



SEW
EURODRIVE



Stationary Energy Supply

MOVITRANS® TAS10A Transformer Module

Edition 04/2009

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Operating Instructions





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1 General Information

1.1 How to use the operating instructions

The operating instructions are an integral part of the product and contain important information on operation and service. The operating instructions are written for all employees who assemble, install, startup, and service this product.

The operating instructions must be accessible and legible. 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. Consult SEW-EURODRIVE if you have any questions or if you require further information.

1.2 Structure of the safety notes

1.2.1 Meaning of the signal words

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

Signal word	Meaning	Consequences if disregarded
⚠ DANGER	Imminent danger	Severe or fatal injuries
⚠ WARNING	Possible hazardous situation	Severe or fatal injuries
⚠ CAUTION	Possible hazardous situation	Minor injuries
NOTICE	Potential 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 the section safety notes

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

This is the formal structure of a section safety note:



⚠ SIGNAL WORD

Nature and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

This is an example for a section safety note:



⚠ WARNING

Falling of suspended loads.

Severe or fatal injuries.

- Do not stand under the suspended load.
- Secure the danger zone.



1.2.3 Structure of the embedded safety notes

The embedded safety notes are directly integrated in the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- **▲ SIGNAL WORD** Nature and source of hazard.
Possible consequence(s) if disregarded.
 - Measure(s) to prevent the hazard.

This is an example for an embedded safety note:

- **▲ DANGER** Risk of crushing if the drive restarts unintentionally.
Severe or fatal injuries.
 - De-energize the drive.
 - Secure the drive against unintended restart.

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 operating instructions. Therefore, read the operating instructions before you start working with the unit!

1.4 *Exclusion of liability*

You must comply with the information contained in these operating instructions to ensure safe operation of the MOVITRANS® units and to achieve the specified product characteristics and performance requirements. 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 *Copyright*

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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 operator must ensure that the basic safety notes are read and observed.

Make sure that persons responsible for the plant and its operation, as well as persons who work independently on the units, have read through the documentation carefully and understood it. Consult SEW-EURODRIVE if you have any questions or if you require further information.

The following safety notes are primarily concerned with the use of MOVITRANS® units. If you use other SEW components, also refer to the safety notes for the respective components in the corresponding documentation.

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

2.2 General information

Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.

2.3 Target group

Any mechanical work may only be performed by adequately qualified personnel. Qualified personnel in this context are persons who are familiar with the setup, mechanical installation, troubleshooting and maintenance for the units. Further, they are qualified as follows:

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

Any electronic work may only be performed by adequately qualified electricians. Qualified electricians in this context are persons who are familiar with the electronic installation, startup, troubleshooting and maintenance for the units. Further, they are qualified as follows:

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

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



2.4 Designated use

Note the designated use of the following MOVITRANS® units:

- **MOVITRANS® units in general**

MOVITRANS® units are intended for use in industrial and commercial installations for the operation of contactless power transmission systems.

- **TPS stationary converter and TAS transformer modules**

TPS stationary converters and TAS transformer modules are designed to be installed in control cabinets. Only connect MOVITRANS® devices that are designed and suitable for connection to TPS stationary converters and the TAS transformer modules, such as TLS line cables, TVS connection distributors and TCS compensation boxes.

- **TLS line cable**

The TLS line cables are laid along the transmission line. TLS line cables are suitable for connection to the TAS transformer module on the output side.

- **TCS compensation boxes**

In longer transmission lines, the TCS compensation boxes are connected in series to the TLS line cables.

- **TVS connection distributor**

The TVS connection distributors are used as connection points for the TLS line cable in the field.

- **TIS installation material**

The installation components TIS...025... may only be used with flat pick-ups THM..E.

The installation components TIS...008... may only be used with U-shaped pick-ups THM..C.

Observe all information on the technical data and the permitted conditions where the units are operated.

Do not start up the unit (operate in the designated fashion) until you have established that the machine complies with the EMC Directive 2004/108/EC and that the end product categorically conforms to Machinery Directive 98/37/EC (with reference to EN 60204).

The rules and regulations of the German employers' liability insurance association ["Berufsgenossenschaft" - BG], in particular BG rules B11 concerning electromagnetic fields, must be observed during installation, startup and operation of systems with contactless energy transfer by induction for use in industrial workplaces.



2.5 Transport

Observe the following instructions when you receive a shipment:

- Inspect the shipment immediately upon receipt for any damage that may have occurred during transportation.
- Inform the shipping company immediately about any damage.
- Do not startup any units if they were damaged in transit.

Observe the following notes for the transportation of MOVITRANS® units:

- Make sure that the units are not subject to mechanical impact during transport.
- Use suitable, sufficiently rated handling equipment.
- Observe the notes on the climatic conditions in the "Technical Data" section.
- Remove securing devices used for transportation prior to startup.

2.6 Storage

Observe the following instructions when shutting down or storing MOVITRANS® units:

- Make sure that the units are not subject to mechanical impact during storage.
- In case of long-term storage, connect the TPS stationary converter to the power supply for at least 5 minutes every 2 years.
- Observe the notes on storage temperature in the "Technical Data" chapter.

2.7 Assembly

Observe the following notes for installing the MOVITRANS® units:

- Protect the MOVITRANS® units from excessive strain.
- Ensure that components are not deformed and/or insulation spaces are maintained, particularly during transportation and handling.
- Electric components must not be mechanically damaged or destroyed.

The following applications are prohibited unless the unit is explicitly designed for such use:

- 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 50178.



2.8 Functional safety technology

MOVITRANS® units may not execute any safety functions without master safety systems.

2.9 Electrical connection

Observe the following notes for the electrical connection of MOVITRANS® units:

- Do not connect or disconnect any cables, plug connectors or conductor rails while they are energized.
- Observe applicable national accident prevention guidelines when working on live parts of MOVITRANS® units.
- Perform electrical installation according to the pertinent regulations (e.g. cable cross-sections, fusing, protective conductor connection). For any additional information, refer to the applicable documentation.
- Preventive measures and protection devices must correspond to the regulations in force (e.g. EN 60204-1 or EN 50178).

Required preventive measures: – Ground the units

Required protection device: – Over-current protection devices for the supply system lead

- Take suitable steps to ensure that the preventive measures and protection devices described in the operating instructions for the individual MOVITRANS® units have been implemented correctly.

2.10 Safe disconnection

The TPS stationary converter meets all requirements for safe disconnection of power and electronics connections in accordance with EN 50178. All connected circuits must also maintain the requirements for safe disconnection.



2.11 Startup/operation

Observe the following notes for starting up and operating the MOVITRANS® units:

- Only qualified electricians with the relevant accident prevention training are allowed to perform installation, startup and service work on the unit. They must also comply with the regulations in force (e.g. EN 60204, VBG 4, DIN-VDE 0100/0113/0160).
- Never install damaged units and put them into operation.
- Do not deactivate monitoring and protection devices even for a test run.
- Take appropriate measures (for example, connect binary input DI00 "/CONTROLLER INHIBIT" to DGND on the TPS stationary converter) to ensure that the system does not start up unintentionally when power is switched on.
- During operation, the MOVITRANS® units can have live, bare and movable or rotating parts as well as hot surfaces, depending on their enclosure.
- When the unit is switched on, dangerous voltages are present at the output terminals and at any connected cables, terminals and MOVITRANS® units. Dangerous voltages can be present even when the TPS stationary converter supply is disabled and the system is at a standstill.
- The fact that the operation LED V1 and other display elements are no longer illuminated on the TPS stationary converter does not indicate that the device and connected MOVITRANS® units have been disconnected from the power supply and do not carry any voltage.
- Safety functions within the unit may cause system standstill. Removing the cause of the problem or performing a reset can result in an automatic restart of the plant. If safety reasons prohibit this action, disconnect the TPS10A stationary converter from the power supply before correcting the fault.
- Before removing the protective cover, disconnect the units from the supply system. Dangerous voltages may still be present in the units and the connected MOVITRANS® devices for up to 10 minutes after disconnection.
- With the protective cover removed, the MOVITRANS® units have enclosure IP00. Dangerous voltages are present at all components. All units must be closed during operation.
- Please wear appropriate protective clothing during assembly, especially when soldering the TLS line cables.
- Take appropriate security measures to prevent burns by the soldering iron or by hot solder. Take appropriate measures to prevent hot solder from leaking.



2.12 Inspection/maintenance

Repairs may only be carried out by SEW-EURODRIVE.

2.13 Disposal

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

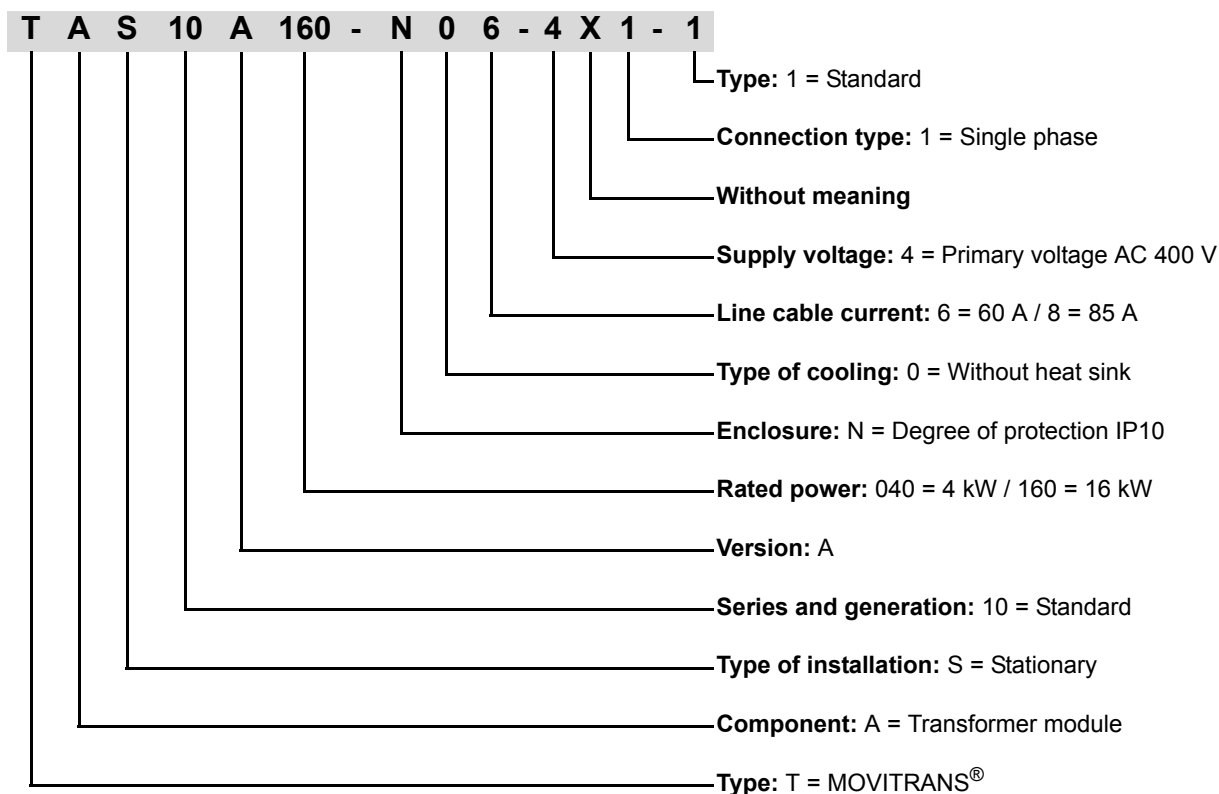
- Electronics scrap
- Plastic
- Sheet metal
- Copper
- Aluminum



3 Unit Structure

3.1 Unit designation

The unit designation of the MOVITRANS® TAS10A transformer module comprises the following characteristic unit data:



3.2 Short designation

The following short designations are used:

Unit	Short designation
MOVITRANS® TAS10A...-N0.-4X1-1 transformer module	TAS10A transformer module
MOVITRANS® TAS10A040-N0.-4X1-1 transformer module	TAS10A040 transformer module
MOVITRANS® TAS10A160-N0.-4X1-1 transformer module	TAS10A160 transformer module



3.3 Scope of delivery

INFORMATION



You can install compensation capacitors in the TAS10A transformer module to perform compensation for a connected line cable. See the chapter "Installing compensation capacitors in TAS10A".

The scope of delivery does not include compensation capacitors. You can order them separately from SEW-EURODRIVE. See the "Technical Data" chapter.

The TAS10A transformer module is available in 2 sizes.

3.3.1 Size 2

The scope of delivery comprises the following component:

Unit
1 MOVITRANS® TAS10A transformer module (basic unit)
with short-circuit hoop
MOVITRANS® TAS10A040-N0.-4X1-1 transformer module (4 kW)

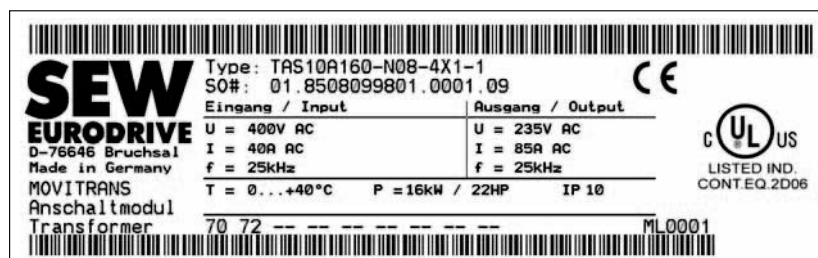
3.3.2 Size 4

The scope of delivery comprises the following component:

Unit
1 MOVITRANS® TAS10A transformer module (basic unit)
with short-circuit hoop, 5 connection conductor rails, and 2 touch guards for the power terminals
MOVITRANS® TAS10A160-N0.-4X1-1 transformer module (16 kW)

3.4 Nameplate

You find the nameplate with important information of the TAS10A transformer module at the side of the unit. The following figure shows an example of a nameplate:



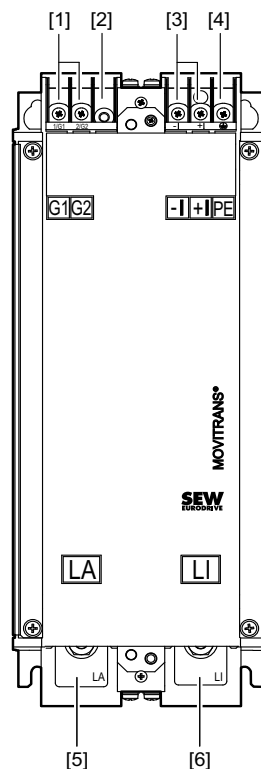
147079691

Type	Unit designation	f	Frequency
U	Voltage	P	Output power
I	Current	T	Ambient temperature



3.5 Size 2 (TAS10A040)

The following figure shows the unit structure of size 2:



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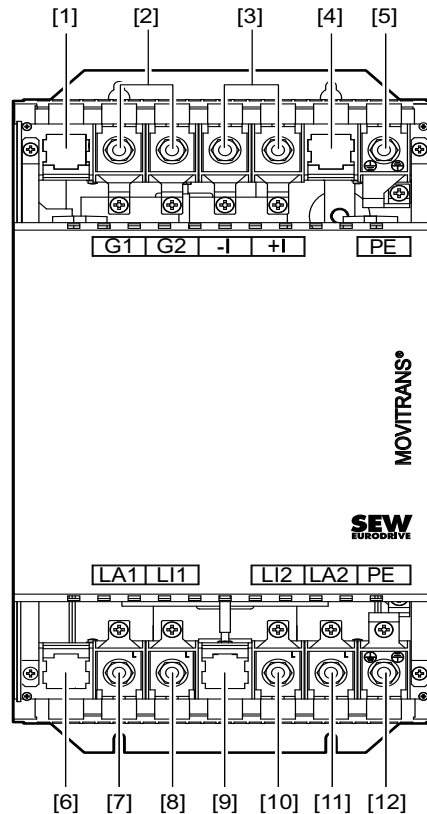
- [1] X2: Gyrator connection G1 / G2
(→ primary voltage AC 400 V coming from TPS10A040 X2:G1 / G2)
- [2] Terminal has no function
- [3] X3: Current feedback -I / +I
(→ coming from TPS10A040 X3:-I / +I)
- [4] X4: PE connection
- [5] LA (return conductor connection)
- [6] LI (supply conductor connection)

Read the chapter "Wiring diagram size 2 (TAS10A040)" when connecting the line cable.



3.6 Size 4 (TAS10A160)

The following figure shows the unit structure of size 4:



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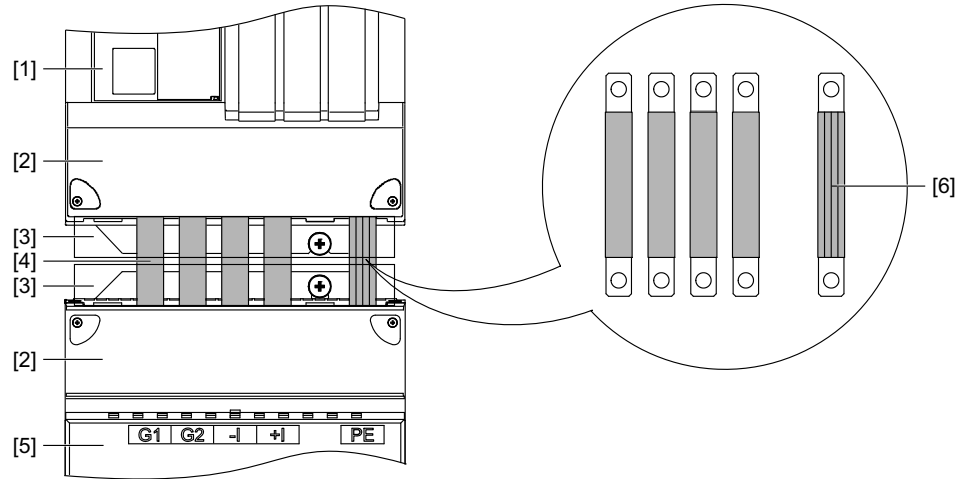
- [1] Terminal has no function
- [2] X2: Gyrator connection G1 / G2
(→ primary voltage AC 400 V coming from TPS10A160 X2:G1 / G2)
- [3] X3: Current feedback -I / +I
(→ coming from TPS10A160 X3:-I / +I)
- [4] Terminal has no function
- [5] X4: PE connection
- [6] Terminal has no function
- [7] LA1 (connection of first return conductor)
- [8] LA1 (connection of first supply conductor)
- [9] Terminal has no function
- [10] LI1 (connection of second supply conductor)
- [11] LA2 (connection of second return conductor)
- [12] PE connection

Read the chapter "Wiring diagram size 4 (TAS10A160)" when connecting the line cable (LA1 / LI1, LA2 / LI2).



3.6.1 Connection conductor rail size 4 (TAS10A160 and TPS10A160)

The following figure depicts the connection conductor rails installed in the TPS10A160 stationary converter and the TAS10A160 transformer module:



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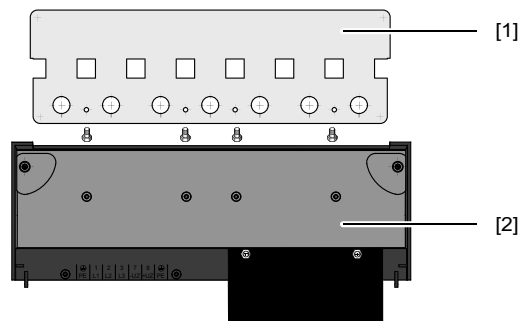
- [1] MOVITRANS® TPS10A160 stationary converter
- [2] Protective cover
- [3] Touch guard
- [4] Connection conductor rails
- [5] MOVITRANS® TAS10A160 transformer module
- [6] Connection conductor rails (detail view)

Read the notes in the chapters "Assembly and installation notes" and "Wiring diagram size 4 (TAS10A160)" when installing the standardized connection conductor rails.

3.6.2 Touch guard

The TAS10A160 transformer module (size 4) includes 2 touch guards and 8 retaining screws.

The following figure depicts the touch guard for the TAS10A160 transformer module:



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- [1] Touch guard
- [2] Cover

The TAS10A160 transformer module complies with degree of protection IP10 with the touch guard, and IP00 without touch guard.



4 Mechanical Installation

4.1 Mounting position

INFORMATION



Do not install the units horizontally, tilted or upside down.

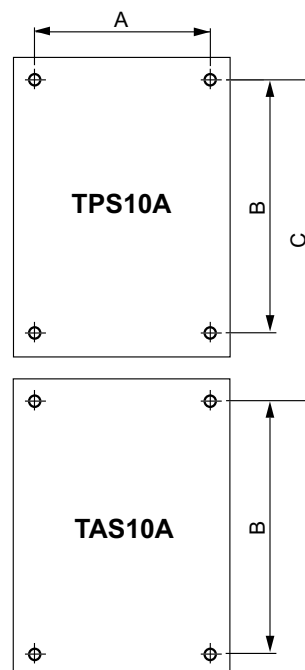
Install the TPS10A stationary converter and the TAS10A transformer module vertically on top of one another. SEW-EURODRIVE recommends this mounting position.

If required by the installation, you may also install the TPS10A stationary converter and the TAS10A transformer module next to one another.

4.1.1 Vertical installation

Observe the following installation instructions:

- Install the TPS10A stationary converter and the TAS10A transformer module vertically on top of one another.
- Use twisted cables for connecting TPS10A040 and TAS10A040, as described in the chapter "Wiring diagram, size 2".
- Use standardized connection conductor rails as described in the chapters "Connection conductor rails, size 4" and "Wiring diagram, size 4 (connection variant I)" for connecting TPS10A160 and TAS10A160.
- Ensure the distance between the units for installation according to the following illustration:



1797939595

Size	A [mm]	B [mm]	C [mm]
Size 2	105 (4.13 in)	300 +1 (11.8 + 0.04 in)	348 +2 (13.7 + 0.08 in)
Size 4	140 (5.51 in)	500 +1 (19.7 + 0.04 in)	548+2 (21.6 + 0.08 in)



4.1.2 Horizontal installation

Observe the following installation instructions:

- Install the TPS10A stationary converter and the TAS10A transformer module next to one another. There is no need for clearance at the sides. You can line up the units directly next to one another.
- Leave at least 100 mm (4 in) clearance at the top and bottom for optimum heat dissipation. For project planning, refer to the chapter "Technical Data".
- Ensure sufficient air circulation by the TAS10A transformer module.
- Use twisted cables for connecting TPS10A040 and TAS10A040, as described in the chapter "Wiring diagram, size 2".
- Use twisted cables and a choke for connecting TPS10A160 and TAS10A160, as described in the chapter "Wiring diagram, size 4 (connection variant II)".



5 Electrical Installation



⚠ WARNING

Faulty installation.

Severe or fatal injuries.

- It is essential to comply with the safety notes in chapter 2 during installation.

5.1 Assembly and installation notes

Only use genuine connection elements.

5.1.1 Tightening torques

The tightening torques for the terminals and retaining screws differ depending on the size of the unit.

Size 2

Observe the following tightening torques for the TAS10A040 transformer module:

Designation		Tightening torque
Terminals	X2, X3, X4	1.5 Nm (13.3 lb.in)
	LA / LI	8 Nm (69.33 lb.in)
Retaining screws	for installing the compensation capacitors	8 Nm (69.33 lb.in)

Size 4

Observe the following tightening torques for the TAS10A160 transformer module:

Designation		Tightening torque
Terminals	X2, X3, X4, LA / LI	14 Nm (124 lb.in)
Retaining screws	for installing the compensation capacitors	8 Nm (69.33 lb.in)

5.1.2 Cable cross section

The cable cross section depends on the size.

Size 2

The cable cross section between X2/X3 of the TPS10A040 stationary converter and X2/X3 of the TAS10A040 transformer module is 4 mm².

Size 4

The cable cross section between X2/X3 of the TPS10A160 stationary converter and X2/X3 of the TAS10A160 transformer module is 16 mm².



5.1.3 Unit output



NOTICE

Overheating of the TLS line cable due to incorrectly attached cable lugs.

Damage to the TLS line cable and the energy transfer system.

- Use a powerful soldering iron (at least 200 W) or a soldering bath to attach the cable lugs to the high-frequency litz wire. Pressing on is not permitted.

Observe the following installation instructions:

- Connect approved TLS line cables only. TLS line cables must be connected properly. Also observe the chapter "Prefabricating the TLS line cable" in the "MOVITRANS® TCS, TVS, TLS, TIS Installation Equipment" operating instructions.
- For information on connecting the TLS line cable, refer to the chapters "Wiring diagram, size 2" and "Wiring diagram, size 4".

5.1.4 Line cable routing

Observe the following installation instructions for routing the line cables:

- Install line cables and signal cables separately.
- Route the line cables close together. Avoid close proximity to sheet metal or other magnetic metals to avoid heating caused by eddy currents. Therefore, use the following tools:
 - Cable ties
 - Plastic cable duct or plastic pipe on spacers
 - Spacing layer of aluminum sheet metal
- If the cables are routed through walls (e.g. control cabinet), you should try to have a common screw fitting for supply and return cables. Install a duct board made of aluminum or plastic if this is not possible.

5.1.5 Grounding

Observe the following note on grounding:

- Ground the MOVITRANS® system and all additional devices to meet the high-frequency guidelines. To do so, provide a wide area metal-on-metal contact between the unit housing and ground (e.g. unpainted control cabinet mounting panel).

5.2 UL-compliant installation

Observe the following instructions for UL-compliant installation:

- Only use copper cables with the following temperature ranges as connection cables: 60 °C / 75 °C for TAS10A (sizes 2 and 4)
- For permitted tightening torques of the power terminals, refer to the chapter "Assembly and installation notes, tightening torques".

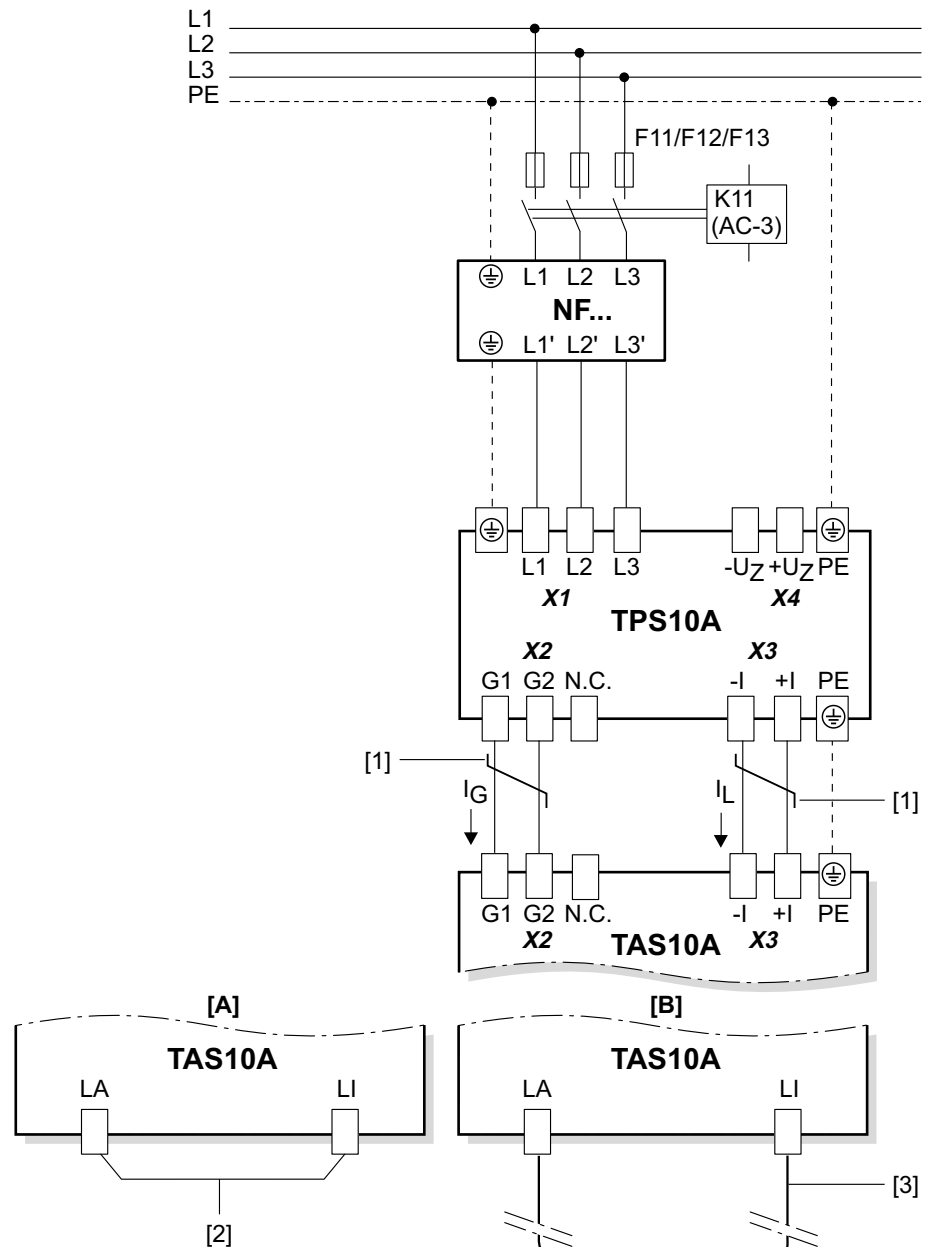
You will find additional information on this topic in the chapter "Installing compensation capacitors in TAS10A".



5.3 TAS10A040 transformer module (size 2)

5.3.1 Wiring diagram for size 2

The following figure shows the wiring diagram for the TAS10A040 transformer module (size 2) to the power section of the TPS10A040 stationary converter (size 2):



9007200600819467

- [1] Twisted cables
- [2] Short-circuit hoop
- [3] Line cable loop

- [A] Connection variant A (delivery state):
For startup of TPS10A040 stationary converter without connected TLS line cable
- [B] Connection variant B
For startup and operation with connected line cable loop



5.3.2 Connecting TAS10A040 to TPS10A040

1. Connect identical terminals between TPS10A040 stationary converter and TAS10A040 transformer module using twisted cables. See wiring diagram, size 2.
Ensure proper cable cross sections and cable routing.

Variant A

No TLS line cable connected

The short-circuit hoop must be installed between LI and LA for starting up the TPS10A040 stationary converter without connected TLS line cable:

1. Check whether the short-circuit hoop is connected between LA and LI.
On delivery, the short-circuit hoop is already installed.

5.3.3 Connecting TLS line cable to TAS10A040

Variant B

A suitable TLS line cable can be connected for startup. For operation, connecting the TLS line cable is mandatory. Connect the TLS line cable as follows to the TAS10A040 transformer module:

1. Remove the short-circuit hoop between LA and LI.
2. Connect the TLS line cable to the terminals LA / LI of the TAS10A040 transformer module.

5.3.4 Description of terminal functions

The following table describes the terminal functions:

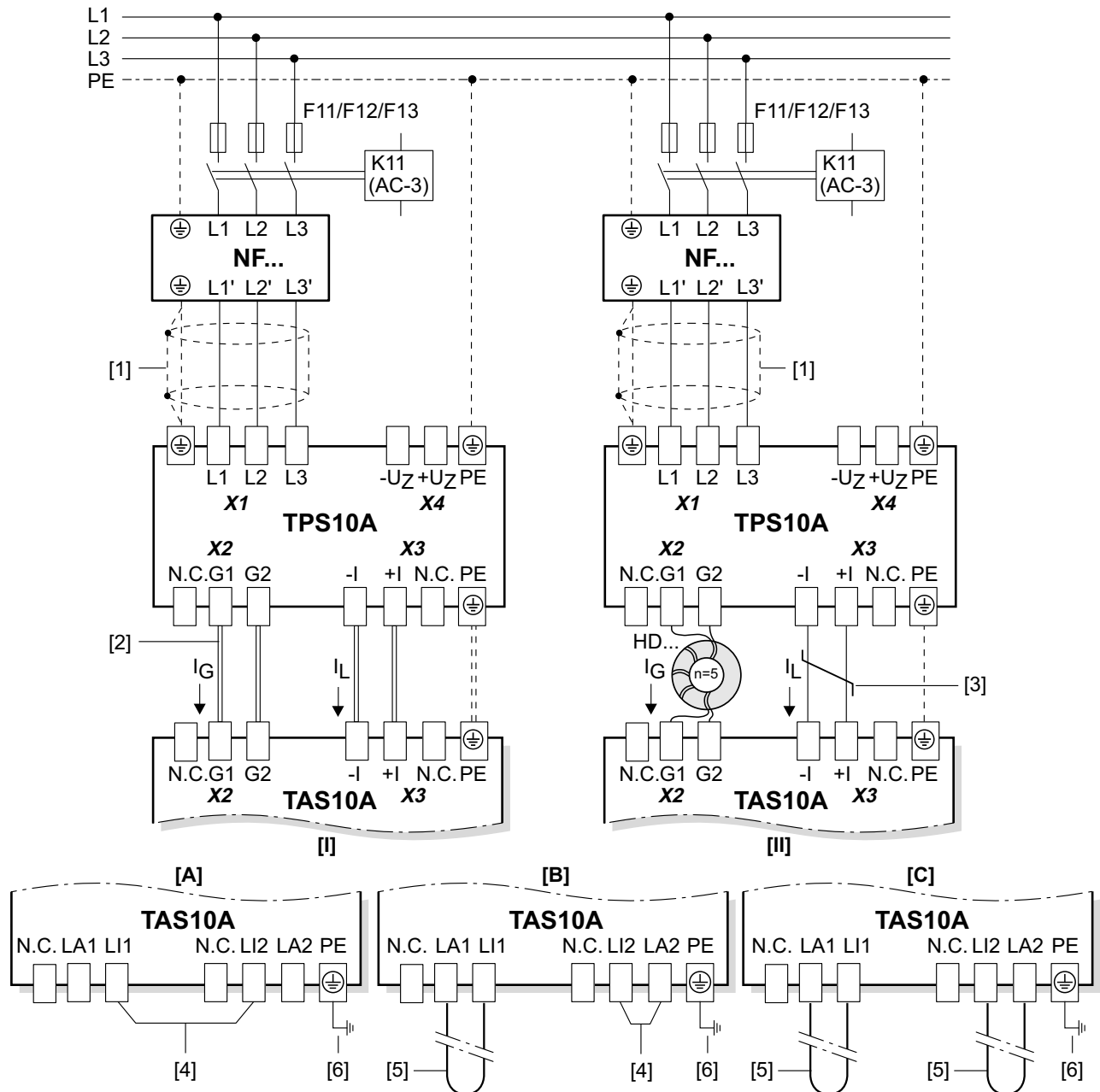
Terminal	Function
X2:G1 / G2 X3:-I / +I	Gyrator connection (→ coming from TPS10A X2:G1 / G2) Current feedback (→ coming from TPS10A X3:-I / +I)
LA LI	Return line cable connection Supply line cable connection



5.4 TAS10A160 transformer module (size 4)

5.4.1 Wiring diagram, size 4

The following figure shows the wiring diagram for the TAS10A160 transformer module (size 4) to the power section of the TPS10A160 stationary converter (size 4):



9007200586517515

- | | | | |
|------|---|-----|--|
| [1] | Shielded cables | [4] | Short-circuit hoop |
| [2] | Connection conductor rails | [5] | Line cable loop |
| [3] | Twisted cables | [6] | Optional PE connection for ensuring high-frequency compliant grounding |
| [I] | Connection variant I: Installing TPS10A160 and TAS10A160 on top of one another
Connecting TAS10A160 to TPS10A160 with connection conductor rails | | |
| [II] | Connection variant II: Installing TPS10A and TAS10A next to one another
Connecting TAS10A160 to TPS10A160 using twisted cables and output choke | | |



- [A] Connection variant A (delivery state):
For startup of TPS10A160 stationary converter without connected TLS line cable
- [B] Connection variant B:
For startup and operation with one line cable loop and one short-circuit hoop
- [C] Connection variant C:
For startup and operation with 2 line cable loops

5.4.2 Connecting TAS10A160 to TPS10A160

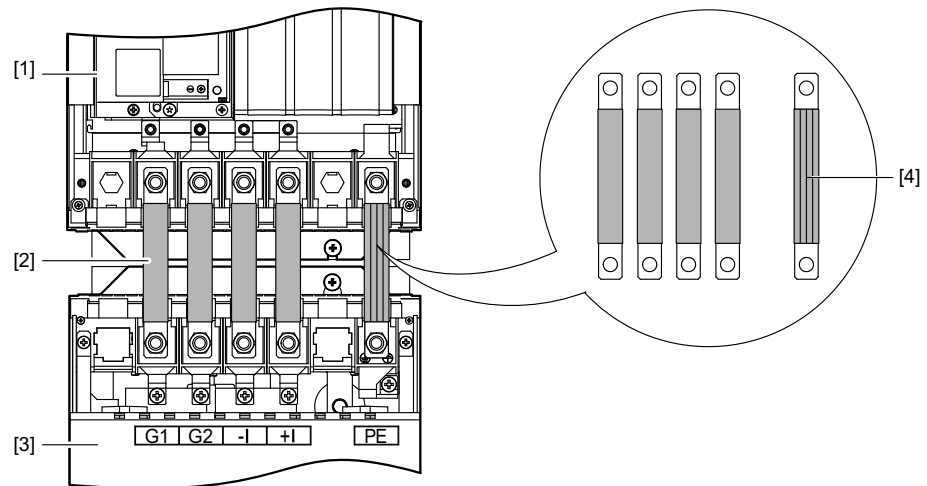
Variant I

Installation on top of one another

The TPS10A160 stationary converter and the TAS10A160 transformer module are installed on top of one another as recommended.

1. Use standardized connection conductor rails to connect the TAS10A160 transformer module to the TPS10A160 stationary converter. The rails are included in the delivery scope of the TAS10A160 transformer module.

The following figure shows the units connected with connection conductor rails:



147077515

- [1] MOVITRANS® TPS10A160 stationary converter
- [2] Connection conductor rails
- [3] MOVITRANS® TAS10A160 transformer module
- [4] Connection conductor rails (detail view)

For more information on this topic, refer to the chapter "Connection conductor rails", "Assembly and installation notes" and "Technical data".



Variant II

Horizontal installation

The TPS10A160 stationary converter and the TAS10A160 transformer module are installed next to one another as recommended.

1. Connect identical terminals between TPS10A160 stationary converter and TAS10A160 transformer module using twisted cables. See wiring diagram, size 4.

Ensure proper cable cross sections and cable routing.

Before connecting the second cable end to X2:G1 / G2 on the TAS10A160 transformer module, you have to wind the twisted cable five times around the output choke (ferrite core).

Order the output choke separately:

Output choke	HD003
Inside diameter d	88 mm (3.5 in)
For cable cross sections	$\geq 16 \text{ mm}^2$ (AWG6)

Variant A

No TLS line cable connected

The following applies both to variants I and II:

The short-circuit hoop must be installed between LI1 and LI2 for starting up the TPS10A160 stationary converter without connected TLS line cable:

1. Check whether the short-circuit hoop is connected between LI1 and LI2.

On delivery, the short-circuit hoop is already installed.

5.4.3 Connecting TLS line cable to TAS10A160

You can connect one or two line cables to the TAS10A160 transformer module.

This section applies both to variants I and II.

Variant B

Connecting one TLS line conductor to TAS10A160**⚠ WARNING**

Faulty installation.

Severe or fatal injuries.

- When using only one line cable connection (LI1 / LA1), always jumper the free line cable connection (LI2 / LA2) using the delivered short-circuit hoop.



For startup, a minimum of 1 and a maximum of 2 line cable loops can be connected. For operation, connection of at least 1 and maximum 2 line cable loops is mandatory.

Connect the TLS line cable as follows to the TAS10A160 transformer module:

1. Remove the short-circuit hoop between LI1 and LI2.
2. Connect the TLS line cable to the LA1 / LI1 terminals.
3. Connect the short-circuit hoop between terminals LI2 and LA2.



Variant C

Connecting two TLS line cables to TAS10A160

For startup, a minimum of 1 and a maximum of 2 line cable loops can be connected. For operation, connection of at least 1 and maximum 2 line cable loops is mandatory.

Connect the two line cable loops as follows to the TAS10A160 transformer module:

1. Remove the short-circuit hoop between LI1 and LI2.
2. Connect the first TLS line cable to the LA1 / LI1 terminals.
3. Connect the second TLS line cable to the LA2 / LI2 terminals.

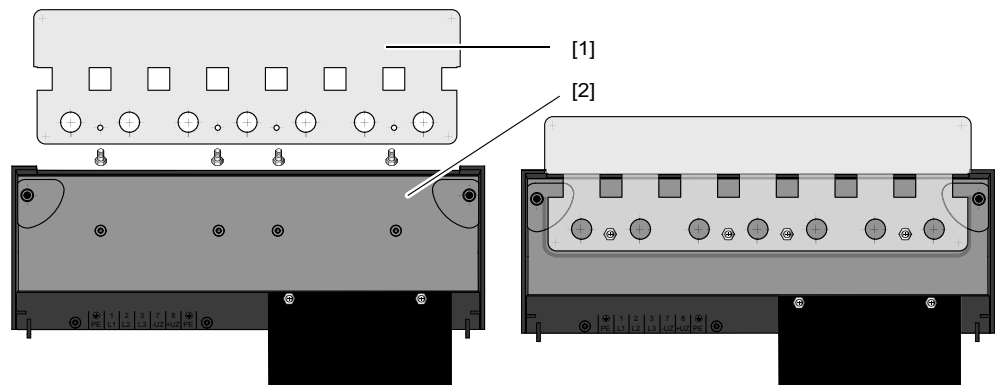
5.4.4 Description of terminal functions

The following table describes the terminal functions:

Terminal	Function
X2:G1 / G2 X3:-I / +I	Gyrator connection (→ coming from TPS10A X2:G1 / G2) Current feedback (→ coming from TPS10A X3:-I / +I)
LA1 LI1 LA2 LI2	Connection first return line cable Connection first supply line cable Connection second return line cable Connection second supply line cable

5.4.5 Touch guard

Install the touch guard on both covers of the power section terminals. The following figure depicts the touch guard for the TAS10A160 transformer module:



9007199401573003

- [1] Touch guard
[2] Cover



5.5 Installing compensation capacitors in TAS10A

5.5.1 Before you start



⚠ WARNING

Faulty installation.

Severe or fatal injuries.

- Observe the safety notes in chapter 2 before installing or removing compensation capacitors.

Also observe the following installation instructions before you begin to install or remove compensation capacitors:

- Installing or removing compensation capacitors is only permitted for vertically installed units. See the chapter "Assembly and installation notes, mounting position".
- Compensation capacitors can be installed both in TPS10A040 and TPS10A160 transformer modules. See the "Technical Data, compensation capacitors" chapter.
- Use only the enclosed fastening material to install the compensation capacitors.

5.5.2 Scope of delivery for compensation capacitors

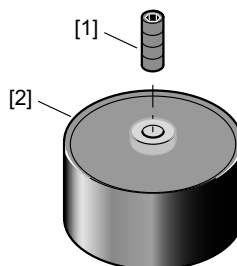


INFORMATION

Compensation capacitors (capacitance of 2 μF , 4 μF , 8 μF , 16 μF or 32 μF) are available individually or as a package.

The scope of delivery for compensation capacitors from SEW-EURODRIVE includes the following components:

- Compensation capacitors with the following capacitance values:
 - 2 μF
 - 4 μF
 - 8 μF
 - 16 μF
 - 32 μF
- Short setscrews



147068811

[1] Short setscrew with hexagon socket SW4

[2] Compensation capacitors (capacitance of 2 μF , 4 μF , 8 μF , 16 μF or 32 μF)

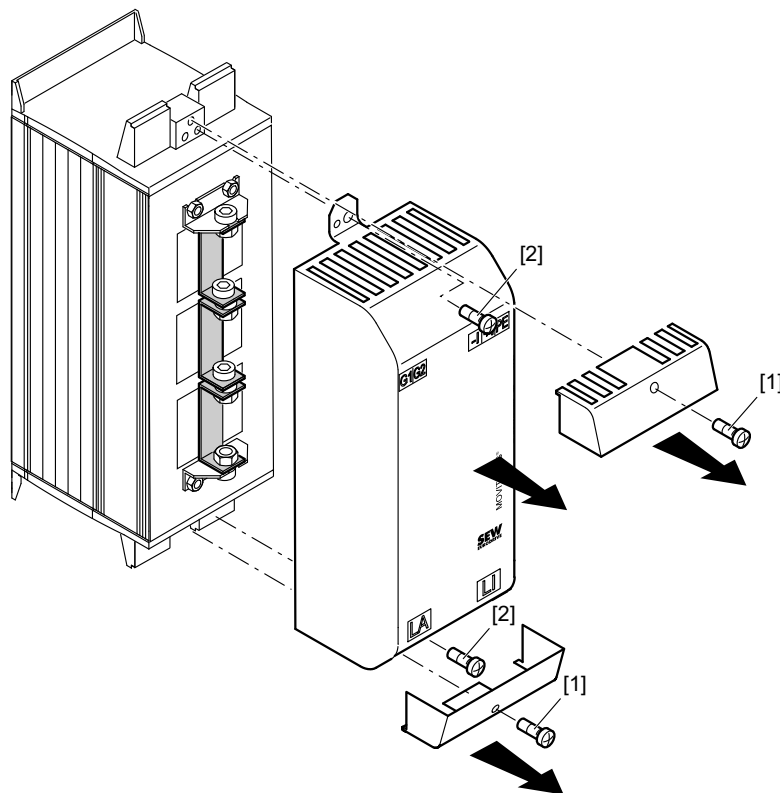


5.5.3 Removing the protective cover and housing cover from TAS10A040

Before you install the compensation capacitors, you must remove the protective cover and housing cover from the TAS10A040 transformer module:

Proceed as follows:

1. Remove the upper and lower protective cover of the TAS10A040 transformer module. Loosen the 2 retaining screws [1] to do so.
2. Remove the housing cover of the TAS10A040 transformer module. Loosen the 2 retaining screws [2] to do so.



147047051

- [1] Retaining screws for upper / lower protective cover
[2] Retaining screws for upper / lower housing cover

5.5.4 Installing the protective cover and housing cover on TAS10A040

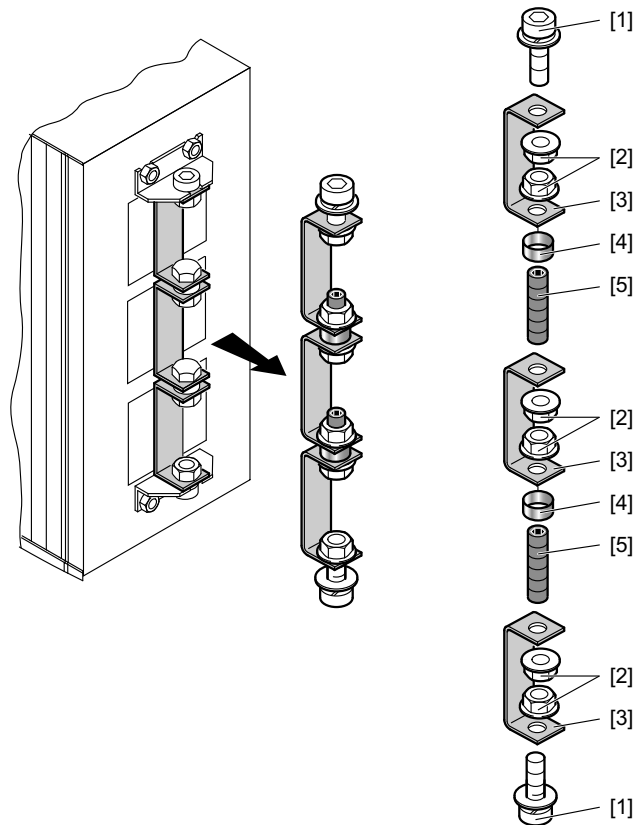
Follow the instructions in reverse order to install the protective cover and the housing cover on the TAS10A040 transformer module:

1. Secure the housing cover of the TAS10A040 transformer module. To do so, tighten the two retaining screws [2].
2. Attach the upper and lower protective cover of the TAS10A040 transformer module. To do so, tighten the two retaining screws [1].



5.5.5 Delivery condition of TAS10A040

The TAS10A040 transformer module comes equipped with 3 conductor rails [3].



147033995

- [1] Machine screw with hexagon socket SW5
- [2] Combination nut M8 with movable disk
- [3] Conductor rail
- [4] Spacer bushing
- [5] Long setscrew with hexagon socket SW4

5.5.6 Installing compensation capacitors TAS10A040

Proceed as follows to install the compensation capacitors:

1. Always remove all 3 conductor rails completely.
2. To do so, loosen the socket head screws [1] on the upper and lower conductor rails [3].



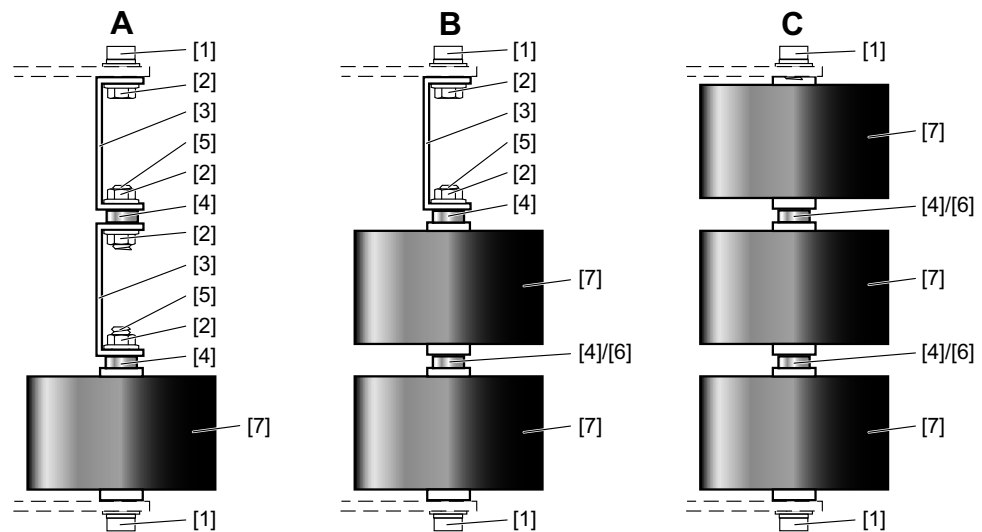
5.5.7 Possible installation options for TAS10A040

INFORMATION



Always assemble the relevant combination outside the TAS10A040 transformer module. Reinstall it completely in the TAS10A040 transformer module afterwards.

The following options are available for installing the compensation capacitors in the TAS10A040 transformer module.



147064459

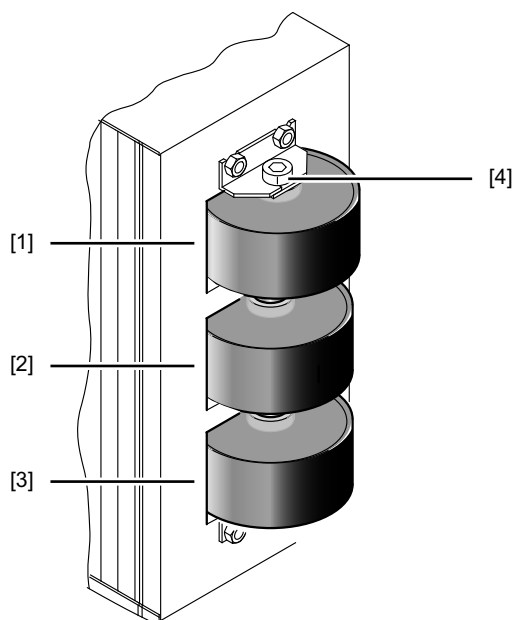
- [1] Machine screw with hexagon socket SW5
- [2] Combination nut M8 with movable disk
- [3] Conductor rail
- [4] Spacer bushing
- [5] Long setscrew with hexagon socket SW4
- [6] Short setscrew with hexagon socket SW4
- [7] Compensation capacitor (capacitance of 2 μ F, 4 μ F, 8 μ F, 16 μ F or 32 μ F)

- A Variant A (1 compensation capacitor)
- B Variant B (2 compensation capacitors)
- C Variant C (3 compensation capacitors)

**5.5.8 Installation option TAS10A040 with 3 compensation capacitors**

You can install a maximum of 3 compensation capacitors in the TAS10A040 transformer module to perform compensation for a line cable.

The figure below shows the TAS10A040 transformer module with 3 compensation capacitors.



147066635

- [1] Capacitance C1
- [2] Capacitance C2
- [3] Capacitance C3
- [4] Machine screw with hexagon socket SW5

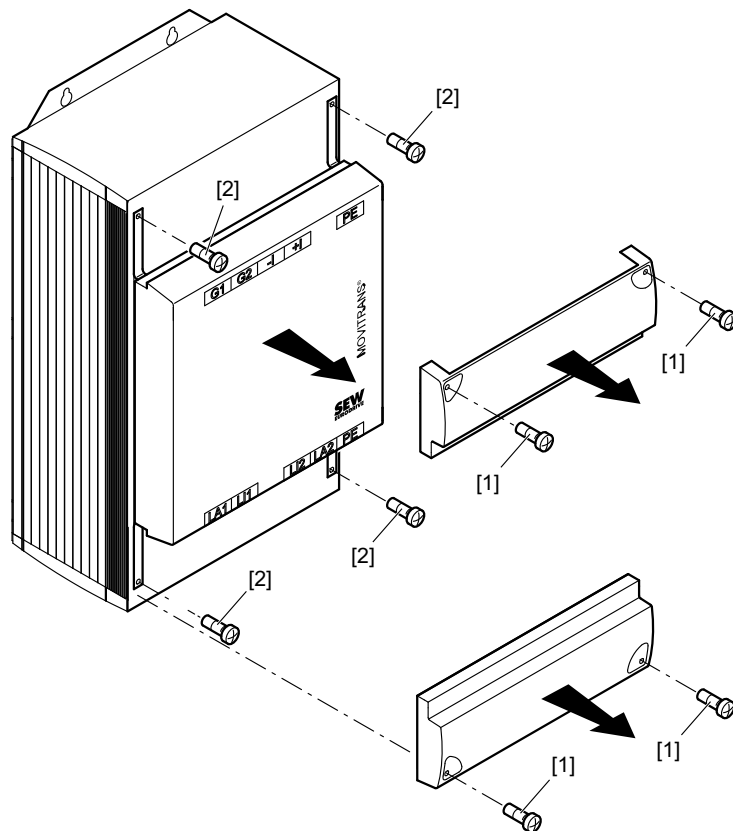


5.5.9 Removing protective cover and housing cover from TAS10A160

Before you install the compensation capacitors, you must remove the protective cover and housing cover from the TAS10A160 transformer module:

Proceed as follows:

1. Remove the upper and lower protective cover of the TAS10A160 transformer module. Loosen the 4 retaining screws [1] to do so.
2. Remove the housing cover of the TAS10A160 transformer module. Loosen the 4 retaining screws [2] to do so.



147049227

- [1] Retaining screws for upper / lower protective cover
[2] Retaining screws for upper / lower housing cover

5.5.10 Installing protective cover and housing cover on TAS10A160

Follow the instructions in reverse order to install the protective cover and the housing cover on the TAS10A160 transformer module:

- Secure the housing cover of the TAS10A160 transformer module. To do so, tighten the 4 retaining screws [2].
- Attach the upper and lower protective cover of the TAS10A160 transformer module. To do so, tighten the 4 retaining screws [1].

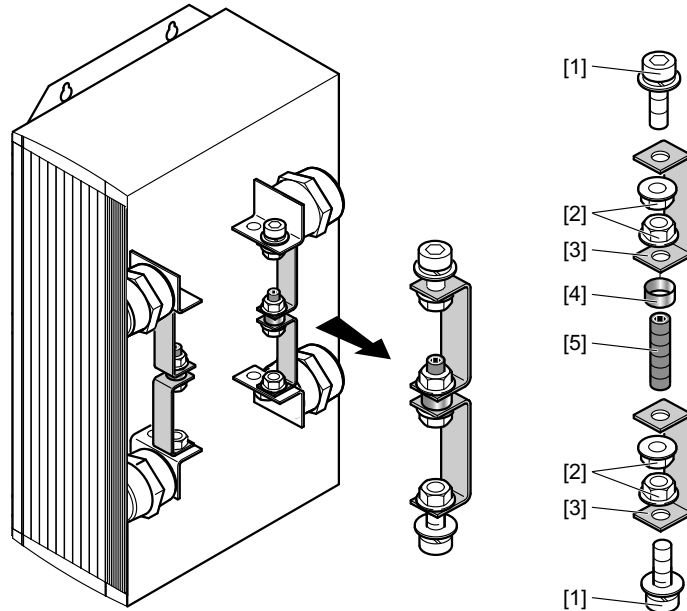


Electrical Installation

Installing compensation capacitors in TAS10A

5.5.11 Delivery condition of TAS10A160

Four conductor rails [3] (two by two) are installed in the TAS10A160 transformer module on delivery.



147051403

- [1] Machine screw with hexagon socket SW5
- [2] Combination nut M8 with movable disk
- [3] Conductor rail
- [4] Spacer bushing
- [5] Long setscrew with hexagon socket SW4

5.5.12 Installing compensation capacitors in TAS10A160

Proceed as follows to install the compensation capacitors:

1. Always remove the conductor rail pairs completely.
2. To do so, loosen the socket head screws [1] on the upper and lower conductor rails [3].



5.5.13 Installation options in TAS10A160

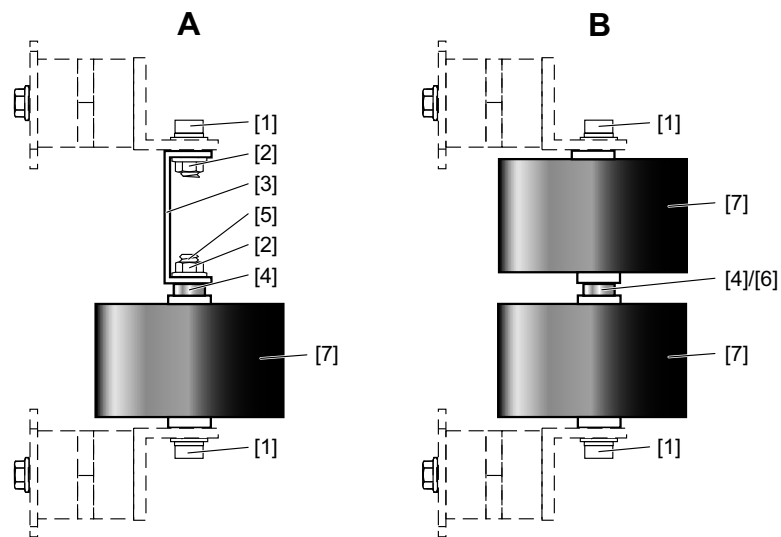


INFORMATION

Always assemble the relevant combination outside the TAS10A160 transformer module. Reinstall it completely in the TAS10A160 transformer module afterwards.

The following options are available for installing the compensation capacitors in the TAS10A160 transformer module.

Note that only the installation option with one conductor rail pair is shown here. The data applies to the other pair as well.



147070987

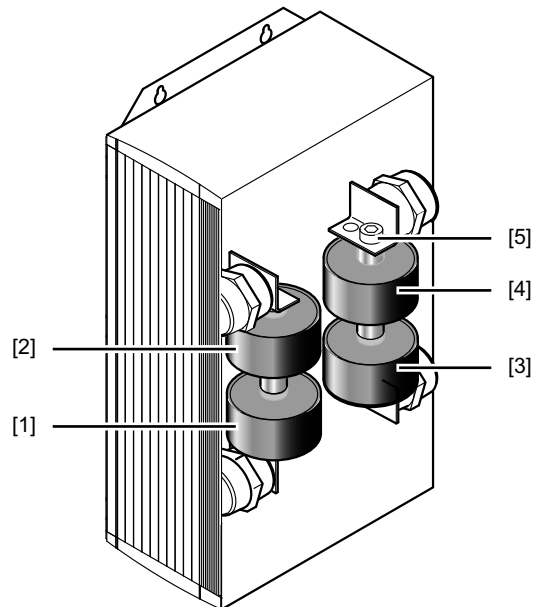
- [1] Machine screw with hexagon socket SW5
- [2] Combination nut M8 with movable disk
- [3] Conductor rail
- [4] Spacer bushing
- [5] Long setscrew with hexagon socket SW4
- [6] Short setscrew with hexagon socket SW4
- [7] Compensation capacitor (capacitance of 2 μ F, 4 μ F, 8 μ F, 16 μ F or 32 μ F)

- A Variant A (1 compensation capacitor)
- B Variant B (2 compensation capacitors)



5.5.14 Installation option TAS10A160 with 4 compensation capacitors

A maximum of 4 compensation capacitors can be installed in the TAS10A160 transformer module to perform compensation for a connected line cable.



- [1] Capacitance C1
- [2] Capacitance C2
- [3] Capacitance C3
- [4] Capacitance C4
- [5] Machine screw with hexagon socket SW5

147073163



6 Service

6.1 Electronics service

6.1.1 Sending in for repair

Please contact the SEW-EURODRIVE Electronics Service if you can not rectify a fault.

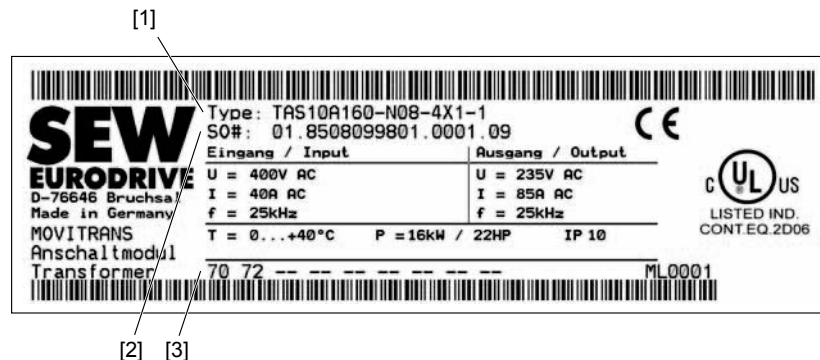
Please always specify the number in the status line when you contact the electronics service. You will find more detailed information about the status line in the following section.

Provide the following information when sending the unit in for repair:

- Serial number (→ nameplate)
- Unit designation
- Number in the status line
- Brief description of the application
- Connected load
- Nature of the fault
- Accompanying circumstances
- Your own presumptions as to what has happened
- Any unusual events preceding the problem, etc.

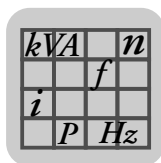
6.1.2 Status line

The following figure shows an example nameplate of the TAS10A transformer module: It includes, among others, the unit designation, order number, and status line with service code:



147044875

- [1] Unit designation
[2] Order number
[3] Status line with service code



7 Technical Data

7.1 Basic unit

The table below shows the technical data for all TAS10A transformer modules independent of their size and power rating:

TAS10A transformer module		All sizes
Interference immunity		Meets EN 61800-3
Interference emission with EMC-compliant installation		According to limit class A to EN 55011 and EN 55014, complies with EN 61800-3
Ambient temperature	T	0 °C – +40 °C (32 °F – 104 °F)
Climate class		EN 60721-3-3, class 3K3
Storage and transportation temperature	T _L	-25 °C – +75 °C (-13 °F – +167 °F) (EN 60721-3-3, class 3K3)
Degree of protection	Size 2 (TAS10A040)	IP10
	Size 4 (TAS10A160)	IP00, IP10 with installed touch guard
Pollution class		2 according to IEC 60664-1 (VDE 0110-1)
Duty cycle		Continuous duty (EN 60149-1-1 and 1-3)
Resistance to vibration		Complies with EN 50178
Relative humidity		≤ 95 %, condensation not permitted

7.2 Unit data

The table below shows the unit data of all TAS10A transformer modules:

TAS10A transformer module		TAS10A040-		TAS10A160-	
		N06-4X1-1	N08-4X1-1	N06-4X1-1	N08-4X1-1
Input					
Rated input voltage	U _{E_N}	AC 400 V			
Input frequency	f _E	25 kHz			
Rated input current	I _{G_N}	AC 10 A		AC 40 A	
Load current	I _L	AC 7.5 A		AC 30 A	
Output					
Rated output power	P _N	4 kW		16 kW	
Rated output current	I _{A_N}	AC 60 A	AC 85 A	AC 60 A	AC 85 A
Rated output voltage	U _{A_N}	AC 83 V	AC 59 V	AC 333 V	AC 235 V
Output frequency	f _A	25 kHz			
General information					
Power loss at P _N	P _V	50 W		200 W	
Cooling air consumption		20 m³/h (12 ft³/min)		40 m³/h (24 ft³/min)	
Weight		8.8 kg (19.36 lb)		31.6 kg (69.52 lb)	
Dimensions W × H × D		130 × 336 × 210 mm (5.12 × 13.23 × 8.27 in)		280 × 522 × 203 mm (11.02 × 20.55 × 7.99 in)	

7.3 Compensation capacitors

INFORMATION



You can install the compensation capacitors in TAS10A040 and TAS10A160 transformer modules.

Compensation capacitors are available individually or as a complete package.

7.3.1 Compensation capacitors for a line cable current of 60 A or 85 A

Individual compensation capacitors:

Capacitance C [μF]	Capacitive reactance X_C [Ω]	Type designation
2	3.2	TCS10A -008-020-0
4	1.6	TCS10A-008-040-0
8	0.8	TCS10A-008-080-0
16	0.4	TCS10A-008-160-0
32	0.2	TCS10A-008-320-0

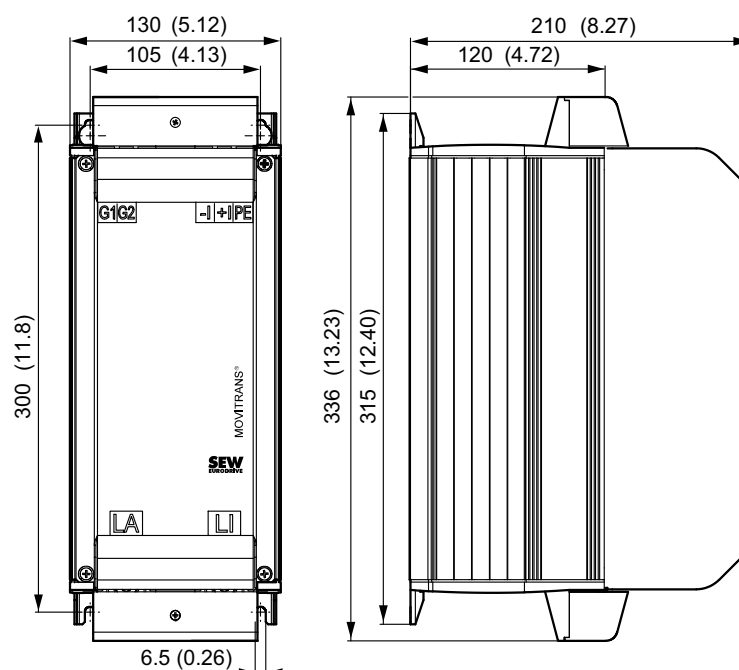
Compensation capacitors as a package:

Capacitance C [μF]	Capacitive reactance X_C [Ω]	Type designation
2, 4, 8, 16 and 32	3.2, 1.6, 0.8, 0.4 and 0.2	TCS10A-008-XXX-0

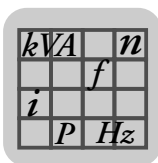
7.4 Dimension drawings

7.4.1 TAS10A040 transformer module – size 2

The following figure shows the dimension drawing of the TAS10A040 transformer module, size 2, dimensions in mm (in):

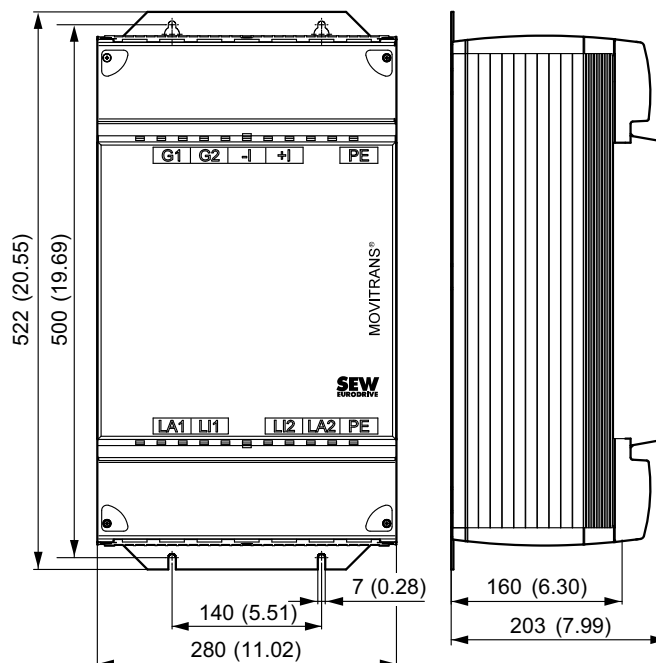


9007199401781515



7.4.2 TAS10A160 transformer module – size 4

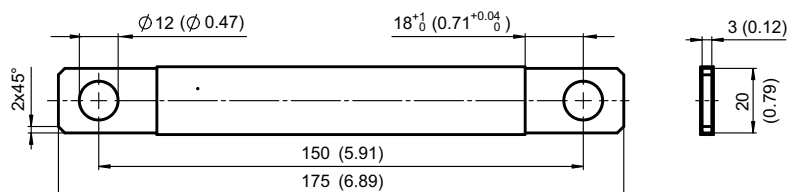
The following figure shows the dimension drawing of the TAS10A160 transformer module, size 4, dimensions in mm (in):



9007199401783691

7.4.3 Connection conductor rail

The following figure shows the dimension drawing of the connection conductor rail. The dimensions are specified in mm (in).



147062283



Address List

Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. Box Postfach 3023 • D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Service Competence Center	Central	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 sc-mitte@sew-eurodrive.de
	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 D-30823 Garbsen (near Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 sc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 D-08393 Meerane (near Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 sc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 D-85551 Kirchheim (near München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 sc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 D-40764 Langenfeld (near Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 sc-west@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 sc-elektronik@sew-eurodrive.de
	Drive Service Hotline / 24 Hour Service		+49 180 5 SEWHELP +49 180 5 7394357
Additional addresses for service in Germany provided on request!			
France			
Production 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 http://www.usocom.com sew@usocom.com
Production	Forbach	SEW-EUROCOME Zone Industrielle Technopôle Forbach Sud B. P. 30269 F-57604 Forbach Cedex	Tel. +33 3 87 29 38 00
Assembly 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
	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 provided on request!			



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Argentina			
Assembly Sales Service	Buenos Aires	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar http://www.sew-eurodrive.com.ar
Australia			
Assembly Sales Service	Melbourne	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	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
Austria			
Assembly Sales Service	Wien	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://www.sew-eurodrive.at sew@sew-eurodrive.at
Belarus			
Sales	Minsk	SEW-EURODRIVE BY Rybalko Str. 26 BY-220033 Minsk	Tel. +375 (17) 298 38 50 Fax +375 (17) 29838 50 sales@sew.by
Belgium			
Assembly Sales Service	Brüssel	SEW Caron-Vector Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.be info@caron-vector.be
Service Competence Center	Industrial Gears	SEW Caron-Vector 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
	Antwerp	SEW Caron-Vector Glasstraat, 19 BE-2170 Merksem	Tel. +32 3 64 19 333 Fax +32 3 64 19 336 http://www.sew-eurodrive.be service-antwerpen@sew-eurodrive.be
Brazil			
Production Sales Service	Sao Paulo	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presidente 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
Bulgaria			
Sales	Sofia	BEVER-DRIVE GmbH Bogdanovetz Str. 1 BG-1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@fastbg.net



Cameroon			
Sales	Douala	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 33 431137 Fax +237 33 431137
Canada			
Assembly Sales Service	Toronto	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, ON L6T 3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.watson@sew-eurodrive.ca
	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 b.wake@sew-eurodrive.ca
	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.peluso@sew-eurodrive.ca
	Additional addresses for service in Canada provided on request!		
Chile			
Assembly Sales Service	Santiago de Chile	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
China			
Production Assembly Sales Service	Tianjin	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 info@sew-eurodrive.cn http://www.sew-eurodrive.cn
Assembly Sales Service	Suzhou	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267891 guangzhou@sew-eurodrive.cn
	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478398 Fax +86 27 84478388
	Xi'An	SEW-EURODRIVE (Xi'An) Co., Ltd. No. 12 Jinye 2nd Road Xi'An High-Technology Industrial Development Zone Xi'An 710065	Tel. +86 29 88241718 Fax +86 29 68686296 logistic-xa@sew-eurodrive.cn
Additional addresses for service in China provided on request!			



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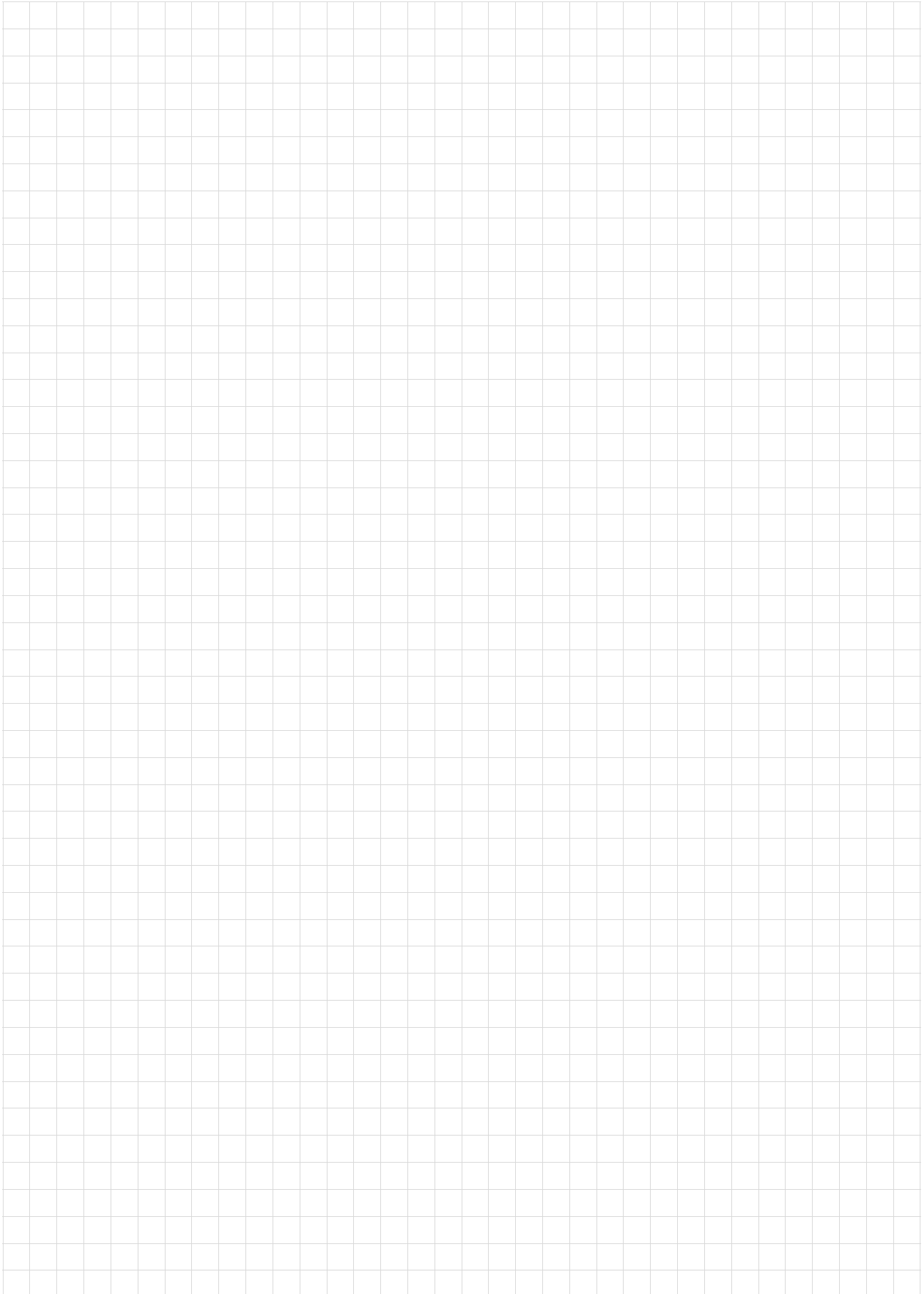
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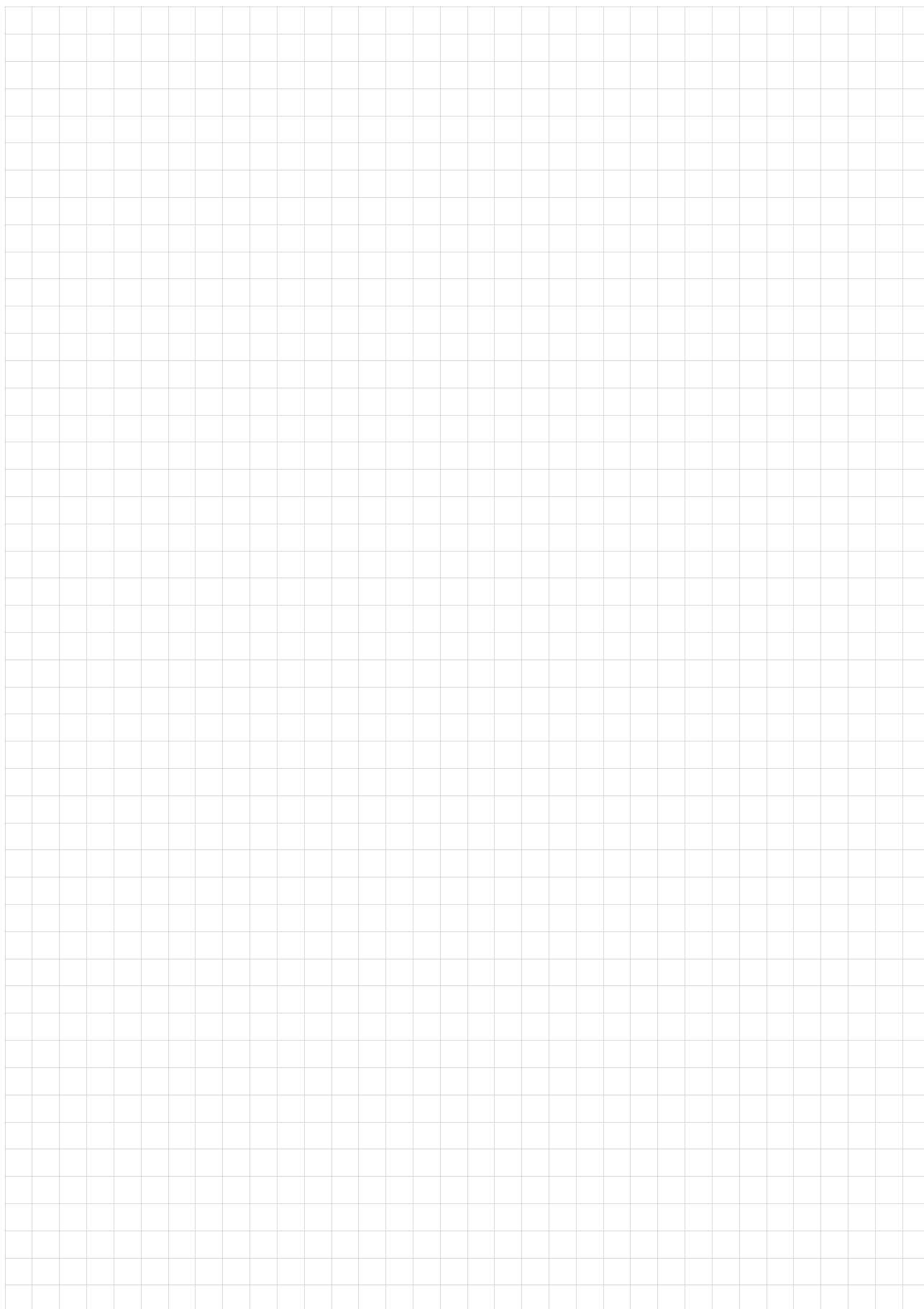
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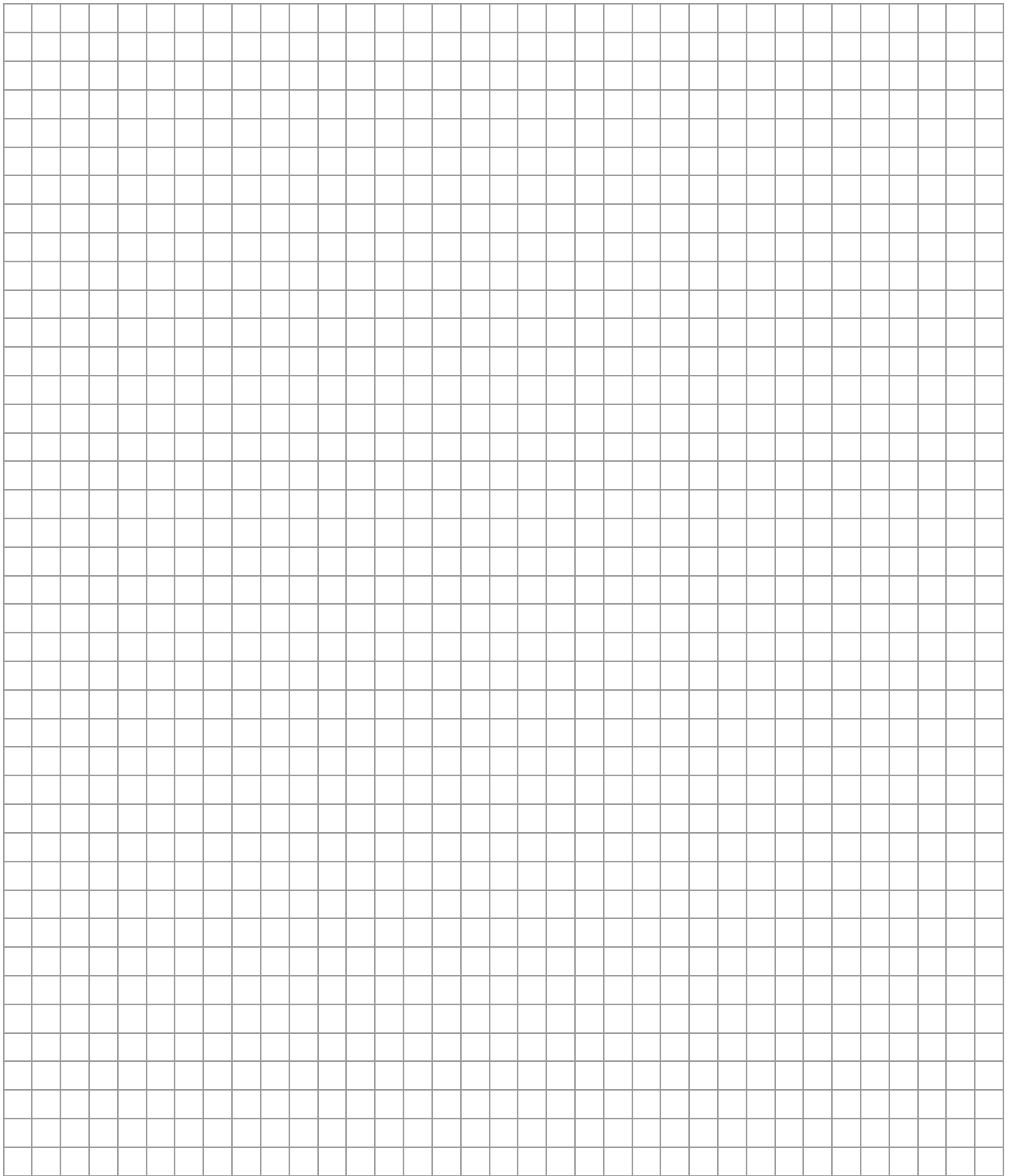


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