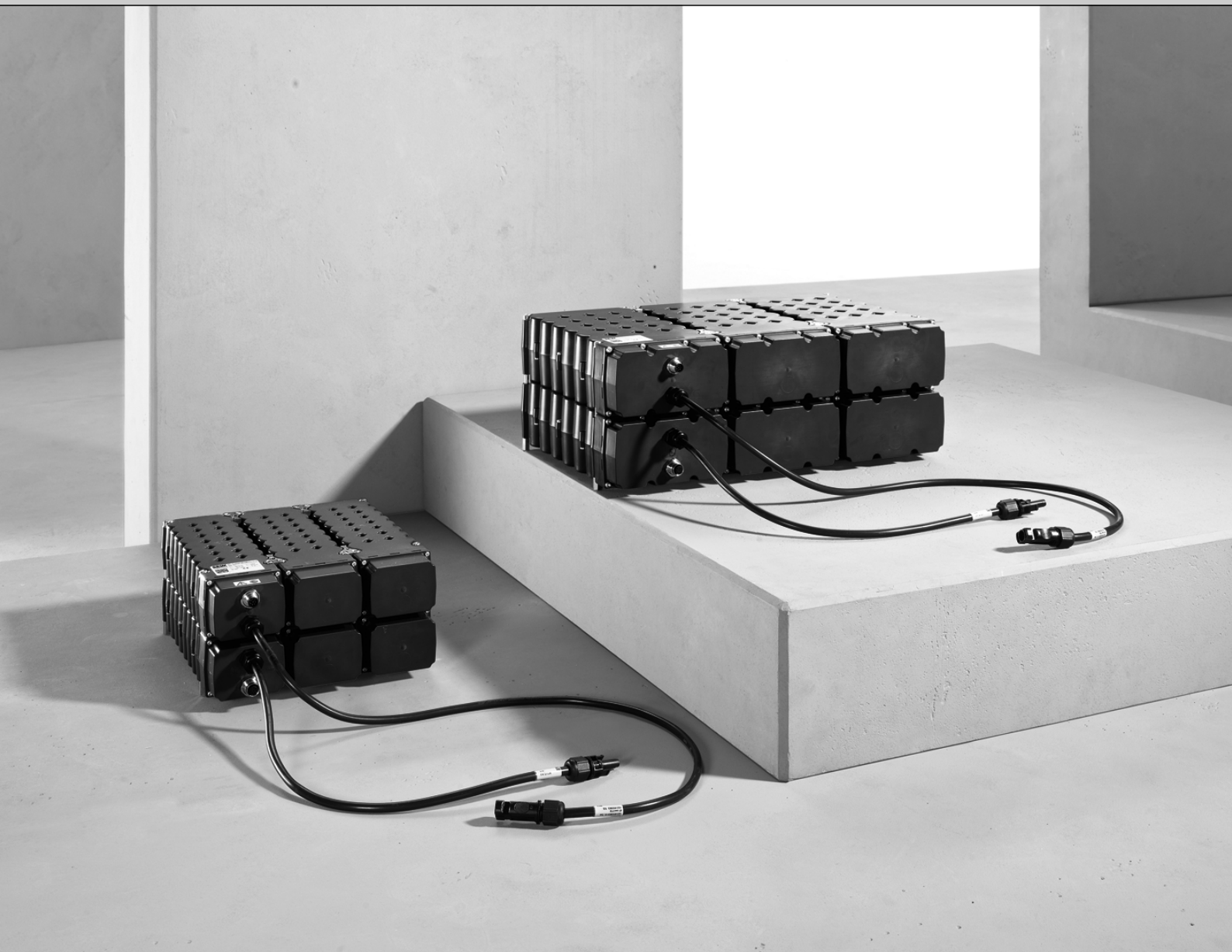




**SEW**  
**EURODRIVE**

# Operating Instructions



Drive Power Solution  
**MOVIE-DPS Storage Unit**



## Contents

<b>1</b>	<b>General information.....</b>	<b>5</b>
1.1	About this documentation .....	5
1.2	Structure of the safety notes .....	5
1.3	Rights to claim under limited warranty .....	6
1.4	Exclusion of liability .....	6
1.5	Product names and trademarks .....	7
1.6	Copyright notice .....	7
<b>2</b>	<b>Safety notes .....</b>	<b>8</b>
2.1	Preliminary information .....	8
2.2	General information .....	8
2.3	Target group .....	8
2.4	Harmful environmental influences .....	9
2.5	Designated use .....	9
2.6	Transport.....	10
2.7	Installation/assembly .....	11
2.8	Safe disconnection.....	11
2.9	Startup/operation .....	11
2.10	Inspection/maintenance .....	11
<b>3</b>	<b>Unit structure .....</b>	<b>12</b>
3.1	Type designation.....	12
3.2	Scope of delivery .....	12
3.3	MOVI-DPS storage unit .....	13
3.4	MOVI-DPS storage bundle .....	14
3.5	Nameplate.....	14
3.6	Accessories.....	15
<b>4</b>	<b>Mechanical installation .....</b>	<b>16</b>
4.1	Minimum clearance .....	16
4.2	Mounting positions .....	16
4.3	Assembly .....	16
4.4	Mounting the handle 180 .....	26
<b>5</b>	<b>Electrical installation.....</b>	<b>27</b>
5.1	Protective measures against electrical hazards.....	27
5.2	Electrical connections .....	28
<b>6</b>	<b>Operation.....</b>	<b>35</b>
6.1	Service life .....	35
6.2	Disconnection .....	35
<b>7</b>	<b>Service.....</b>	<b>36</b>
7.1	Inspection/maintenance .....	36
7.2	Storage / long-term storage .....	36
7.3	Waste disposal.....	36
<b>8</b>	<b>Technical data.....</b>	<b>37</b>
8.1	Basic unit .....	37

8.2 Power cables ..... 40

8.3 Dimension drawings..... 41

**9 Declaration of conformity ..... 44**

**10 Address List..... 45**

**Index ..... 55**

21236593/EN – 07/2014

## 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 machinery and its operation as well as persons who work on the device independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or 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
<b>▲ DANGER</b>	Imminent hazard	Severe or fatal injuries.
<b>▲ WARNING</b>	Possible dangerous situation	Severe or fatal injuries
<b>▲ CAUTION</b>	Possible dangerous situation	Minor injuries
<b>NOTICE</b>	Possible damage to property	Damage to the drive system or its environment.
<b>INFORMATION</b>	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 the 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 the 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 Product names and trademarks**

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

## **1.6 Copyright notice**

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Unauthorized reproduction, modification, distribution or any other use of the whole or any part of this documentation is strictly prohibited.

## 2 Safety notes

### 2.1 Preliminary information

The following basic safety notes must be read carefully to prevent injury to persons and damage to property. The user must ensure that the basic safety notes are read and observed. Make sure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation, or if you require further information, please contact SEW-EURODRIVE.

The following safety notes primarily apply to MOVI-DPS components. If you use other SEW components, also refer to the safety notes for these particular components in the corresponding documentation.

Please also observe the supplementary safety notes in the individual chapters of this documentation.

### 2.2 General information

- All work related to transportation, storage, installation, setup/assembly, connection, startup, maintenance and repair may only be carried out by specialists, in strict observance of
  - The relevant detailed documentation
  - The warning and safety signs on the unit
  - All other relevant project planning documents, startup instructions and wiring diagrams
  - The specific regulations and requirements for the system
  - The national/regional regulations governing safety and the prevention of accidents.
- Never install damaged products.

Unauthorized removal of required covers, improper use, or incorrect installation and operation may result in severe injury to persons, or damage to machinery.

Refer to the following chapters for more information.

### 2.3 Target group

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

- Training in mechanical engineering, e.g. as a mechanic or mechatronics technician (final examinations must have been passed).
- They are familiar with this documentation.



Any electronic work may only be performed by adequately qualified electricians. Qualified electricians in the context of this documentation are persons familiar with electrical installation, startup, troubleshooting and servicing of the product, who possess the following qualifications:

- Training in electrical engineering, e.g. as an electrician or mechatronics technician (final examinations must have been passed).
- They are familiar with this documentation.

In addition to that, they must be familiar with the relevant safety regulations and laws, especially with the requirements of the performance levels according to DIN EN ISO 13849-1 and all other standards, directives and laws specified in this documentation. The above-mentioned persons must have the express authorization of the company to operate, program, parameterize, label and ground units, systems and circuits in accordance with the standards of safety technology.

All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately.

## 2.4 Harmful environmental influences

Various environmental influences can damage the housing materials of the MOVI-DPS storage unit.

Prevent the following environmental influences when using the MOVI-DPS storage unit:

- Cleaning agents or solvents
- Oils or greases
- Aggressive atmospheres
- UV radiation

## 2.5 Designated use

The storage unit EKS...A-.....M...SP...-00 described in this documentation is a component of MOVI-DPS (Drive Power Solution). The MOVI-DPS storage unit stores energy and makes it available again to the connected MOVI-DPS power or energy interface, when needed. The MOVI-DPS storage unit is intended for installation in electrical plants or machines. The MOVI-DPS storage unit is intended for operation in combination with power or energy interfaces from SEW-EURODRIVE only. Only connect MOVI-DPS storage units with the same production number to form a MOVI-DPS storage bundle.

When the unit is installed in electrical plants or machines, startup (i.e. start of designated use) is prohibited until it is determined that the machine complies with the requirements of the Machinery Directive 2006/42/EC. Observe standard EN 60204-1. Startup is only allowed when the requirements of the EMC Directive are met.

The unit meets the requirements stipulated in the Low Voltage Directive 2006/95/EC. The standards contained in the declaration of conformity are applied to the device.

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

Opening and/or altering the design of the unit are considered to be inappropriate use and may result in severe injuries to persons or damage to machinery.

## 2.6 Transport

Inspect the shipment for transport damage as soon as you receive the delivery. Inform the shipping company immediately of any damage. If necessary, put startup on hold.

Note the following points regarding transport:

- Cover the connections X5221 and X5222 with the supplied protection caps before transportation.
- Only place the unit on a side without connections during transportation.
- Ensure that the unit is not subjected to mechanical impact during transportation.

If necessary, use suitable, sufficiently rated handling equipment. Prior to startup, remove the transport protection.

Observe the information on climatic conditions as stated in chapter "Technical Data".

### 2.6.1 Hazardous goods classification

The MOVI-DPS storage units EKS...A-...350M...SP..-00 are classified in hazard class UN3499. They meet the requirements of special regulation 361.

The MOVI-DPS storage units EKS...A-...100M...SP..-00 and EKS...A-...100M...SP..-00 are not classified in any hazard class.

This is why you can transport all MOVI-DPS storage units from SEW-EURODRIVE without having to identify them as hazardous goods according to the UN classification and without having to comply with special transport regulations.

**Important:** Observe the applicable national laws pertaining to the UN model regulations.

## 2.7 Installation/assembly

Ensure that the unit is installed and cooled according to the regulations in this documentation.

Protect the unit from excessive strain. Ensure that components are not deformed and that insulation spaces are maintained, particularly during transportation. Electric components must not be mechanically damaged or destroyed.

The following applications are prohibited unless explicitly permitted:

- Use in potentially explosive atmospheres
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.
- Use in applications that are subject to mechanical vibration and shock loads in excess of the requirements in EN 61800-5-1.

Observe the notes in the chapter "Mechanical Installation".

## 2.8 Safe disconnection

The unit meets all requirements for protective separation of power and electronics connections in accordance with EN 61800-5-1. All connected circuits must also meet the requirements for protective separation.

## 2.9 Startup/operation

Do not deactivate the monitoring and protection devices, even during the test run.

When in doubt, switch off the unit whenever changes occur compared with normal operation (e.g. increased temperatures, noise, oscillation). Determine the cause of the fault and, if necessary, contact SEW-EURODRIVE.

Where required, systems in which such units are installed must be equipped with additional monitoring and protection devices in accordance with the respective applicable safety regulations, e.g. the law governing technical equipment, accident prevention regulations, etc.

Additional preventive measures may be necessary for applications with increased hazard potential. You must check the functionality of protection devices each time you change the configuration.

All connections must be connected when operating the MOVI-DPS storage bundle. Make sure that no connection of the MOVI-DPS storage bundle is unoccupied.

## 2.10 Inspection/maintenance



### ▲ WARNING

Danger of electric shock due to exposed, live parts in the unit.

Severe or fatal injuries.

- Never open the unit.
- Only SEW-EURODRIVE is authorized to carry out repairs.

### 3 Unit structure

#### 3.1 Type designation

The type designation of the MOVI-DPS storage unit EKS...A-.....M...SP..-00 comprises the following characteristic unit data:

<b>E</b>	<b>E = energy storage system</b>
<b>K</b>	<b>K = capacitor</b>
<b>S</b>	<b>S = storage unit</b>
<b>...</b>	<b>Power in kW</b> 75% of the stored energy at maximum operating voltage
<b>A</b>	
<b>-</b>	
<b>..</b>	<b>Nominal voltage:</b> Value × 10 V
<b>.</b>	<b>Connection:</b> P = parallel connection S = series connection
<b>...</b>	<b>Nominal capacitance per cell in F</b>
<b>M</b>	
<b>.</b>	<b>Number of modules in x-axis</b>
<b>.</b>	<b>Number of modules in y-axis</b>
<b>S</b>	<b>Cell monitoring:</b> S = standard
<b>P</b>	<b>Cooling:</b> P = passive
<b>..</b>	<b>Connection type</b>
<b>-</b>	
<b>00</b>	

#### 3.2 Scope of delivery

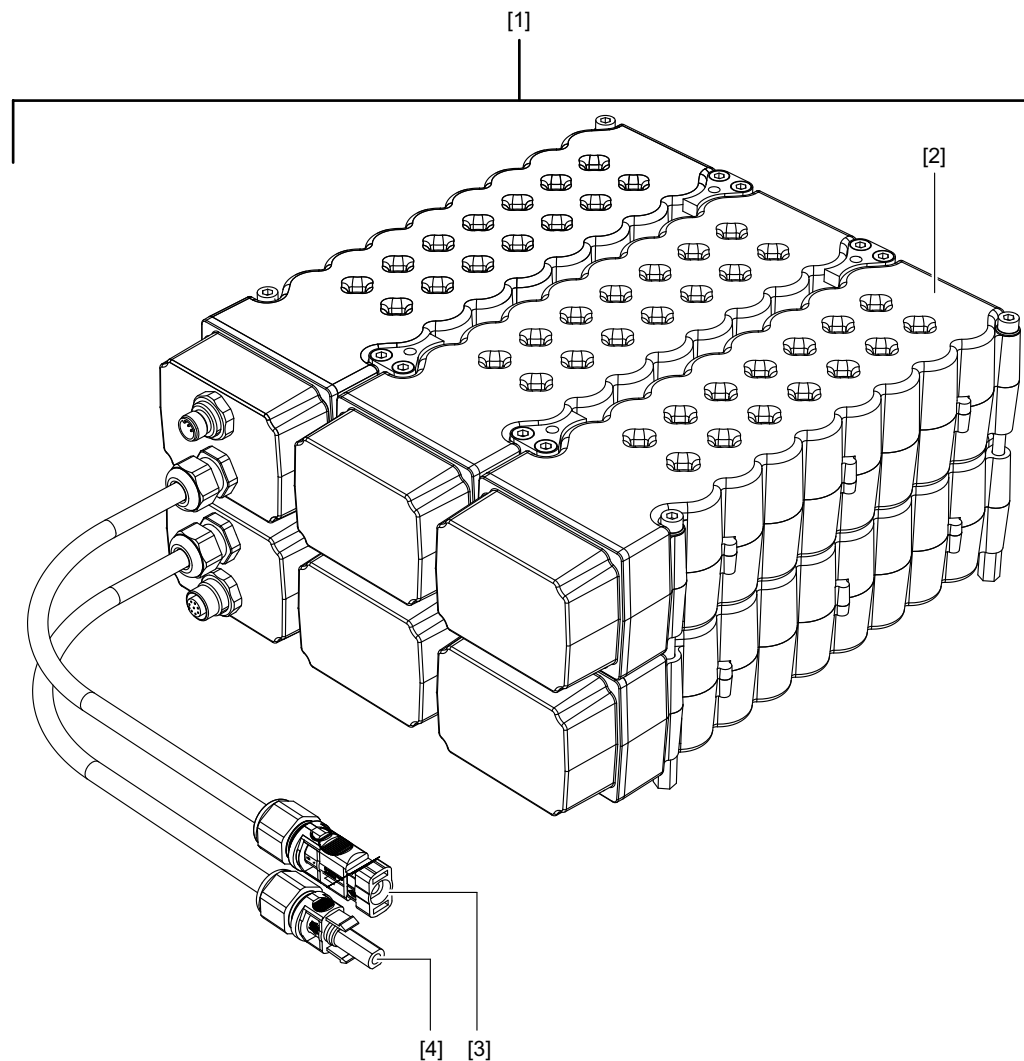
The following components are included in the scope of delivery of the MOVI-DPS storage bundle:

Component
MOVI-DPS storage unit EKS...A-.....M...SP..-00 including the following permanently installed connection cables, length 0.4 m:
<ul style="list-style-type: none"> <li>• For ES– with plug connector Multi-Contact PV-KST4/6II-UR</li> <li>• For ES+ with plug connector Multi-Contact PV-KBT4/6II-UR</li> </ul>
Jumper plug (part number 28217063)
Protective covers for all signal plug connectors

### 3.3 MOVI-DPS storage unit

A MOVI-DPS storage unit consists of a varying number of energy modules.

The following figure shows an example of a MOVI-DPS storage unit structure with 6 energy modules (3 × 2):



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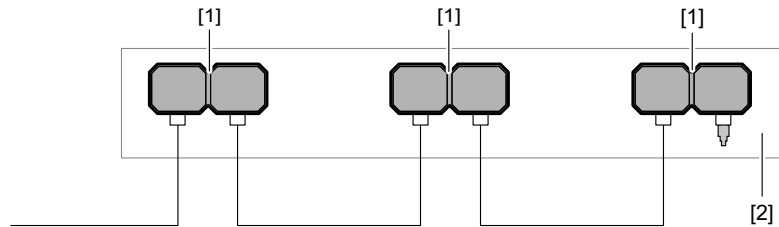
- [1] MOVI-DPS storage unit
- [2] Energy module (number depends on the type of the MOVI-DPS storage unit)
- [3] Connection cable for ES– with plug connector Multi-Contact PV-KST4/6II-UR
- [4] Connection cable for ES+ with plug connector Multi-Contact PV-KBT4/6II-UR

### 3.4 MOVI-DPS storage bundle

A MOVI-DPS storage bundle consists of a variable number of MOVI-DPS storage units.

**Please note:** Only connect MOVI-DPS storage units with the same production number to form a MOVI-DPS storage bundle.

The following figure shows a schematic illustration of a MOVI-DPS storage bundle with 3 MOVI-DPS storage units:



9465692939

- [1] MOVI-DPS storage unit  
[2] MOVI-DPS storage bundle

### 3.5 Nameplate

Each MOVI-DPS storage unit has a nameplate that provides important information. The following figure shows a sample nameplate layout with data for a MOVI-DPS storage unit:



9007206232519051

- S/N Production number  
Type Type designation  
EKS Number of MOVI-DPS storage units in a MOVI-DPS storage bundle (example: 1/3 = MOVI-DPS storage unit 1 of 3)  
 $U_N$  Nominal voltage  
 $C_N$  Nominal capacitance  
 $U_{max}$  Maximum operating voltage  
 $I_{max}$  Peak current for 1 s  
T Permitted ambient temperature

### 3.6 Accessories

The following accessories are available for the MOVI-DPS storage unit:



#### INFORMATION

The scope of delivery does not include accessories such as installation or mounting material or connection cables.

	Part number
Mounting bracket kit	18157890
Fastening kit	18157882
Handle 180	18157904

## 4 Mechanical installation

### 4.1 Minimum clearance

Observe the required minimum clearance for connecting the cables and plug connectors when you mount the unit (EN 61800-5-1).

For required space dimensions, refer to chapter "Technical data" > "Dimension drawings" (→ 41).

### 4.2 Mounting positions



#### NOTICE

Danger of collision.

Damage to plant and unit components

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

The MOVI-DPS storage units can be mounted in any mounting position.

### 4.3 Assembly

Use one of the following mechanical fastening options:

- Fastening via the external threaded bolt
- Fastening to a holding fixture with mounting brackets
- Direct wall fastening with the fastening kit

#### 4.3.1 Fastening via the external threaded bolt



#### NOTICE

External force too high

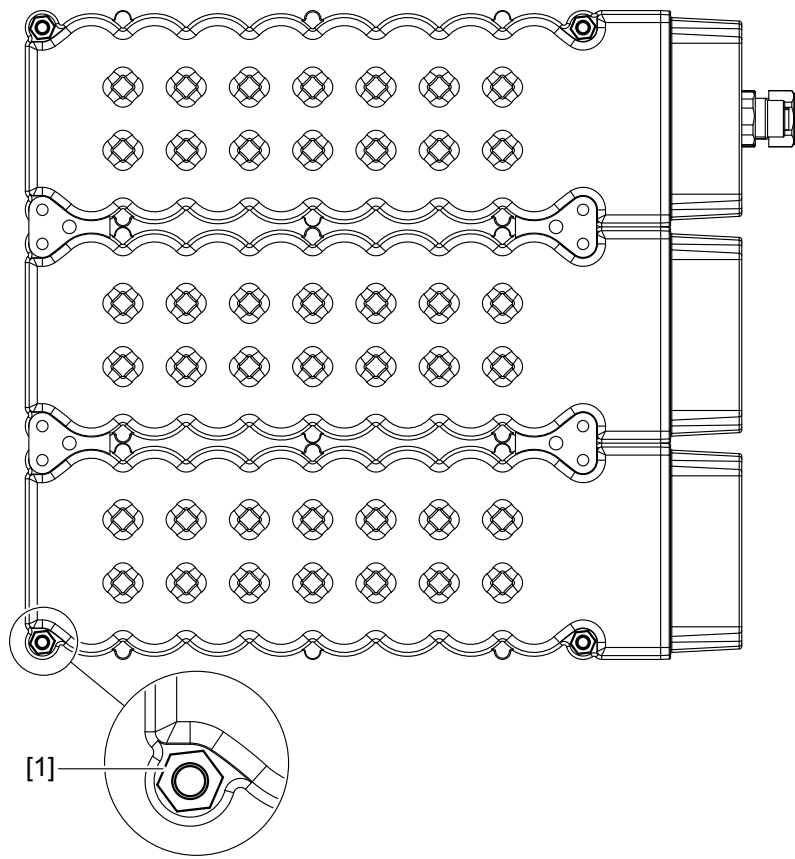
Damage to the thread or the screw

- Observe the maximum tightening torque of 3.2 Nm (28 in-lb).

One option for fastening the MOVI-DPS storage unit is to mount it via the external threaded bolt on a fastening surface.



The following figure shows the external threaded bolts [1]:



12922218635

[1] External threaded bolt (4x)

#### Required material

- M5 bolts of suitable length with washers (threaded bolt thread depth = 6 mm).

#### Procedure

1. Refer to the dimension drawing in the chapter "Technical data" (→ 42) for information on the distances for holes in the fastening surface.
2. On the fastening surface, drill the holes at the appropriate places.
3. Use suitable bolts to fasten the MOVİ-DPS storage unit via the external threaded bolts.

## 4.3.2 Fastening with mounting brackets

**NOTICE**

External force too high

Damage to the thread or the screw

- Observe the maximum tightening torque of 3.2 Nm (28 in-lb).

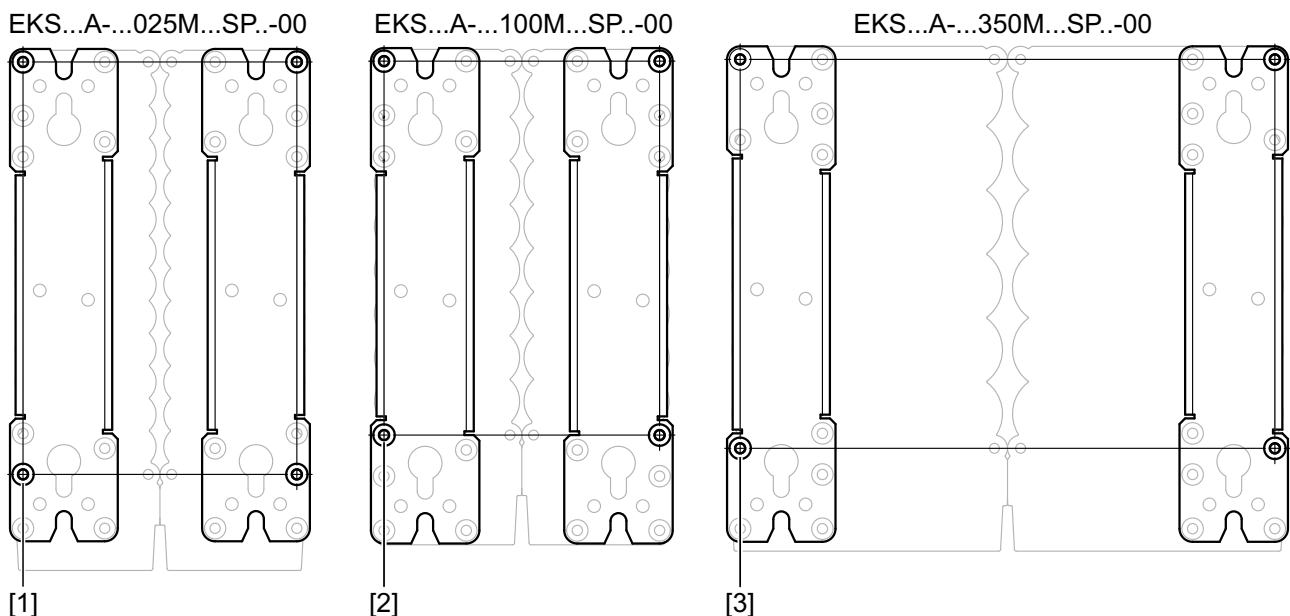
**Required material**

- SEW-EURODRIVE accessories "Mounting bracket set" (part number 18157890):
  - 4 mounting brackets
  - 2 fastening plates
  - 4 countersunk screws with M5 × 8 hexagon sockets
  - 8 pan head screws, M6 × 16
- Holding fixture, e.g. square pipe with an edge length ≤ 35 mm
- Suitable fastening and locking elements, e.g. M6 or M8 screws of suitable length with washers

**Mounting the fastening plates**

1. To fasten the mounting brackets to the MOVI-DPS storage unit, you must first mount the fastening plates.

Hold the fastening plates against the rear of the MOVI-DPS storage unit as shown in the figure. Use the following holes depending on the type of the MOVI-DPS storage unit:



- [1] Holes for EKS...A-...025M...SP..-00 (4×)  
 [2] Holes for EKS...A-...100M...SP..-00 (4×)  
 [3] Holes for EKS...A-...350M...SP..-00 (4×)

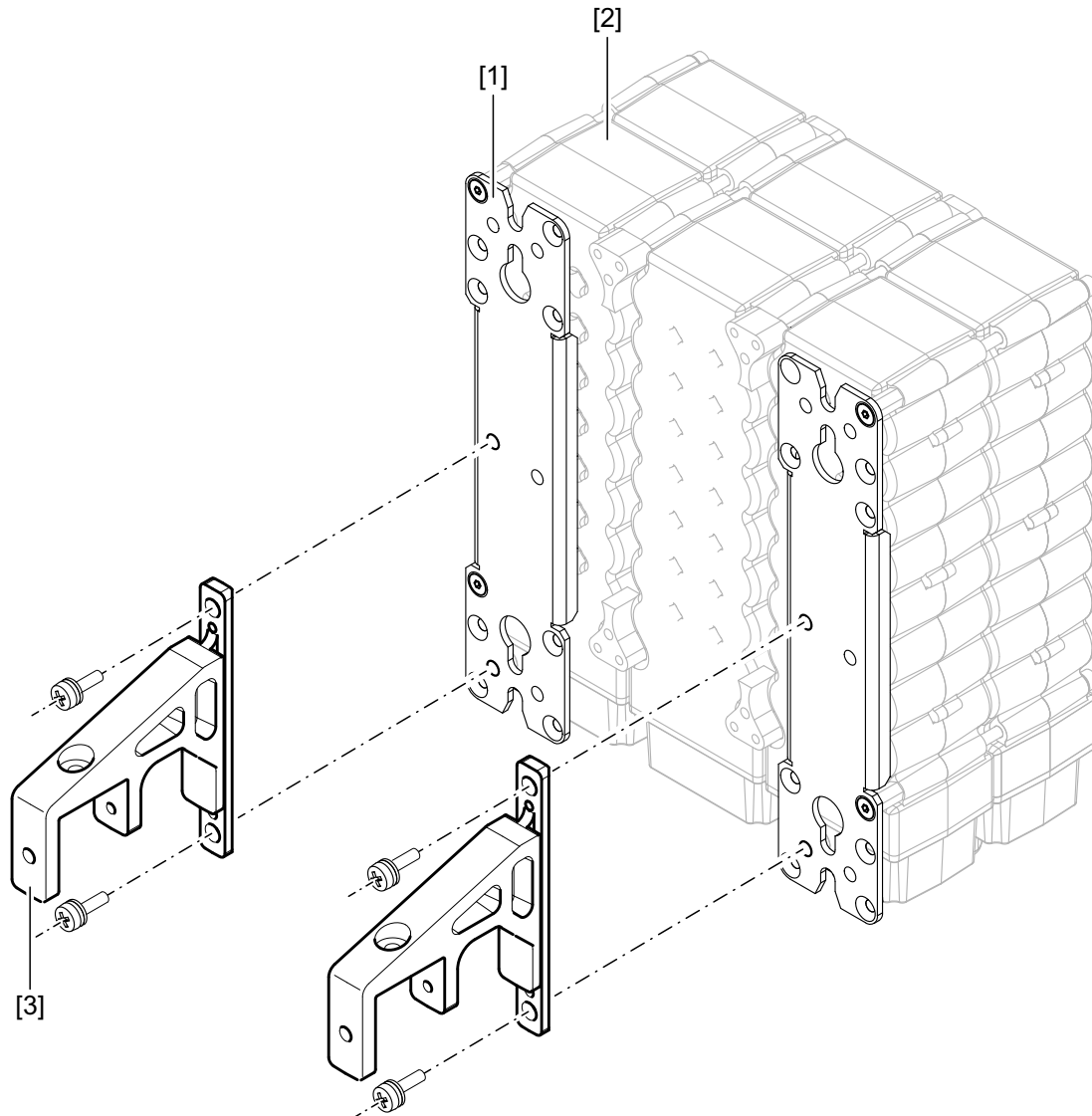
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2. Mount the fastening plates by securing the 4 M5 x 8 countersunk screws in the corresponding 4 holes.

### Fastening the mounting brackets

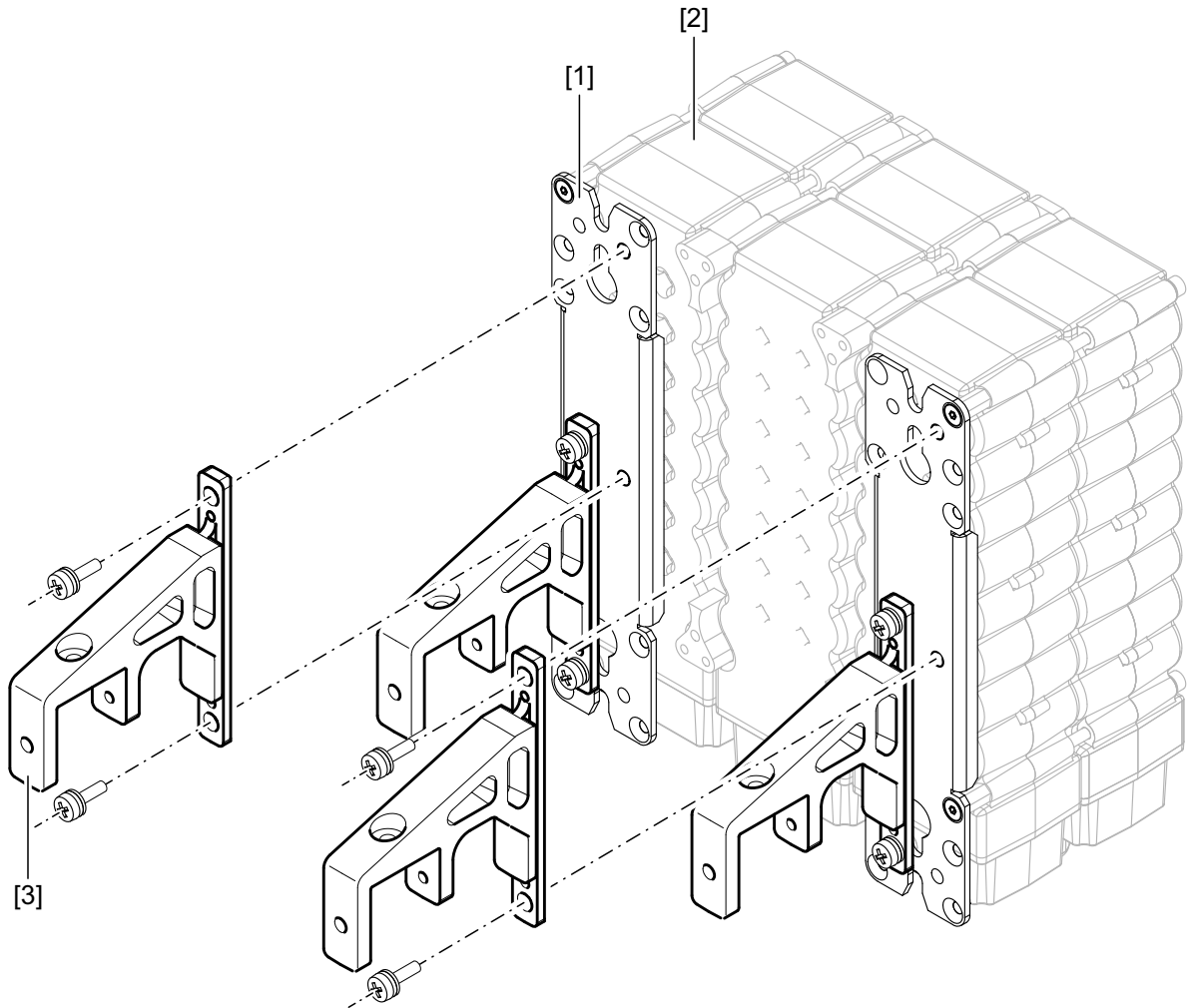
1. Fasten the two mounting brackets [3] with two pan head screws each. Use the mid-left and lower left hole of the fastening plates [1] for this.



12844870155

- [1] Fastening plate (2×)
- [2] MOVI-DPS storage unit
- [3] Mounting brackets (2×)

2. Fasten two more mounting brackets [3] with two pan head screws each. Use the mid-right and upper right hole of the fastening plates [1] for this.



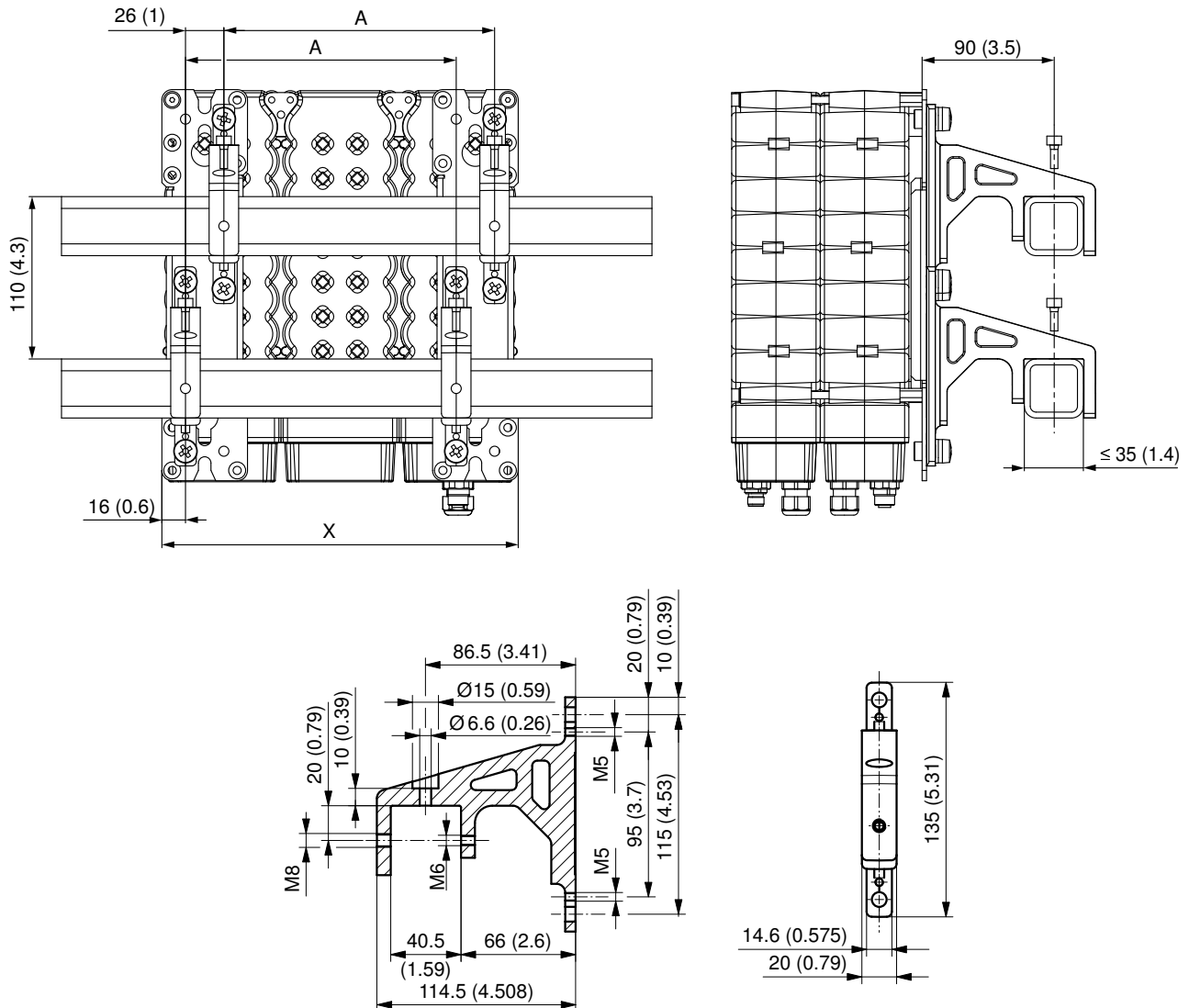
12844876811

- [1] Fastening plate (2×)  
[2] MOVIE-DPS storage unit  
[3] Mounting brackets (2×)

## Preparing the fixture

Square pipes are suitable as a holding fixture for the MOVI-DPS storage unit. To prevent mechanical overlapping, you must only use square pipes with an edge length of  $\leq 35$  mm.

For the required dimensions, see the figure below and in the chapter "Technical data > Dimension drawings "MOVI-DPS storage unit" ( $\rightarrow$  42):



12876089739

- X Total width
- A Tapped holes spacing

## Procedure

- Calculate the overall width  $X$  as follows:  
"Number of adjacent modules"  $\times$  "Module width"
- Calculate the spacing  $A$  for the tapped holes in the holding fixture as follows:  
("Number of adjacent modules"  $- 1$ )  $\times$  "Module width" + 24 mm"
- Mark the tapped holes of the holding fixture.
- Cut the threads for the bolts at the marked points.
- See the figure at the start of this chapter for the spacing of the holding fixtures.

6. Mark the spacing at the installation location.
7. Mount the holding fixture at the installation location at the calculated distance.

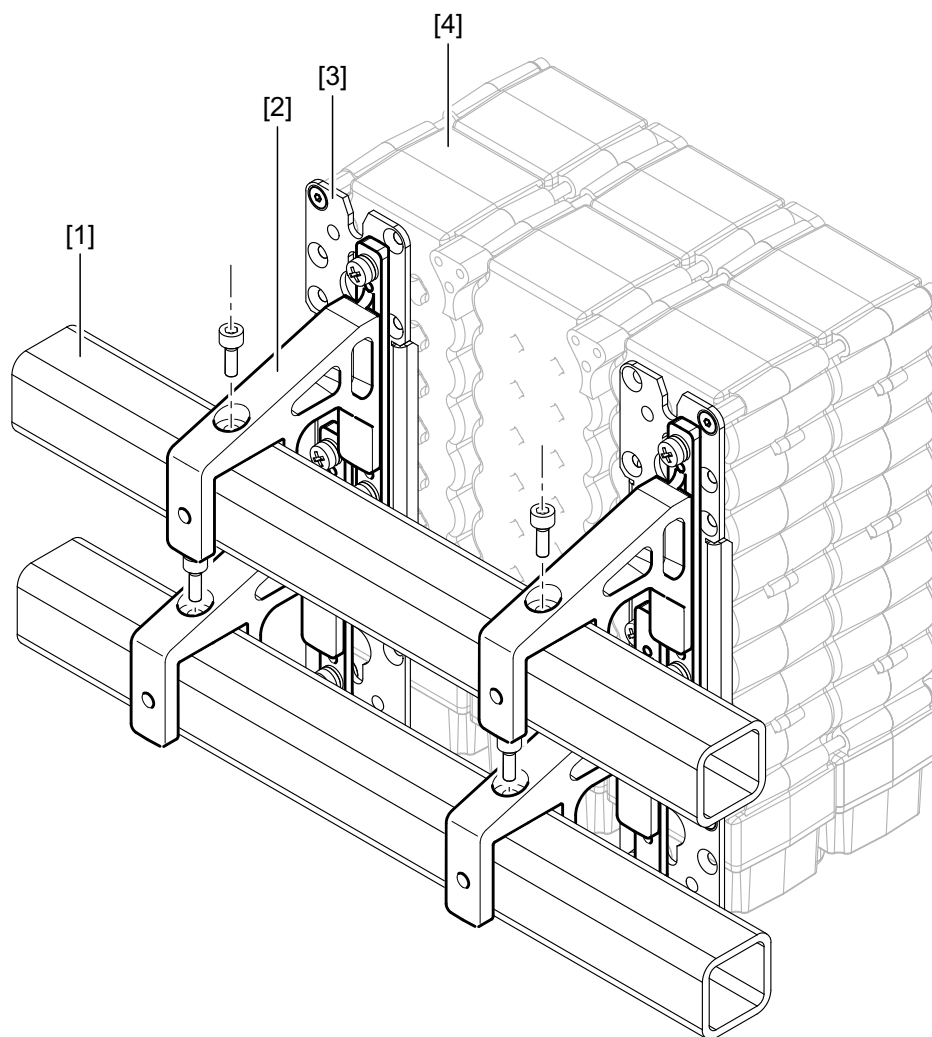
### Fastening the MOVI-DPS storage unit on the holding fixture



### INFORMATION

Use only square pipes with an edge length  $\leq 35$  mm for mounting the unit to avoid mechanical interference.

1. Hook the MOVI-DPS storage unit with the mounting brackets [2] into the holding fixture [1].
2. Secure the mounting bracket to the holding fixture with suitable M6 or M6 bolts.



12845503115

- [1] Holding fixture (square pipe with an edge length  $\leq 35$  mm) (2×)
- [2] Mounting bracket (4×)
- [3] Fastening plate (2×)
- [4] MOVI-DPS storage unit

21236593/EN – 07/2014

### 4.3.3 Direct wall mounting



#### NOTICE

External force too high

Damage to the thread or the screw

- Observe the maximum tightening torque of 3.2 Nm (28 in-lb).

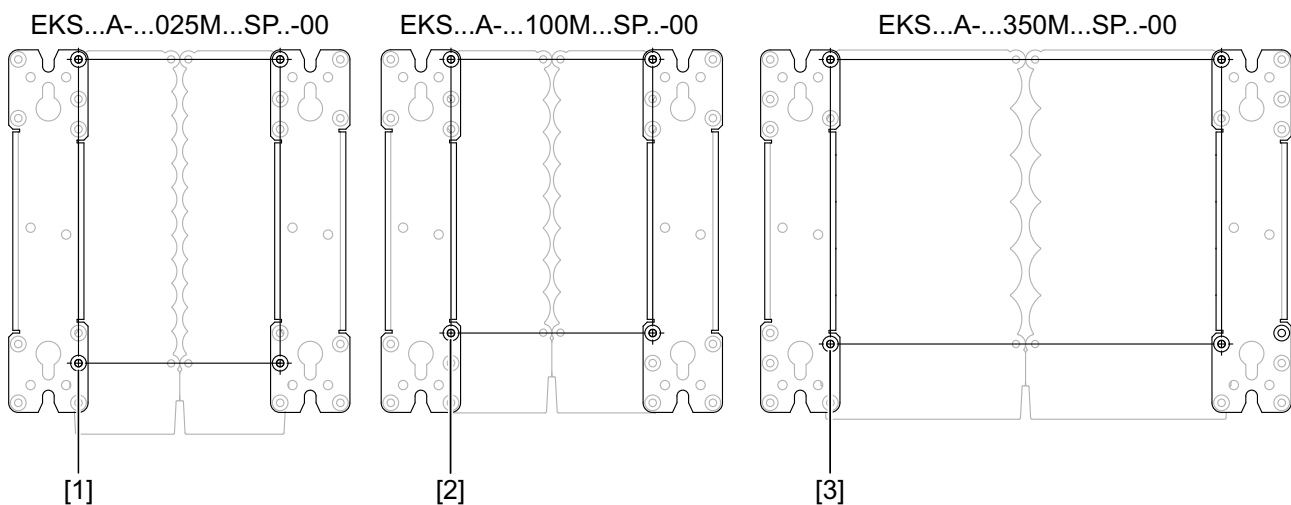
#### Required material

- SEW-EURODRIVE accessories "Fastening kit"  
(part number 18157882):
  - 2 fastening plates
  - 2 support plates
  - 8 countersunk screws with M5 × 8 hexagon sockets
- M8 bolts of an appropriate length with washers

#### Mounting the fastening plates

1. To fasten the MOVI-DPS storage unit to the wall, you must first mount the fastening plates.

Hold the fastening plates against the rear of the MOVI-DPS storage unit as shown in the figure. Use the following holes depending on the type of the MOVI-DPS storage unit:



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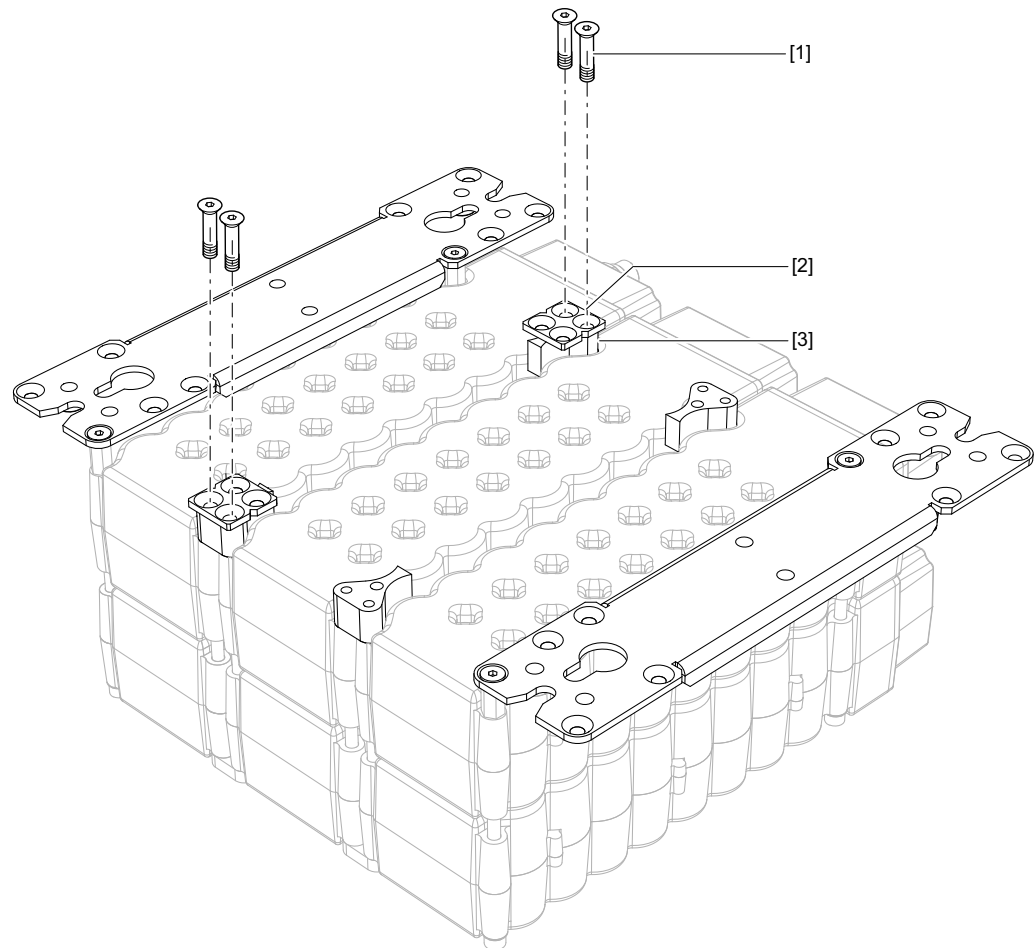
- [1] Holes for EKS...A-...025M...SP..-00 (8×)
- [2] Holes for EKS...A-...100M...SP..-00 (8×)
- [3] Holes for EKS...A-...350M...SP..-00 (8×)

2. Mount the fastening plates by securing the 4 M5 x 8 countersunk screws in the corresponding 4 holes.

### Mounting the support plates

For stability when wall mounting of the MOVI-DPS storage unit, you must fit the two support plates to the MOVI-DPS storage unit.

Mount the support plates on the two connecting pieces of the MOVI-DPS storage unit as close to the center as possible. To do so, secure the support plates [2] with two M5 x 8 countersunk screws [1] each to the connecting pieces [3] of the MOVI-DPS storage unit.



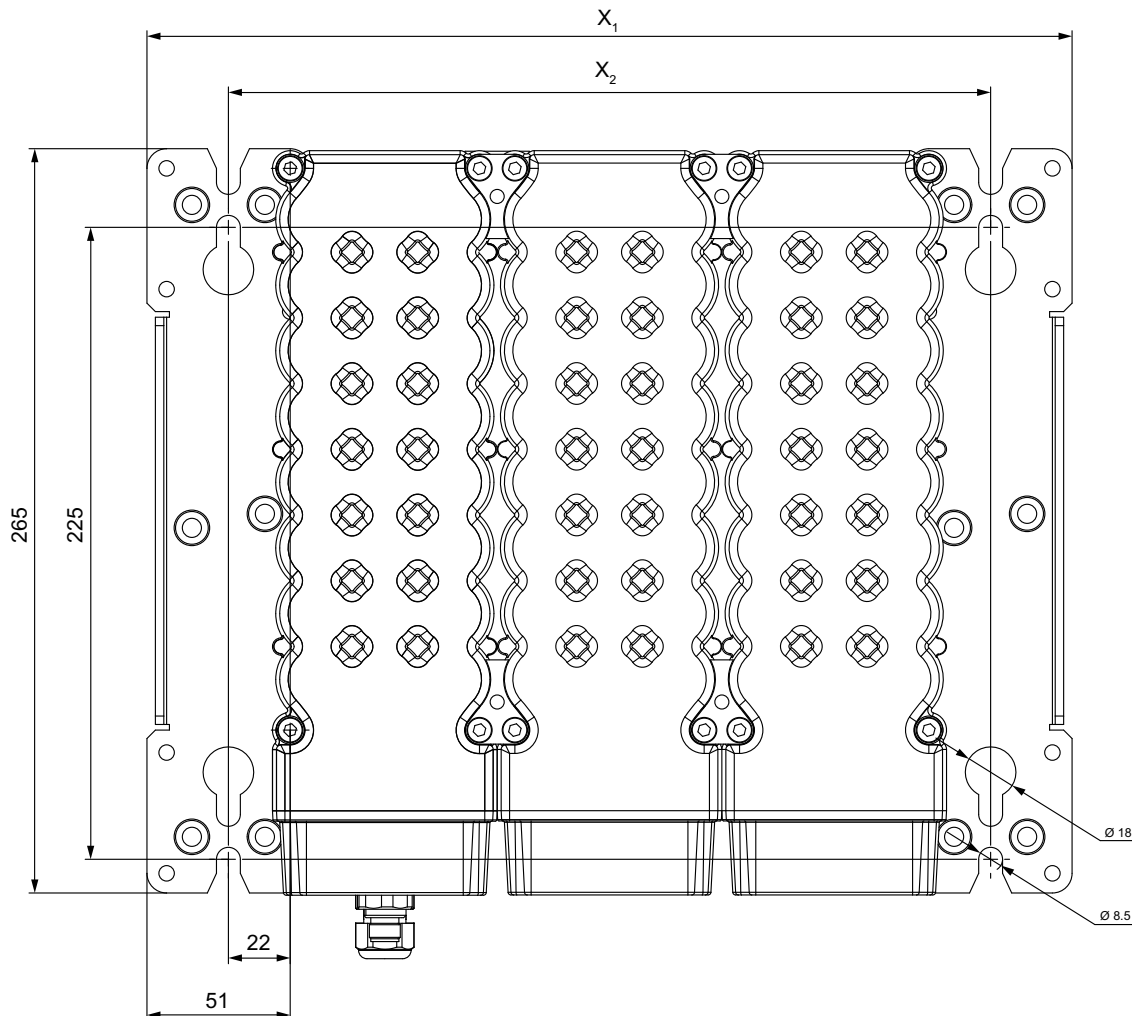
12865165707

- [1] Countersunk screws M5 × 8 (4×)
- [2] Support plates (2×)
- [3] Connecting piece (number depends on the type of the MOVI-DPS storage unit)



### Fastening the MOVI-DPS storage unit to the wall

For the required dimensions, see the figure below and in the chapter "Technical data > Dimension drawings "MOVI-DPS storage unit" (→ 42):



12866695051

1. Calculate the overall width  $X_1$  as follows:  
"Number of adjacent modules" × "Module width + 102 mm"
2. Calculate the distance  $X_2$  of the upper keyholes of the two fastening plates as follows:  
"Number of adjacent modules" × "Module width + 44 mm"
3. See the above dimension drawing for the dimensions for the lower holes.
4. Drill the corresponding holes in the wall.
5. Fasten the M8 screws to the upper wall holes.
6. Suspend the MOVI-DPS storage unit from the screws using the keyholes on the fastening plates.
7. Tighten the screws.
8. Secure the fastening plates with the M8 screws through the lower oblong holes with a dropout.

#### 4.4 Mounting the handle 180

A handle is available as an accessory to make it easier to transport and mount the MOVI-DPS storage unit.

##### NOTICE



External force too high

Damage to the thread or the screw

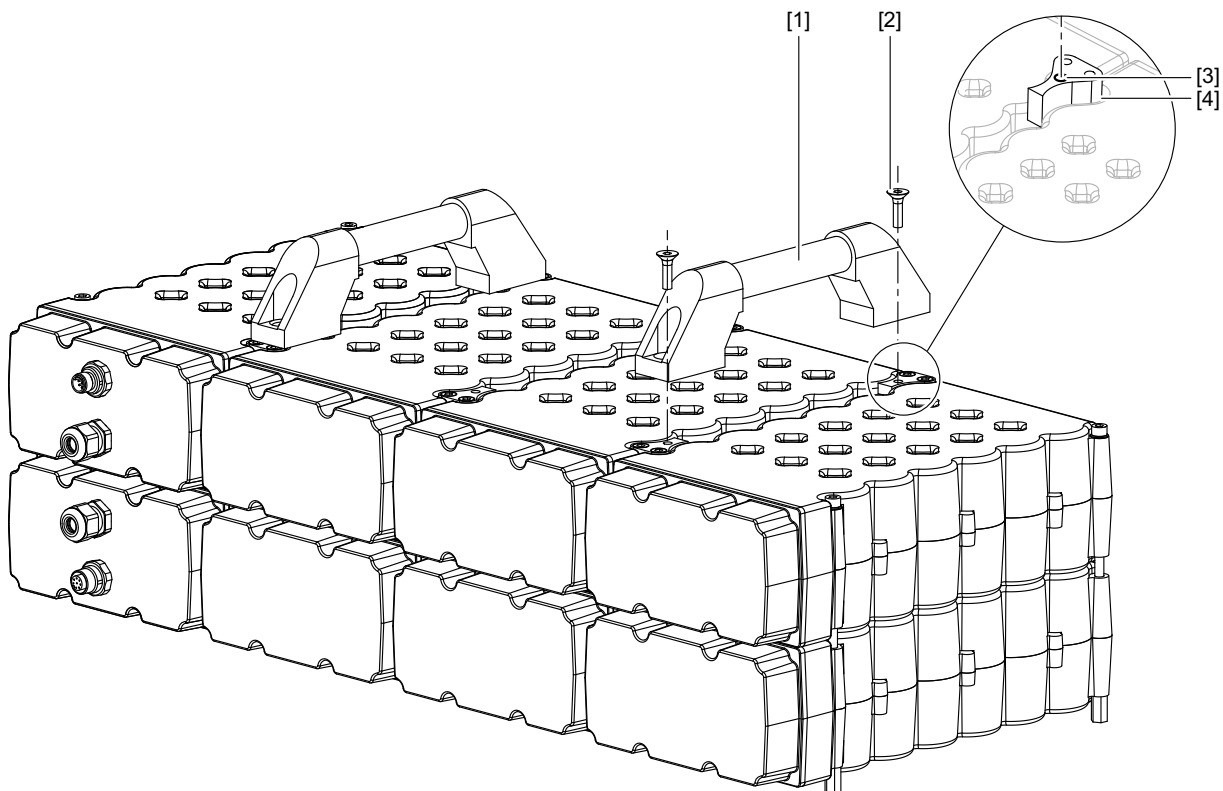
- Observe the maximum tightening torque of 3.2 Nm (28 in-lb).

##### Required material

SEW-EURODRIVE accessories "Handle 180" (part number 18157904):

- 1 Handle 180
- 2 countersunk screws with M6 × 20 hexagon sockets

1. Place the Handle 180 [1] with the holes directly on the holes on the connecting pieces [4] for fastening the handle [3].
2. Secure the Handle 180 with the two M6 × 20 countersunk screws [2].



12869392267

- [1] Handle 180
- [2] Countersunk screws, M6 × 20 (2×)
- [3] Holes for fastening the handle (2×)
- [4] Connecting pieces (2×)

## 5 Electrical installation

### 5.1 Protective measures against electrical hazards



#### ▲ WARNING

Risk of electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries.

- Disconnect all supply voltages.
- Make sure that the MOVI-DPS power or energy interface is de-energized.
- Never plug or unplug the plug connectors while they are live.
- Never disconnect the plug connectors ES+ and ES– if you do not know the actual state of charge of the MOVI-DPS storage bundle.
- Discharge the MOVI-DPS storage bundle to less than 20 V before disconnecting it from the unit.



#### NOTICE

Overcurrent when connecting a charged MOVI-DPS storage bundle

Destruction of the connected unit

- Note that the MOVI-DPS storage unit can carry voltage even when it is disconnected from the supply system. Check the voltage of the MOVI-DPS storage unit at the plug connectors ES+ and ES–. If the voltage is greater than 20 V, wait until the voltage has fallen below 20 V.

#### 5.1.1 Line protection



#### NOTICE

Risk of short circuit due to missing line protection

Destruction of connection cable

- Ensure line protection is also guaranteed for the connection cables of the MOVI-DPS storage units.



#### NOTICE

Connection of incorrect MOVI-DPS storage units.

Destruction of MOVI-DPS storage units.

- Only connect permitted MOVI-DPS storage units from SEW-EURODRIVE.
- Only connect MOVI-DPS storage units with the same production number to form a MOVI-DPS storage bundle.
- Make sure that the nominal voltage specified by SEW-EURODRIVE for the entire connected MOVI-DPS storage bundle is sufficient.

### Line fuse types

Line protection types in utilization categories gL, gG:

- Nominal fuse voltage  $\geq$  nominal line voltage
- The nominal fuse current must be designed for the nominal unit current.

Miniature circuit breakers with characteristics B, C:

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

## 5.2 Electrical connections



### ▲ WARNING

Risk of electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries.

- Disconnect all supply voltages.
- Make sure that the MOVI-DPS power or energy interface is de-energized.
- Never plug or unplug the plug connectors while they are live.
- Never disconnect the plug connectors ES+ and ES– if you do not know the actual state of charge of the MOVI-DPS storage bundle.
- Discharge the MOVI-DPS storage bundle to less than 20 V before disconnecting it from the unit.


### 5.2.1 Illustration of connections

The following wiring diagrams show the contact end of the connections.

### 5.2.2 Power connection

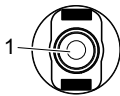
#### ES–

The following table shows information about the plug connector of the ES– connection cable:

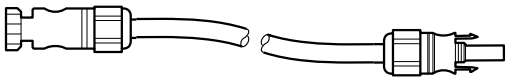
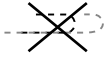
Function		
Power connection of MOVI-DPS storage unit (ES–)		
Connection type		
Multi-Contact PV-KST4/6II-UR, male		
Connection cable		
Length 0.4 m:		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	–V <sub>ES</sub>	Energy storage unit (–)

### ES+

The following table shows information about the plug connector of the ES+ connection cable:

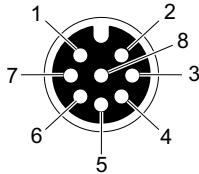
Function		
Power connection of MOVI-DPS storage unit (ES+)		
Connection type		
Multi-Contact PV-KBT4/6II-UR, female		
Connection cable		
Length 0.4 m:		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	+V <sub>ES</sub>	Energy storage unit (+)

### Extension cable

Connection cable and component		
Cable	Length / Installation type	Component
<b>Part number: 18156703</b> Cable design: (1x6.0)  Multi-Contact PV-KST4/6II-UR ↔ Multi-Contact PV-KBT4/6II-UR	Variable length 	<b>MOVI-DPS storage bundle</b>





### 5.2.3 X5221: Storage bundle monitoring

The following table displays information about this connection:

Function		
Connection for monitoring the operating state of a MOVI-DPS storage bundle		
Connection type		
M12, 8-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	+5V_ES_DIAG	DC 5 V output – energy storage system diagnostics
2	ES_DIAG1	Energy storage unit diagnostic signal 1
3	ES_DIAG2	Energy storage unit diagnostic signal 2
4	ES_DIAG3	Energy storage unit diagnostic signal 3
5	0V5_ES_DIAG	0V5 reference potential – energy storage unit diagnostics
6	ES_DIAG4	Energy storage unit diagnostic signal 4
7	ES_DIAG5	Energy storage unit diagnostic signal 5
8	res.	Reserved

### Connection cable

The following table shows the cables available for this connection:

Connection cable and component		
Cable	Length / Installation type	Component
<p><b>Standard lengths:</b></p> <p>1.5 m: Part number 19115881</p> <p>3 m: Part number 18161103</p> <p><b>Custom lengths:</b></p> <p>1 m: Part number 18161073</p> <p>2 m: Part number 18161081</p> <p>4 m: Part number 18161111</p> <p>5 m: Part number 18161138</p> <div>  <div> M12 Male M12 Female </div> </div>	<p>Set length</p> 	<b>MOVI-DPS storage bundle</b>
<p><b>Custom lengths:</b></p> <p>1 m: Part number: 18161146</p> <p>2 m: Part number: 18161154</p> <p>3 m: Part number: 18161162</p> <p>4 m: Part number: 18161170</p> <p>5 m: Part number: 18161189</p> <div>  <div> M12 Male M12 Female </div> </div>	<p>Set length</p> 	

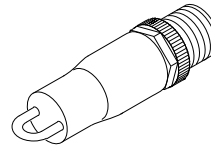


The following components are designed for this connection:

#### Jumper plug

Part number: 28217063

Connection: M12



63050395932099851





#### 5.2.4 X5222: Storage bundle monitoring

The following table displays information about this connection:

Function		
Connection for monitoring the operating state of a MOVI-DPS storage bundle		
Connection type		
M12, 8-pin, male, A-coded		
Wiring diagram		
Assignment		
No.	Name	Function
1	+5V_ES_DIAG	DC 5 V input – energy storage unit diagnostics
2	ES_DIAG1	Energy storage unit diagnostic signal 1
3	ES_DIAG2	Energy storage unit diagnostic signal 2
4	ES_DIAG3	Energy storage unit diagnostic signal 3
5	0V5_ES_DIAG	0V5 reference potential – energy storage unit diagnostics
6	ES_DIAG4	Energy storage unit diagnostic signal 4
7	ES_DIAG5	Energy storage unit diagnostic signal 5
8	res.	Reserved

## Connection cable

The following table shows the cables available for this connection:

Connection cable and component		
Cable	Length / Installation type	Component
<p><b>Standard lengths:</b></p> <p>1.5 m: Part number 19115881</p> <p>3 m: Part number 18161103</p> <p><b>Custom lengths:</b></p> <p>1 m: Part number 18161073</p> <p>2 m: Part number 18161081</p> <p>4 m: Part number 18161111</p> <p>5 m: Part number 18161138</p>  <div> <div>M12 Female</div> <div>M12 Male</div> </div>	<p>Set length</p> 	<ul style="list-style-type: none"> <li>• <b>MOVI-DPS storage unit</b></li> <li>• <b>MOVI-DPS energy interface</b></li> <li>• <b>MOVIPRO® ADC with MOVI-DPS power interface</b></li> </ul>
<p><b>Custom lengths:</b></p> <p>1 m: Part number: 18161146</p> <p>2 m: Part number: 18161154</p> <p>3 m: Part number: 18161162</p> <p>4 m: Part number: 18161170</p> <p>5 m: Part number: 18161189</p>  <div> <div>M12 Female</div> <div>M12 Male</div> </div>	<p>Set length</p> 	

## 6 Operation

### 6.1 Service life

The MOVI-DPS storage units are subject to aging due to environmental effects and operating conditions. This leads to a decrease in the useful capacitance and an increase in the equivalent resistance of the MOVI-DPS storage unit.

This means that the MOVI-DPS storage unit has a limited service life. The end of its service life is defined as the moment when one or both of the following conditions are met:

- The capacitance of the energy modules is reduced as follows:
  - EKS...A-...025M...SP...00 by 30%
  - EKS...A-...100M...SP...00 by 30%
  - EKS...A-...350M...SP...00 by 20%
- The equivalent resistance of the energy modules has increased by 100%.

### INFORMATION



During project planning, the MOVI-DPS storage unit must be dimensioned in such a way that it meets the requirements even at the end of its service life. This is why application-specific project planning by SEW-EURODRIVE is important. The service life can be estimated then.

### 6.2 Disconnection



#### ▲ WARNING

Ineffective disconnection from the supply system due to charged MOVI-DPS storage unit.

Severe or fatal injuries.

- Discharge the MOVI-DPS storage unit before disconnecting it.
- Never open the MOVI-DPS storage unit.
- Never short-circuit the MOVI-DPS storage unit.

When the MOVI-DPS storage unit is used as part of a system, simply disconnecting the system from the supply system does not necessarily ensure a safe state.

## 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.

### INFORMATION



Repairs may only be carried out by SEW-EURODRIVE

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### 7.2 Storage / long-term storage

Observe the following notes when shutting down or storing the MOVI-DPS storage unit:

- If you shut down and store the MOVI-DPS storage unit for a longer period, you must cover the connections with the protection caps supplied.
- Place the MOVI-DPS storage unit on a side without connections during storage.
- Note that the service life of the MOVI-DPS storage unit is also affected during storage. For detailed information, see chapter "Operation" > "Service life".
- During storage, make sure that the permitted storage temperature for the MOVI-DPS storage unit is observed. The permitted storage temperature is listed in chapter "Technical data" > "Basic unit".

### 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)
- Plastics
- Sheet metal
- Copper
- Aluminum

## 8 Technical data

### 8.1 Basic unit

The MOVI-DPS storage unit has the following technical data:

General		
<b>Interference immunity</b>		Complies with EN 61800-3 Interference suppression level A according to EN 55011
<b>Interference emission</b> (when MOVI-DPS power or energy interface is connected)		Limit value class C2 to EN 61800-3
<b>Climatic ambient conditions</b>		
Storage	$\vartheta_L$	Class 3K3 to EN 60721-3-1 -40 – +70°C (-40 – +158°F)
Operation	$\vartheta_B$	Class 3K3 to EN 60721-3-3 -25 – +40°C (-13 – +104°F) (non-condensing, no moisture condensation)
<b>Degree of protection</b>		IP54
<b>Protection class</b> <input type="checkbox"/>		Protection class II <input type="checkbox"/>
<b>Permissible oscillation and impact load</b>		Per EN 50178
<b>Overvoltage category</b>		III according to IEC 60664-1 (VDE 0110-1)
<b>Degree of pollution</b>		2 according to IEC 60664-1 (VDE 0110-1)

## 8.1.1 Properties of an energy module in the MOVI-DPS storage unit

	EKS...A...S025M...SP...-00 EKS...A...P025M...SP...-00	EKS...A...S100M...SP...-00 EKS...A...P100M...SP...-00	EKS...A...S350M...SP...-00 EKS...A...P350M...SP...-00
<b>Number of cells</b>	48	24	24
<b>Cell connection</b>	048S01P / 024S02P	024S01P / 012S02P	024S01P / 012S02P
<b>Nominal voltage</b> $U_N$	DC 120 / 60 V	DC 60 / 30 V	DC 60 / 30 V
<b>Maximum operating voltage</b> $U_{max}$	DC 129.6 / 64.8 V	DC 64.8 / 32.4 V	DC 64.8 / 32.4 V
<b>Peak current (for 1 s)</b> $I_{PK}$	DC 20 / 40 A	DC 60 / 120 A	DC 200 / 400 A
<b>Short-circuit current</b> $I_{SC}$	DC 100 / 200 A	DC 225 / 450 A	DC 840 / 1680 A
<b>Nominal capacitance (new)</b> $C_N$	0.52 / 2.08 F	4.2 / 16.7 F	14.6 / 58.3 F
<b>Capacitance tolerance</b>	-10% / +20%	-0% / +20%	-0% / +20%
<b>Capacitance at end of service life</b>	70% $C_N$	70% $C_N$	80% $C_N$
<b>DC equivalent series resistance (new)</b> $ESR_{DC}$	1296 / 324 mΩ	288 / 72 mΩ	76.8 / 19.2 mΩ
<b>DC equivalent series resistance at end of service life</b>	200% $ESR_{DC}$	200% $ESR_{DC}$	200% $ESR_{DC}$
<b>Maximum energy stored</b> (max. storable energy) $E_{max}$	4.4 kJ	8.8 kJ	30.7 kJ
<b>Usable energy stored</b> (usable stored energy, 75% of $E_{max}$ ) $E$	3.3 kJ = 0.9 Wh	6.6 kJ = 1.8 Wh	23 kJ = 6.4 Wh
<b>Mass</b>	0.6 kg	0.9 kg	2.5 kg
<b>Dimensions</b> <b>W × H × D</b>	See dimension drawing		

## INFORMATION



The data for nominal capacitance and equivalent series resistance are valid for new energy modules. The aging process reduces the capacitance, while it increases the equivalent series resistance.

## INFORMATION



The energy modules of a MOVI-DPS storage unit are always connected in series. The electrical data of a MOVI-DPS storage unit are calculated accordingly.

### 8.1.2 Properties of a MOVI-DPS storage unit (series connection)

	EKS...A-..S025M..1SA..-00 (single-row)	EKS...A-..S025M..2SA..-00 (double-row)	EKS...A-..S025M..3SA..-00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	2.2 A	1.6 A	1.4 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

	EKS...A-..S100M..1SA..-00 (single-row)	EKS...A-..S100M..2SA..-00 (double-row)	EKS...A-..S100M..3SA..-00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	5 A	3.2 A	2.8 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

	EKS...A-..S350M..1SA..-00 (single-row)	EKS...A-..S350M..2SA..-00 (double-row)	EKS...A-..S350M..3SA..-00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	13 A	11 A	9 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

## 8.1.3 Properties of a MOVI-DPS storage unit (parallel connection)

	EKS...A-..P025M..1SA...00 (single-row)	EKS...A-..P025M..2SA...00 (double-row)	EKS...A-..P025M..3SA...00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	4.4 A	3.2 A	2.8 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

	EKS...A-..P100M..1SA...00 (single-row)	EKS...A-..P100M..2SA...00 (double-row)	EKS...A-..P100M..3SA...00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	10 A	6.4 A	5.6 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

	EKS...A-..P350M..1SA...00 (single-row)	EKS...A-..P350M..2SA...00 (double-row)	EKS...A-..P350M..3SA...00 (triple-row)
Continuous current $I_N$ (r.m.s. value)	26 A	22 A	18 A
$I_N$ reduction in ambient temperature	3% $I_N$ per K between 40°C – 50°C		

## 8.2 Power cables

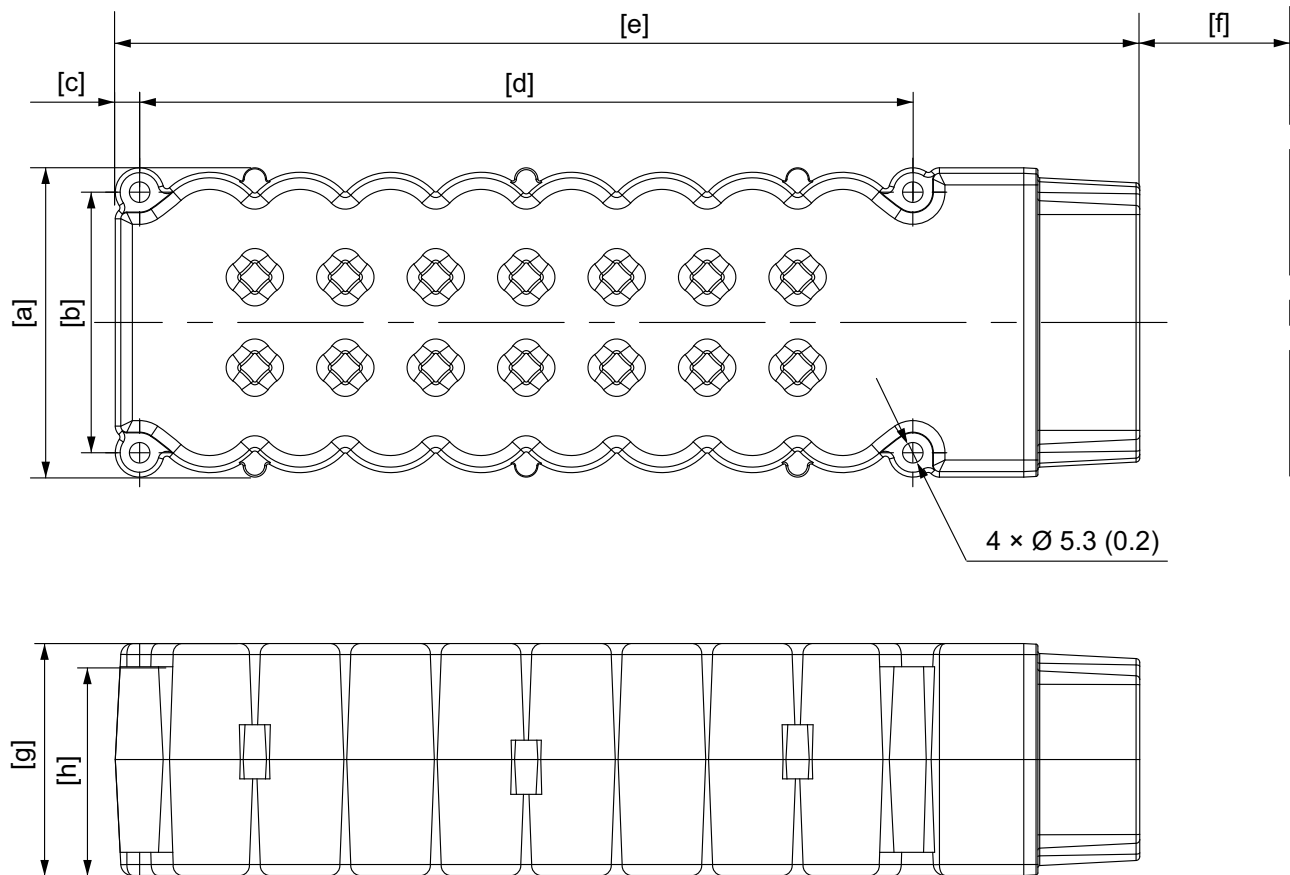
Power cable	
Cable cross section	6 mm <sup>2</sup> (AWG10)
Outer insulation	Double insulation



## 8.3 Dimension drawings

### 8.3.1 Dimension drawing of energy module

The dimension drawing shows the mechanical dimensions of the energy module in mm (in): The dimensions depend on the variant.

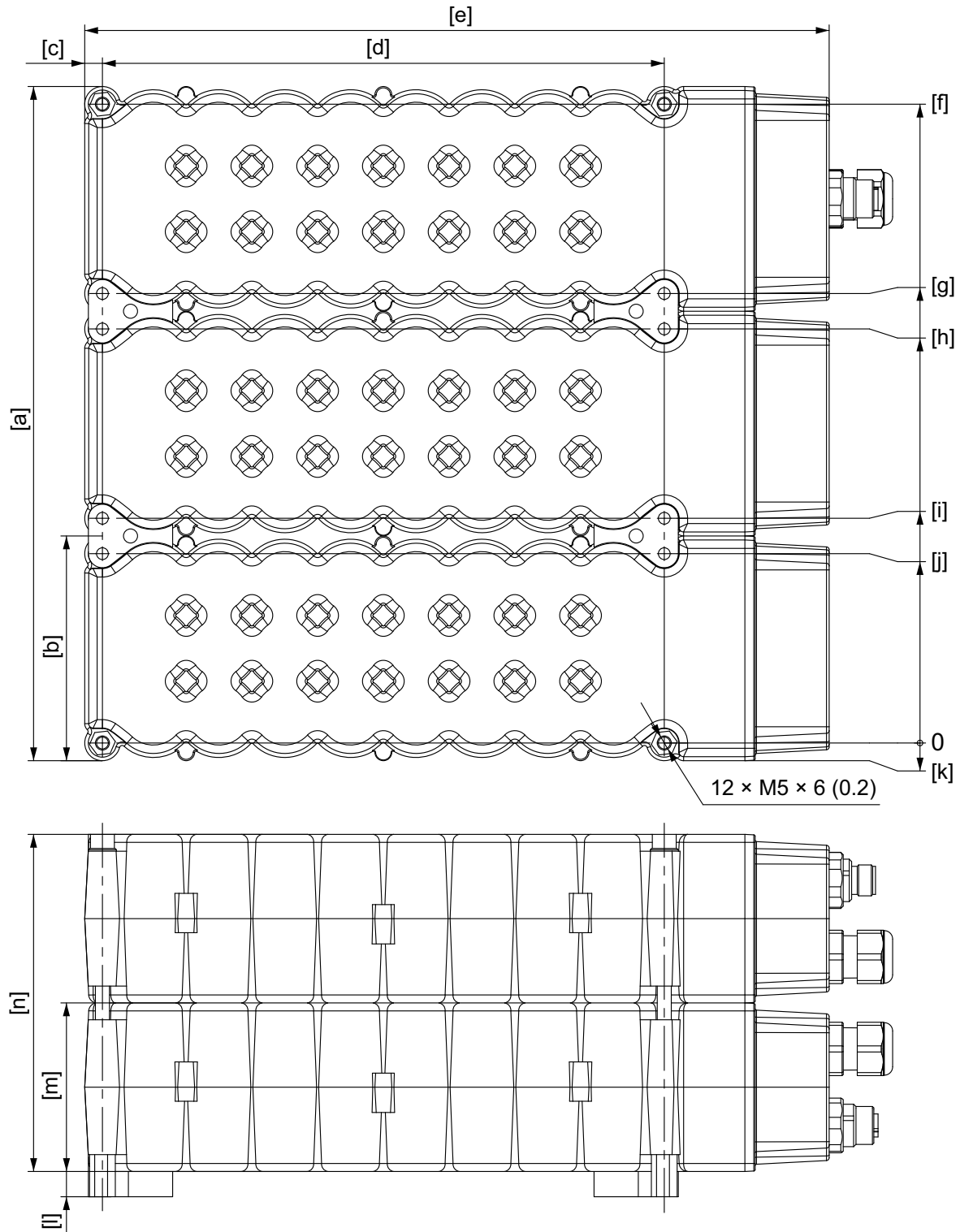


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Energy module	Value [mm (in)]		
Dimension	25 F	100 F	350 F
a	80 (3.1)	80 (3.1)	150 (5.91)
b	67.4 (2.65)	67.4 (2.65)	136 (5.35)
c	6.3 (0.3)	6.3 (0.3)	7 (0.3)
d	222 (8.66)	200 (7.87)	208 (8.19)
e	280 (11.4)	265 (10.4)	270 (10.6)
f	100 (3.94)	100 (3.94)	100 (3.94)
g	42 (1.7)	60 (2.4)	80 (3.1)
h	36 (1.4)	54 (2.1)	74 (2.9)

### 8.3.2 Dimension drawing of MOVI-DPS storage unit

The dimension drawing shows an example of the mechanical dimensions of a MOVI-DPS storage unit with 6 energy modules (3 × 2) in mm (in). The dimensions depend on the number and variant of the energy modules.



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Dimension	Value [mm (in)]		
	EKS...A--S025M032SP...00 EKS...A--P025M032SP...00	EKS...A--S100M032SP...00 EKS...A--P100M032SP...00	EKS...A--S350M032SP...00 EKS...A--P350M032SP...00
a	240 (= 3 × 80) (9.45 (= 3 × 3.1))	240 (= 3 × 80) (9.45 (= 3 × 3.1))	450 (= 3 × 150) (17.7 (= 3 × 5.91))
b	80 (3.1)	80 (3.1)	150 (5.91)
c	6.3 (0.3)	6.3 (0.3)	7 (0.3)
d	222 (8.66)	200 (7.87)	208 (8.19)
e	280 (11.4)	265 (10.4)	270 (10.6)
f	227.4 (8.95)	227.4 (8.95)	436 (17.2)
g	160 (6.2)	160 (6.2)	300 (11.8)
h	147.4 (5.8)	147.4 (5.8)	286 (11.3)
i	80 (3.1)	80 (3.1)	150 (5.91)
j	67.4 (2.65)	67.4 (2.65)	136 (5.35)
k	6.3 (0.3)	6.3 (0.3)	7 (0.3)
l	9 (0.4)	9 (0.4)	9 (0.4)
m	42 (1.7)	60 (2.4)	80 (3.1)
n	84 (= 2 × 42) (3.4 (= 2 × 1.7))	120 (= 2 × 60) (4.8 (= 2 × 2.4))	160 (= 2 × 80) (6.2 (= 2 × 3.1))

## 9 Declaration of conformity

## EC Declaration of Conformity



902180013

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

declares under sole responsibility that the

energy storage systems MOVI-DPS EKS...

are in conformity with

Low Voltage Directive 2006/95/EC

EMC Directive 2004/108/EC 4)

Applied harmonized standards: EN 61800-5-1:2007 5)  
 EN 61800-3:2004



- 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.
- 5) All safety-relevant requirements of the product-specific documentation (operating instructions, manual, etc.) must be met over the entire product life cycle.

Bruchsal 27.11.13

Place

Date

Johann Soder  
 Managing Director Technology

a) b)

- a) Authorized representative for issuing this declaration on behalf of the manufacturer  
 b) Authorized representative for compiling the technical documents

9626202123

21236593/EN – 07/2014

## 10 Address List

Germany			
Headquarters Production plant Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. box address Postfach 3023 • 76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 <a href="http://www.sew-eurodrive.com">http://www.sew-eurodrive.com</a> <a href="mailto:sew@sew-eurodrive.de">sew@sew-eurodrive.de</a>
Production plant / industrial gear units	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str.10 D-76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Service Competence Center	Mechanical/ Mechatronic components	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 <a href="mailto:sc-mitte@sew-eurodrive.de">sc-mitte@sew-eurodrive.de</a>
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 <a href="mailto:sc-elektronik@sew-eurodrive.de">sc-elektronik@sew-eurodrive.de</a>
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	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 D-85551 Kirchheim (near Munich)	Tel. +49 89 909552-10 Fax +49 89 909552-50 <a href="mailto:sc-sued@sew-eurodrive.de">sc-sued@sew-eurodrive.de</a>
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	Drive Service Hotline / 24 h hotline		+49 800 SEWHELP +49 800 7394357
	Additional addresses for service in Germany is provided on request.		
France			
Production plant Sales Service	Haguenau	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 F-67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 <a href="http://www.usocomme.com">http://www.usocomme.com</a> <a href="mailto:sew@usocomme.com">sew@usocomme.com</a>
Production plant	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 F-57604 Forbach Cedex	Tel. +33 3 87 29 38 00
Assembly plant Sales Service	Bordeaux	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan - B. P. 182 F-33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles F-44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
	Paris	SEW-USOCOME Zone industrielle 2 rue Denis Papin F-77390 Verneuil l'Etang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Additional addresses for service in France are provided on request.			
Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 2 22566-299 +1 23143088 Fax +20 2 22594-757 <a href="http://www.copam-egypt.com/">http://www.copam-egypt.com/</a> <a href="mailto:copam@datum.com.eg">copam@datum.com.eg</a>

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<b>Argentina</b>			
<b>Assembly plant Sales</b>	<b>Buenos Aires</b>	SEW EURODRIVE ARGENTINA S.A. Ruta Panamericana Km 37.5, Lote 35 (B1619IEA) Centro Industrial Garín Prov. de Buenos Aires	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar http://www.sew-eurodrive.com.ar
<b>Australia</b>			
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	<b>Sydney</b>	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
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<b>Assembly plant Sales Service</b>	<b>Brussels</b>	<b>SEW-EURODRIVE n.v./s.a.</b> Researchpark Haasrode 1060 Evenementenlaan 7 BE-3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 http://www.sew-eurodrive.be info@sew-eurodrive.be
<b>Service Competence Center</b>	<b>Industrial gear units</b>	<b>SEW-EURODRIVE n.v./s.a.</b> Rue de Parc Industriel, 31 BE-6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-wallonie@sew-eurodrive.be
<b>Brazil</b>			
<b>Production plant Sales Service</b>	<b>São Paulo</b>	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presid- ente Dutra Km 208 Guarulhos - 07251-250 - SP SAT - SEW ATENDE - 0800 7700496	Tel. +55 11 2489-9133 Fax +55 11 2480-3328 http://www.sew-eurodrive.com.br sew@sew.com.br
<b>Assembly plants Sales Service</b>	<b>Rio Claro</b>	SEW-EURODRIVE Brasil Ltda. Rodovia Washington Luiz, Km 172 Condomínio Industrial Conpark Caixa Postal: 327 13501-600 - Rio Claro / SP	Tel. +55 19 3522-3100 Fax +55 19 3524-6653 montadora.rc@sew.com.br
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<b>Assembly plant Sales Service</b>	<b>Santiago de Chile</b>	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMP RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl
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<b>Production plant Assembly plant Sales Service</b>	<b>Tianjin</b>	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25323273 info@sew-eurodrive.cn http://www.sew-eurodrive.cn

China			
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	<b>Shenyang</b>	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141, China	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
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Côte d'Ivoire			
Sales	<b>Abidjan</b>	SICA Société Industrielle & Commerciale pour l'Afrique 165, Boulevard de Marseille 26 BP 1173 Abidjan 26	Tel. +225 21 25 79 44 Fax +225 21 25 88 28 sicamot@aviso.ci
Estonia			
Sales	<b>Tallinn</b>	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa, Estonia	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee
Finland			
Assembly plant Sales Service	<b>Hollola</b>	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Service	<b>Hollola</b>	SEW-EURODRIVE OY Keskikankaantie 21 FIN-15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production plant Assembly plant	<b>Karkkila</b>	SEW Industrial Gears Oy Valurinkatu 6, PL 8 FI-03600 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 sew@sew.fi http://www.sew-eurodrive.fi
Gabon			
Sales	<b>Libreville</b>	ESG Electro Services Gabun Feu Rouge Lalala 1889 Libreville Gabon	Tel. +241 741059 Fax +241 741059 esg_services@yahoo.fr
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Sales	<b>Athens</b>	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr

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	Drive Service Hotline / 24 h hotline		Tel. 01924 896911
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Cameroon			
Sales	Douala	Electro Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 33 431137 Fax +237 33 431137 <a href="mailto:electrojemba@yahoo.fr">electrojemba@yahoo.fr</a>
Canada			
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	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. Tilbury Industrial Park 7188 Honeyman Street Delta, BC V4G 1G1	Tel. +1 604 946-5535 Fax +1 604 946-2513 <a href="mailto:b.wake@sew-eurodrive.ca">b.wake@sew-eurodrive.ca</a>
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Lasalle, PQ H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 <a href="mailto:a.peluso@sew-eurodrive.ca">a.peluso@sew-eurodrive.ca</a>
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<b>Sales</b>	<b>Nairobi</b>	Barico Maintenances Ltd Kamutaga Place Commercial Street Industrial Area P.O.BOX 52217 - 00200 Nairobi	Tel. +254 20 6537094/5 Fax +254 20 6537096 <a href="mailto:info@barico.co.ke">info@barico.co.ke</a>
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<b>Assembly plant Sales Service</b>	<b>Bogota</b>	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 <a href="http://www.sew-eurodrive.com.co">http://www.sew-eurodrive.com.co</a> <a href="mailto:sew@sew-eurodrive.com.co">sew@sew-eurodrive.com.co</a>
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<b>Sales Service</b>	<b>Zagreb</b>	KOMPEKS d. o. o. Zeleni dol 10 HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 <a href="mailto:kompeks@inet.hr">kompeks@inet.hr</a>
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<b>Lebanon</b>			
<b>Sales Lebanon</b>	<b>Beirut</b>	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax: +961 1 494 971 <a href="mailto:ssacar@inco.com.lb">ssacar@inco.com.lb</a>
		After Sales Service	<a href="mailto:service@medrives.com">service@medrives.com</a>
<b>Sales Jordan / Kuwait / Saudi Ara- bia / Syria</b>	<b>Beirut</b>	Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax: +961 1 494 971 <a href="mailto:info@medrives.com">info@medrives.com</a> <a href="http://www.medrives.com">http://www.medrives.com</a>
		After Sales Service	<a href="mailto:service@medrives.com">service@medrives.com</a>
<b>Lithuania</b>			
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<b>Luxembourg</b>			
<b>Assembly plant Sales Service</b>	<b>Brussels</b>	<b>SEW-EURODRIVE n.v./s.a.</b> Researchpark Haasrode 1060 Evenementenlaan 7 BE-3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 <a href="http://www.sew-eurodrive.lu">http://www.sew-eurodrive.lu</a> <a href="mailto:info@sew-eurodrive.be">info@sew-eurodrive.be</a>
<b>Madagascar</b>			
<b>Sales</b>	<b>Antananarivo</b>	Ocean Trade BP21bis. Andraharo Antananarivo. 101 Madagascar	Tel. +261 20 2330303 Fax +261 20 2330330 <a href="mailto:oceantrabp@moov.mg">oceantrabp@moov.mg</a>
<b>Malaysia</b>			
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<b>Sales Service</b>	<b>Mohammedia</b>	SEW-EURODRIVE SARL 2 bis, Rue Al Jahid 28810 Mohammedia	Tel. +212 523 32 27 80/81 Fax +212 523 32 27 89 sew@sew-eurodrive.ma http://www.sew-eurodrive.ma
<b>Mexico</b>			
<b>Assembly plant Sales Service</b>	<b>Quéretaro</b>	SEW-EURODRIVE MEXICO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Quéretaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
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<b>Sales</b>	<b>Ulan Bator</b>	SEW-EURODRIVE Representative Office Mongolia Olympic street 8, 2nd floor Juulchin corp bldg., Sukhbaatar district, Ulaanbaatar 14253	Tel. +976-70009997 Fax +976-70009997 http://www.sew-eurodrive.mn sew@sew-eurodrive.mn
<b>Namibia</b>			
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	<b>Christchurch</b>	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferryroad Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
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<b>Assembly plant Sales Service</b>	<b>Rotterdam</b>	SEW-EURODRIVE B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800 SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
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<b>Switzerland</b>			
<b>Assembly plant</b> <b>Sales</b> <b>Service</b>	<b>Basle</b>	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax: +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
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<b>Serbia</b>			
<b>Sales</b>	<b>Belgrade</b>	DIPAR d.o.o. Ustanicka 128a PC Košum, IV sprat SRB-11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax: +381 11 347 1337 office@dipar.rs

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## Index

### A

Accessories .....	15
Assembly .....	16
Handle .....	26
Handle 180 .....	26
on a fastening surface .....	16
on the wall .....	23
to a holding fixture .....	18
via threaded bolt .....	16
with brackets .....	18
with fastening kit .....	23

### C

Capacitance .....	
Reduction .....	35
Clearance, required .....	16
Connection .....	
Depiction .....	28
Function .....	29
Storage bundle monitoring .....	31, 33
Connection cable .....	32, 34
Extension .....	30
Connections .....	28
Connections, electrical .....	28
Copyright notice .....	7

### D

Depiction .....	
Connections .....	28
Designated use .....	9
Disconnection, safe .....	11

### E

Embedded safety notes .....	6
Environmental influences, harmful .....	9
Equivalent resistance .....	35
Exclusion of liability .....	6
Extended storage .....	36

### F

Fastening .....	
on a fastening surface .....	16
on the wall .....	23
via threaded bolt .....	16

with mounting brackets .....	18
------------------------------	----

Function .....	
Connection .....	29
Fuse types .....	28

### G

Ground connection .....	27
-------------------------	----

### H

Hazard symbols .....	
Meaning .....	5

### I

Installation .....	
Safety notes .....	11

### J

Jumper plug .....	33
-------------------	----

### L

Line protection .....	27, 28
-----------------------	--------

### M

Minimum clearance .....	16
Mounting brackets .....	18
Mounting positions, permitted .....	16

### N

Notes .....	
Designation in the documentation .....	5
Meaning of the hazard symbols .....	5

### O

Operation .....	
Safety notes .....	11

### P

Product names .....	7
Project planning .....	35
Protective separation .....	11

### R

Repairs .....	36
Restrictions .....	9
Restrictions of use .....	9
Rights to claim under limited warranty .....	6

## S

Safety notes	
General.....	8
Designation in the documentation .....	5
Installation .....	11
Meaning of the hazard symbols .....	5
Preliminary information.....	8
Structure of embedded .....	6
Structure of the section-related .....	5
Scope of delivery .....	12
Section-related safety notes .....	5
Signal words in the safety notes.....	5
Space, required .....	16
Startup	
Safety notes .....	11
Storage.....	36
Storage bundle monitoring	
Connection .....	31, 33

## T

Target group .....	8
Terminating resistor, see Jumper plug .....	33
Trademarks .....	7
Transportation .....	10

## U

Use .....	9
-----------	---

## W

Wall mounting.....	23
Waste disposal .....	36
Wiring diagrams .....	28

## X

X5221 .....	31
X5222 .....	33











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