarded.

- Measure(s) to prevent hazard.

Meaning of the hazard symbols

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

| Hazard symbol | Meaning |
|---------------|----------------|
| | General hazard |

| Hazard symbol | Meaning |
|---|---|
|  | Warning of dangerous electrical voltage |
|  | Warning of hot surfaces |
|  | Warning of risk of crushing |
|  | Warning of suspended load |
|  | Warning of automatic restart |

1.2.3 Structure of 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 hazard.

1.3 Rights to claim under limited 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. Read the documentation before you start working with the unit.

1.4 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.

1.5 Other applicable documentation

This document supplements the operating instructions and limits the application notes according to the following information. Use this addendum only together with the following documents:

- "MOVI-DPS energy interface EKK-A-D500-I06-500-.0/E12" operating instructions
- Addendum to the "MOVIPRO® ADC with power interface" operating instructions
- "MOVI-DPS storage unit" operating instructions

1.6 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

1.7 Copyright

© 2014 SEW-EURODRIVE. All rights reserved.

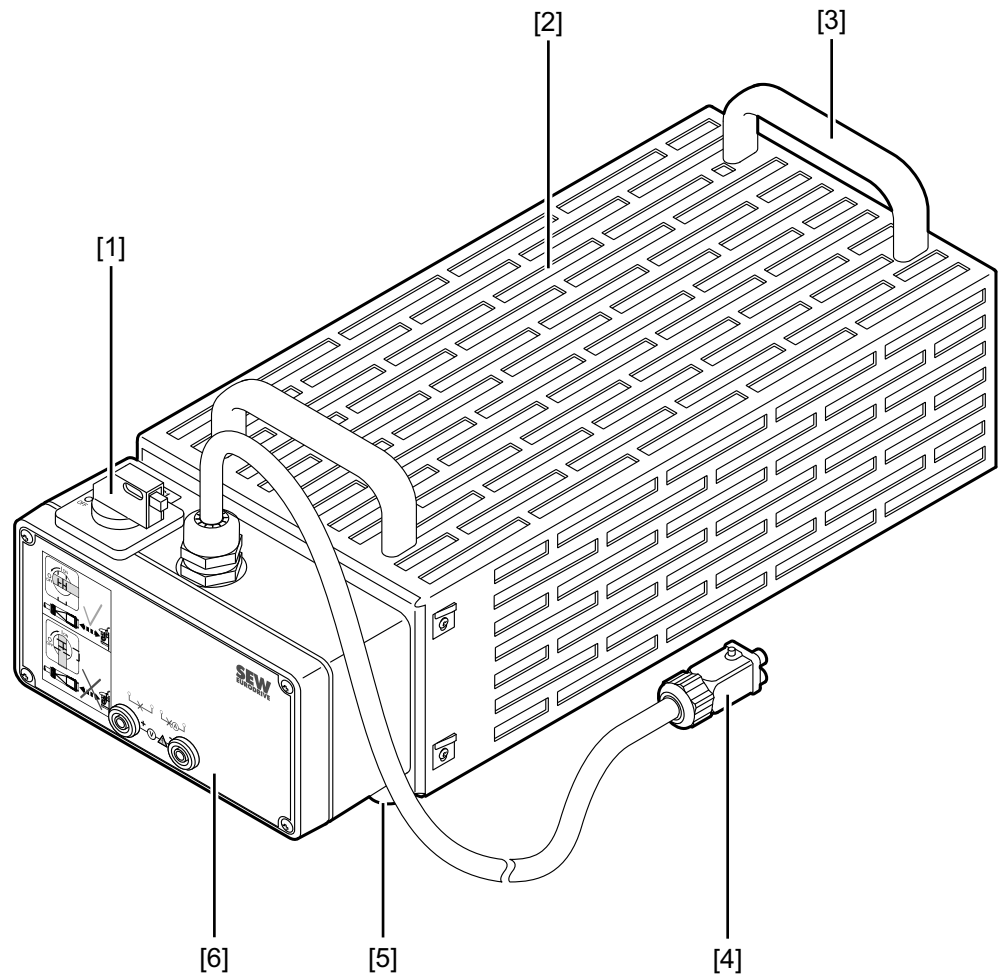
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2 Unit structure

The MOVI-DPS discharge unit serves to discharge the MOVI-DPS storage bundle. This is necessary before you disconnect the MOVI-DPS storage bundle from the MOVI-DPS energy or power interface.

2.1 MOVI-DPS discharge unit size 1

The following figure illustrates the structure of the unit:

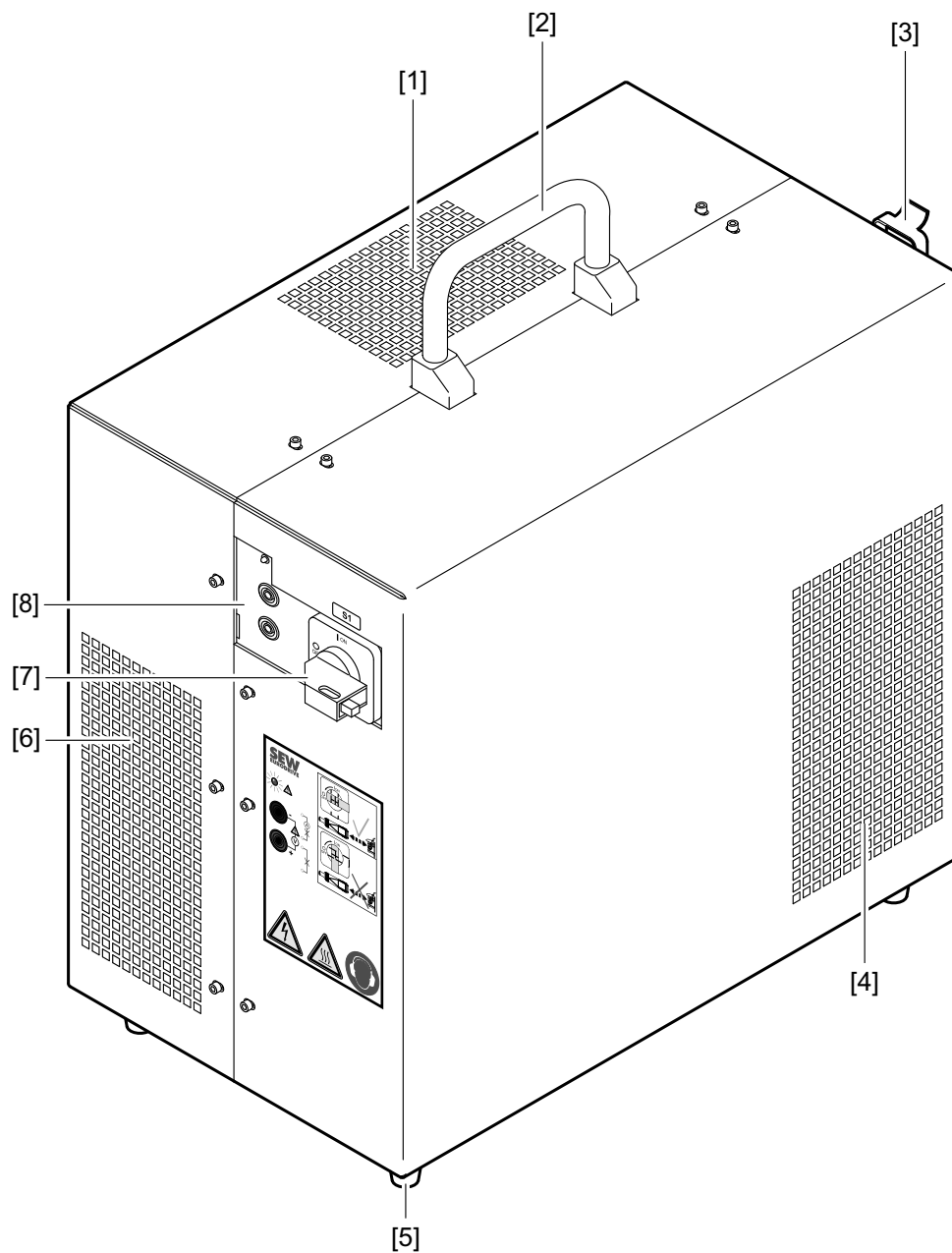


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- [1] Switch S1
- [2] Ventilation grille
- [3] Handle (2x)
- [4] Connection cable with Han® Q 2/0, male
- [5] Foot (4x)
- [6] Front panel connectors

2.2 MOVI-DPS discharge unit size 2

The following figure illustrates the structure of the unit:



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- [1] Upper ventilation grille
- [2] Handle
- [3] Connection for MOVI-DPS energy and power interface
- [4] Ventilation grille at the side
- [5] Foot (4x)
- [6] Front ventilation grille
- [7] Switch S1
- [8] Front panel connectors

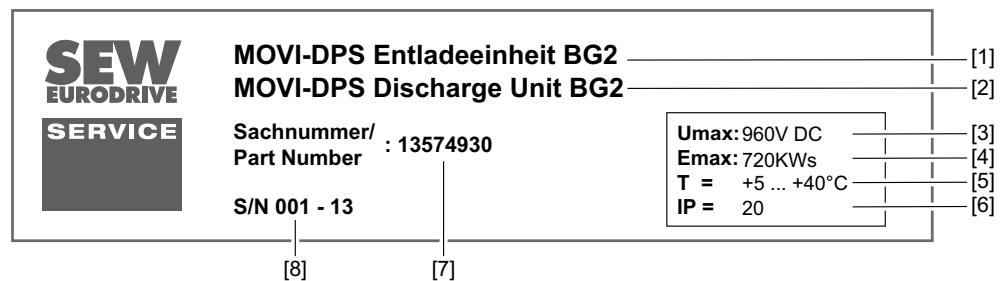
2.3 Scope of delivery

The following components are included in the scope of delivery:

| Discharge unit | Part number |
|--------------------------------|-------------|
| MOVI-DPS discharge unit size 1 | 13574949 |
| or | |
| MOVI-DPS discharge unit size 2 | 13574930 |

2.4 Nameplate

The nameplate of the MOVI-DPS discharge unit contains information on the unit type. The following figure shows an example of the nameplate of the MOVI-DPS discharge unit size 2:




- [1] Type designation German
- [2] Type designation English
- [3] Max. storage voltage V_{\max}
- [4] Maximum energy stored of the storage bundle E_{\max}
- [5] Operating temperature T
- [6] Degree of protection
- [7] Part number
- [8] Serial number

3 Mechanical installation

3.1 Minimum clearance

Observe the following conditions when installing the MOVI-DPS discharge unit:

- Make sure the grilles of the MOVI-DPS discharge unit are never covered.
- Ensure constant ventilation.
- Observe the required minimum clearance for connecting the cables and plug connectors (EN 61800-5-1). For required space dimensions, refer to chapter "Technical data" > "Dimension drawings" (→  21).

3.2 Mounting positions

Place the MOVI-DPS discharge unit only on its feet. All other mounting positions are prohibited.

4 Electrical installation

4.1 Protective measures against electrical hazards



⚠ WARNING

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

Severe or fatal injuries.

- Set the S1 switch of the MOVI-DPS discharge unit to the "0-OFF" position before connecting the MOVI-DPS discharge unit to the power or energy interface or before disconnecting them.



⚠ WARNING

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

Severe or fatal injuries.

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

4.1.1 Line protection



NOTICE

Risk of short circuit due to missing line protection

Destruction of connection cable

- Ensure line protection also for the connection cables of the MOVI-DPS discharge unit.

Line fuse types

Line protection types in operation classes gL, gG:

- Rated fusing voltage \geq rated line voltage
- Depending on the inverter utilization, the rated fusing current must be dimensioned for 100% of the inverter current.

Miniature circuit breaker with characteristics B, C:

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

4.2 Electrical connections



⚠ WARNING

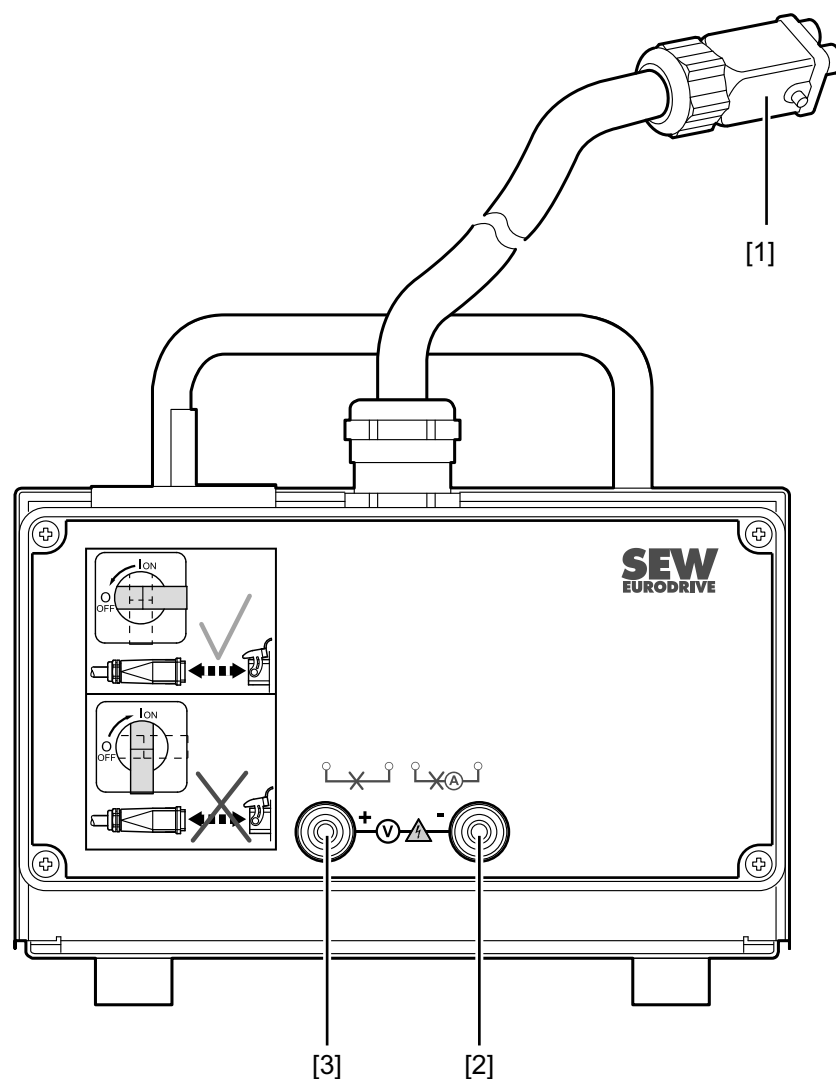
Electric shock when disconnecting or connecting voltage-carrying plug connectors.

Severe or fatal injuries.

- Set the S1 switch of the MOVI-DPS discharge unit to the "0-OFF" position before connecting the MOVI-DPS discharge unit to the power or energy interface or before disconnecting them.

4.2.1 Connection overview of MOVI-DPS discharge unit size 1

The following figure shows the connections of the MOVI-DPS discharge unit size 1:



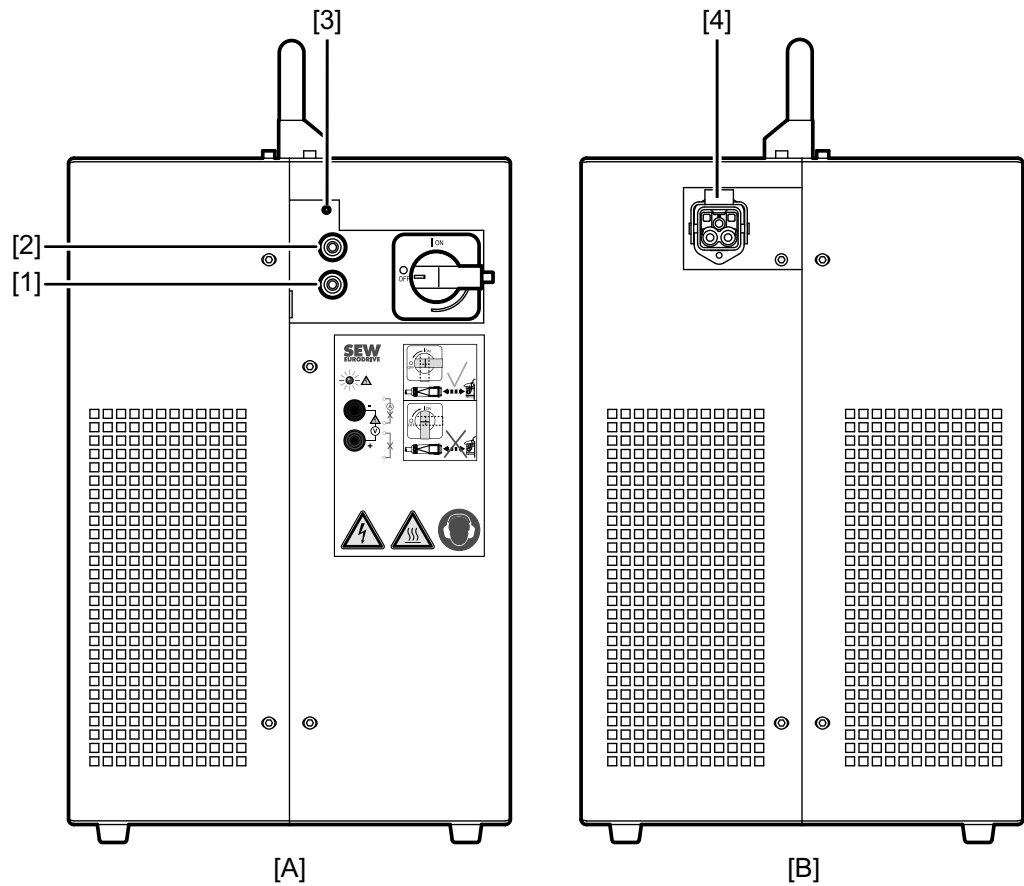
- [1] Connection for MOVI-DPS energy and power interface
- [2] Connection "Voltage Control" (-)
- [3] Connection "Voltage Control" (+)

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4.2.2 Connection overview of MOVI-DPS discharge unit size 2

The following figures show the connections of the MOVI-DPS discharge unit size 2:

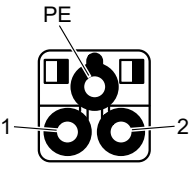


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- [A] Front
- [B] Back
- [1] Connection "Voltage Control" (-)
- [2] Connection "Voltage Control" (+)
- [3] Signal LED "High Voltage"
- [4] X2381: Connection for MOVI-DPS discharge unit to a MOVI-DPS energy or power interface

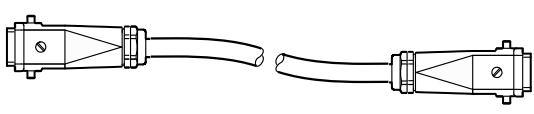

4.2.3 X2381: Storage bundle discharge unit

The following table shows information about this connection:

| Function | | |
|--|------------------|---------------------------|
| Connection for a MOVI-DPS discharge unit | | |
| Connection type | | |
| Han® Q 2/0, female, II-coded | | |
| Wiring diagram | | |
|  <p style="text-align: right;">18014405381471115</p> | | |
| Assignment | | |
| No. | Name | Function |
| 1 | +V _{ES} | Energy storage system (+) |
| 2 | -V _{ES} | Energy storage system (-) |
| 3 | PE | PE connection |

Connection cables

The following table shows the available cable for this connection:

| Connection cable and component | | |
|--|--|---|
| Cable | Length/ Installation type | Component |
| <p>Part number 18162037</p>  <p>Han® Q 2/0, male Han® Q 2/0, male</p> | <p>Variable length</p>  | <ul style="list-style-type: none"> • MOVI-DPS energy interface • MOVI-DPS power interface |

5 Startup



▲ CAUTION

Risk of injury due to high noise level

Minor injuries

- Wear appropriate ear protection during the startup of the MOVI-DPS discharge unit size 2.

Requirements

- The MOVI-DPS energy or power interface is shut down:
 - The output stage of the unit is inhibited.
 - The unit is disconnected from the supply system.
- The MOVI-DPS discharge unit is correctly connected to a MOVI-DPS energy or power interface.
- The connected MOVI-DPS energy or power interface is connected to MOVI-DPS storage bundle.

Required measuring tool

Use a multimeter with a measuring range from DC 0 V to DC 1000 V for the discharge process.

5.1 Discharge process

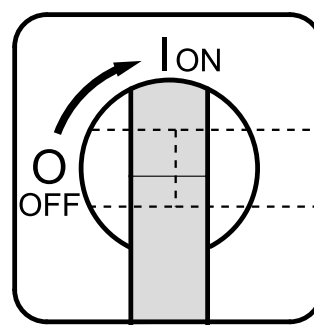
1. Connect the "Voltage Control" connections to the multimeter. If the measured value is higher than DC 20 V, the MOVI-DPS storage bundle is charged. With size 2, the signal LED "High Voltage!" is lit in addition in this case.

2. **▲WARNING!** Risk of burns due to arcing

Severe injuries

- Never disconnect the MOVI-DPS discharge unit from the MOVI-DPS energy or power interface during the discharge process.

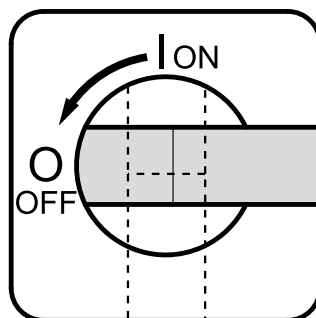
Set the S1 switch to "I ON". The discharge process starts.



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3. Measure the voltage on the "Voltage Control" connections using the multimeter. If the measured value is lower than DC 20 V, the MOVI-DPS storage bundle is discharged.

4. Set the S1 switch to "O OFF". Only then disconnect the MOVI-DPS discharge unit from the MOVI-DPS energy or power interface.



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5. Use the multimeter to check the voltage between the following contacts of the MOVI-DPS energy or power interface at the X2381 plug connector:

- $+U_{ES}$ and $-U_{ES}$
- $+U_{ES}$ and PE
- $-U_{ES}$ and PE

You can disconnect the X2361 plug connector at the MOVI-DPS energy or power interface as soon as each of these voltages is less than 20 V.

6 Operation



▲ CAUTION

Risk of burns caused by hot surfaces

Minor injuries

- Touch the unit only at its handles.
- Let the unit cool down after operation.

Restrictions

- The MOVI-DPS discharge unit may only be used to discharge the MOVI-DPS storage bundles.
- The MOVI-DPS discharge unit may only be used in stationary operation.
- The MOVI-DPS discharge unit must not be used in continuous duty.
- Observe a minimum switch-off time of 30 minutes after a discharge process.

6.1 Overview discharge times

As the measured voltage value is decisive for discharging, the values given here are guide values for the maximum discharge time.

6.1.1 MOVI-DPS discharge unit size 1

The following tables list the maximum discharge times depending on the total number of energy modules and the MOVI-DPS storage units used in the MOVI-DPS storage bundle:

Series connection

| Total number of energy modules in the MOVI-DPS storage bundle | MOVI-DPS storage unit | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| | EKS...A...S025M... SP..-00 | EKS...A...S100M... SP..-00 | EKS...A...S350M... SP..-00 |
| 3 | 8 minutes | – | – |
| 6 | 5 minutes | 30 minutes | 104 minutes |
| 12 | – | 18 minutes | 61 minutes |

Parallel connection

| Total number of energy modules in the MOVI-DPS storage bundle | MOVI-DPS storage unit | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| | EKS...A...P025M... SP..-00 | EKS...A...P100M... SP..-00 | EKS...A...P350M... SP..-00 |
| 6 | 15 minutes | – | – |
| 12 | 9 minutes | 60 minutes | 207 minutes |
| 24 | – | 35 minutes | 121 minutes |

6.1.2 MOVI-DPS discharge unit size 2

The following tables list the maximum discharge times depending on the total number of energy modules and the MOVI-DPS storage units used in the MOVI-DPS storage bundle:

Series connection

| Total number of energy modules in the MOVI-DPS storage bundle | MOVI-DPS storage unit | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| | EKS...A...S025M... SP..-00 | EKS...A...S100M... SP..-00 | EKS...A...S350M... SP..-00 |
| 3 | 1 minute | – | – |
| 6 | 1 minute | 2 minutes | 6 minutes |
| 12 | – | 2 minutes | 7 minutes |

Parallel connection

| Total number of energy modules in the MOVI-DPS storage bundle | MOVI-DPS storage unit | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| | EKS...A...P025M... SP..-00 | EKS...A...P100M... SP..-00 | EKS...A...P350M... SP..-00 |
| 6 | 1 minute | – | – |
| 12 | 1 minute | 4 minutes | 12 minutes |
| 24 | – | 4 minutes | 14 minutes |

7 Service

7.1 Inspection/maintenance

The unit is maintenance-free. SEW-EURODRIVE does not stipulate any regular inspection work. However, it is recommended that you check the following parts regularly:

- Connection cables:
Damaged or fatigued cables must be replaced immediately.
- Ventilation grille:
Remove any residue. Otherwise, sufficient cooling is not ensured.
- The fans of the MOVI-DPS discharge unit size 2 must be checked for proper function.

INFORMATION



Repairs may only be carried out by SEW-EURODRIVE.

7.2 Storage

Observe the following instructions when shutting down or storing the unit:

- If you shut down and store the unit for a longer period, you must cover the connections with the protective caps supplied (only applies to size 2).
- Place the unit on its feet during storage.
- Make sure that the unit is not subject to mechanical impact during storage.

Observe the notes on storage temperature in chapter "Technical Data".

7.3 Waste disposal

Observe the applicable national regulations. Dispose of materials separately in accordance with the regulations in force, for example:

- Electronics scrap (circuit boards)
- Plastic
- Sheet metal
- Copper
- Aluminum

8 Technical data

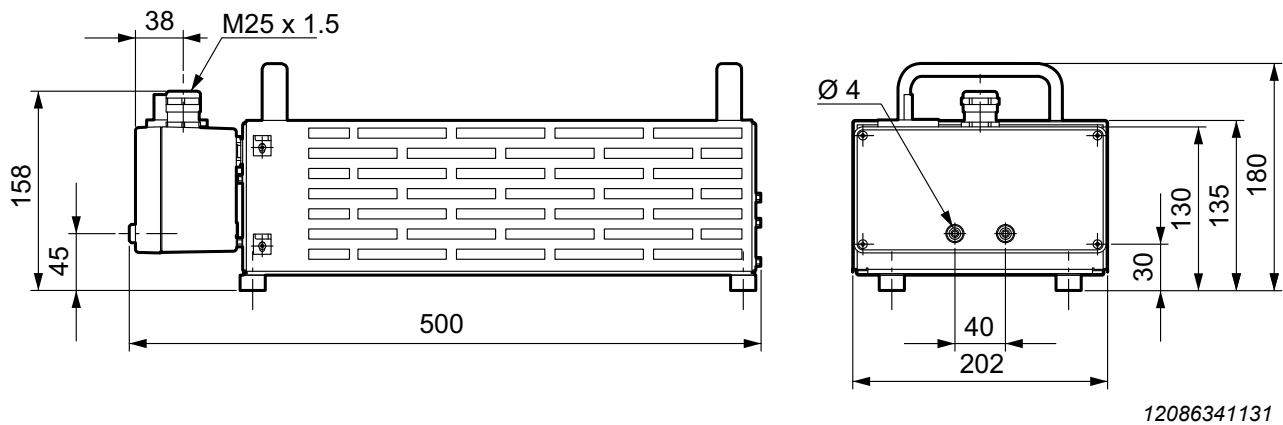
The following table lists the technical data:

| MOVI-DPS discharge unit | | |
|--|---------------|--|
| Interference immunity | | complies with EN 61800-3 |
| Interference emission (when MOVI-DPS energy or power interface is connected) | | Limit value class C3 to EN 61800-3 |
| Climatic ambient conditions | | |
| Storage | ϑ_s | Class 3K3 to EN 60721-3-1 -25 – +70 °C (-13 – +158 °F) |
| Operation | ϑ_o | Class 3K3 to EN 60721-3-3 +5 – +40 °C (+41 – +104 °F) (non-condensing, no moisture condensation) |
| Degree of protection | | IP20 |
| Overvoltage category | | III according to IEC 60664-1 (VDE 0110-1) |
| Degree of pollution | | 2 according to IEC 60664-1 (VDE 0110-1) |
| Noise emissions size 2 | | |
| Measuring distance 0.25 m | | 87.5 dB(A) |
| Measuring distance 1 m | | 84.5 dB(A) |
| Weight | | |
| MOVI-DPS discharge unit size 1 | | 6.7 kg |
| MOVI-DPS discharge unit size 2 | | 13.2 kg |
| Dimensions | | see Dimension drawings (→ 21) |
| Maximum storage voltage | U_{max} | DC 960 V |
| Maximum energy stored in the storage bundle | E_{max} | 720 kW |

8.1 Dimension drawings

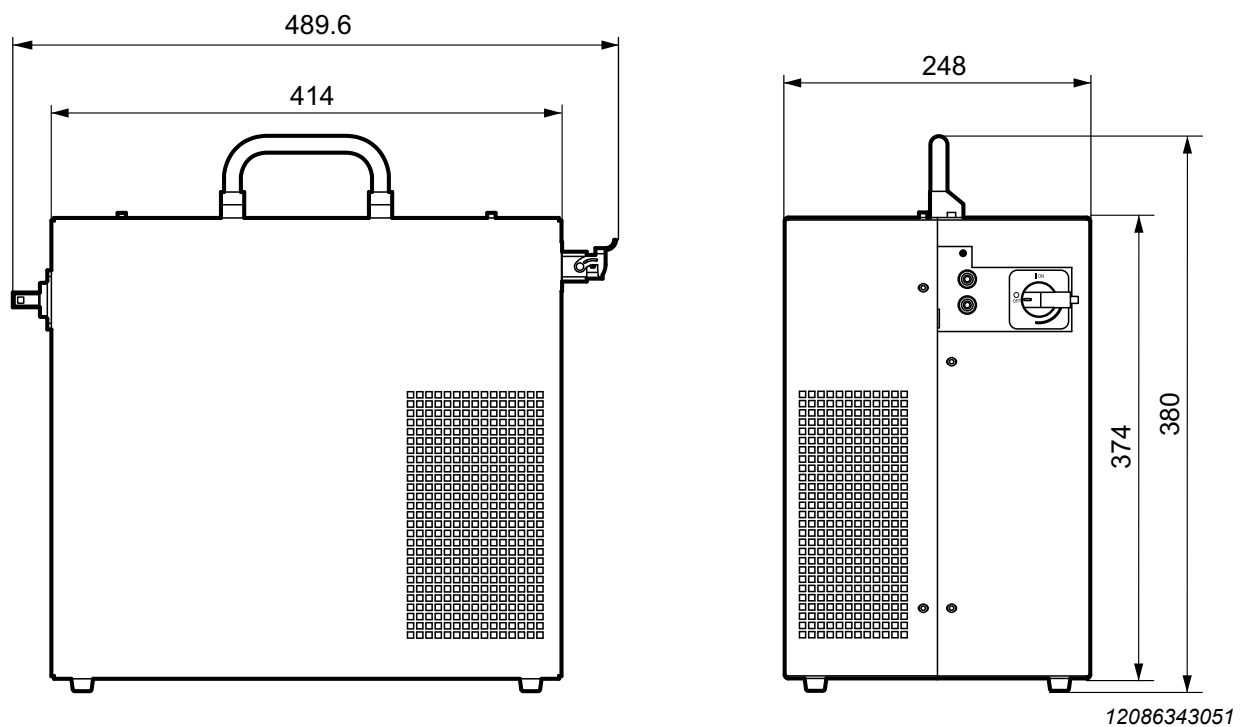
8.1.1 MOVI-DPS discharge unit size 1

The following figure shows the mechanical dimensions in mm:



8.1.2 MOVI-DPS discharge unit size 2

The following figure shows the mechanical dimensions in mm:



9 Declaration of conformity

EC Declaration of Conformity



Translation of the original text

900150014

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Straße 42, D-76646 Bruchsal

declares under sole responsibility that the



MOVI-DPS discharge unit

Size 1: 13574949

Size 2: 13574930

Low Voltage Directive

2006/95/EC

EMC Directive

2004/108/EC

4)

Applied harmonized standards:

EN 61010-1:2010

EN 61800-3:2004+A1:2012

- 4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. The assessment was verified for a typical system constellation, but not for the individual product.

Bruchsal

12.05.2014

Place

Date

Johann Soder
 Managing Director Technology

a) b) c)

- a) Authorized representative for issuing this declaration on behalf of the manufacturer
 b) Authorized representative for compiling the technical documents
 c) Address is identical with address of manufacturer

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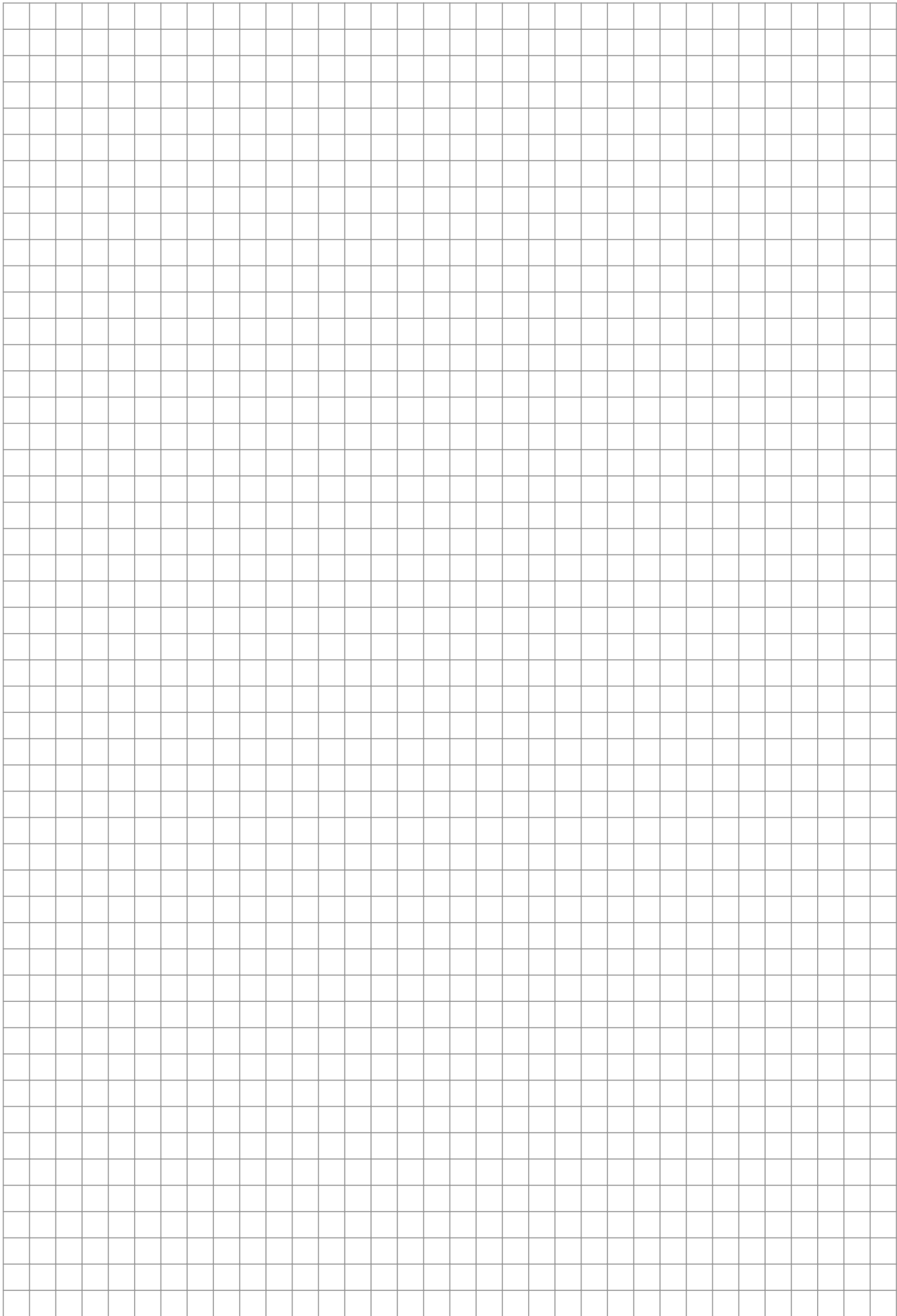
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SEW-EURODRIVE
Driving the world

SEW
EURODRIVE

SEW-EURODRIVE GmbH & Co KG
P.O. Box 3023
76642 BRUCHSAL
GERMANY
Phone +49 7251 75-0
Fax +49 7251-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com