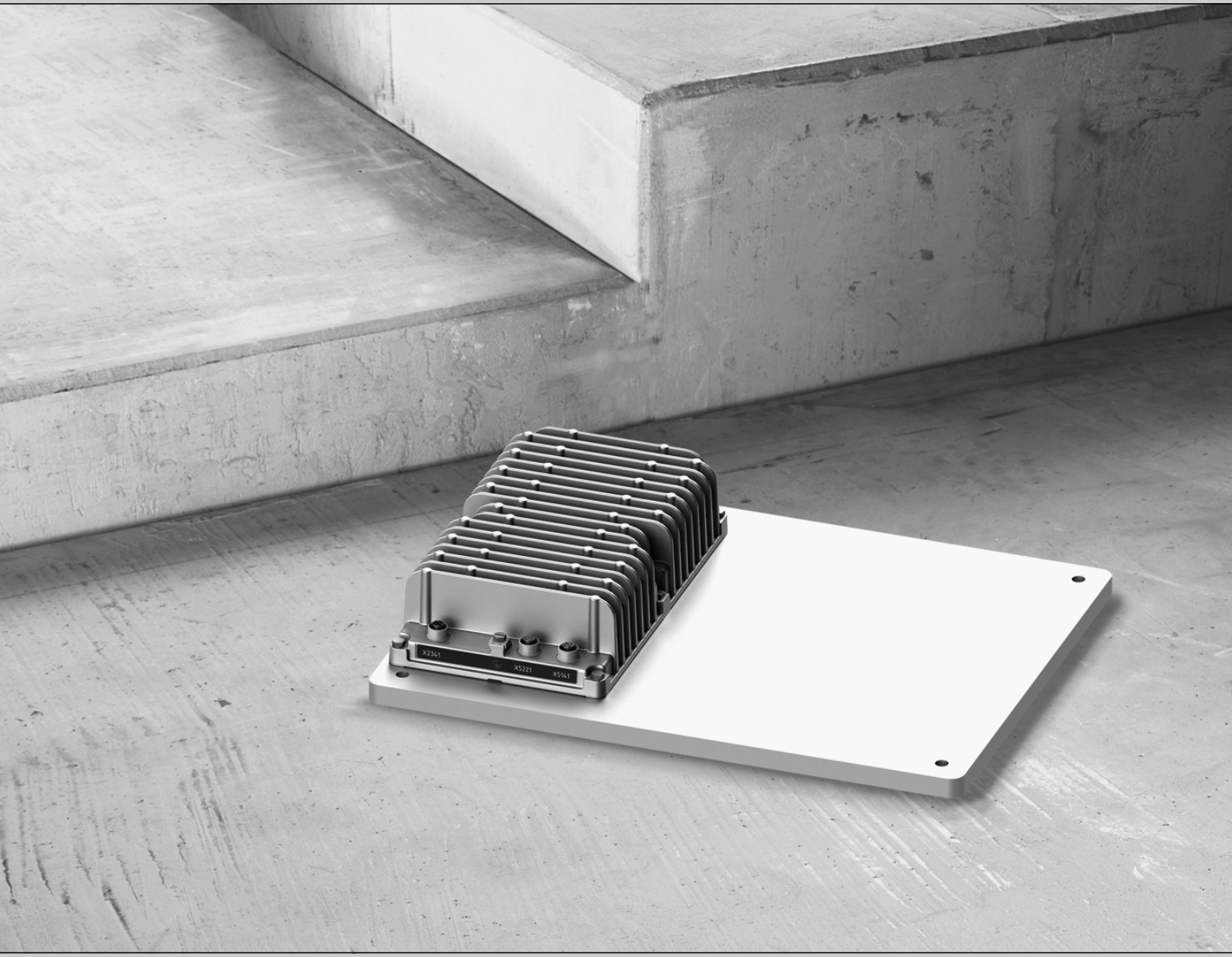
SEW EURODRIVE

Operating Instructions



Contactless Energy Transfer System
MOVITRANS® Pick-Up with Direct Connection TDM90E

Edition 02/2020

29218659/EN

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1 General information

1.1 About this documentation

The documentation at hand is the original.

This documentation is an integral part of the product. The documentation is intended for all employees who perform work on the product.

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

1.2 Other applicable documentation

Observe the corresponding documentation for all further components.

1.3 Structure of the safety notes

1.3.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety notes.

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

1.3.2 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.

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Meaning of the hazard symbols

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

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning about suspended load

1.3.3 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.

1.4 Decimal separator in numerical values

In this document, a period is used to indicate the decimal separator.

Example: 30.5 kg

1.5 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.6 Product names and trademarks

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

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1.7 Copyright notice

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2 Safety notes

2.1 Preliminary information

The following general safety notes serve the purpose of preventing injury to persons and damage to property. They primarily apply to the use of products described in this documentation. If you use additional components, also observe the relevant warning and safety notes.

2.2 Duties of the user

As the user, you must ensure that the basic safety notes are observed and complied with. Make sure 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.

As the user, you must ensure that all of the work listed in the following is carried out only by qualified specialists:

- Setup and installation
- Installation and connection
- Startup
- Maintenance and repairs
- Shutdown
- Disassembly

Ensure that the persons who work on the product pay attention to the following regulations, conditions, documentation, and information:

- National and regional safety and accident prevention regulations
- Warning and safety signs on the product
- All other relevant project planning documents, installation and startup instructions, and wiring diagrams
- Do not assemble, install or operate damaged products
- All system-specific specifications and conditions

Ensure that systems in which the product is installed are equipped with additional monitoring and protection devices. Observe the applicable safety regulations and legislation governing technical work equipment and accident prevention regulations.

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2.3 Designated use

The product is intended for installation in electrical plants or machines.

The product is intended for mobile use in industrial and commercial systems with contactless energy transfer systems.

In case of installation in electrical systems or machines, startup of the product is prohibited until it is determined that the machine meets the requirements stipulated in the local laws and directives. For Europe, Machinery Directive 2006/42/EC as well as the EMC Directive 2014/30/EU apply. Observe EN 60204-1 (Safety of machinery - electrical equipment of machines). The product meets the requirements stipulated in the Low Voltage Directive 2014/35/EU.

The standards given in the declaration of conformity apply to the product.

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

Unintended or improper use of the product may result in severe injury to persons and damage to property.

Only operate the pick-up with direct connection with the designated und suitable consumers, and in combination with the relevant cooling components designated for the system or machine.

2.4 Electromagnetic fields

Observe national installation regulations, such as the DGUV (German Social Accident Insurance) regulation 15 – "Electromagnetic fields" as well as DIN EN 12198-1:2000+A1:2008 during installation, startup, and operation of systems with contactless energy transfer by induction for use in industrial workplaces.

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2.5 Target group

Specialist for mechanical work

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

- Qualification in the mechanical area in accordance with the national regulations
- Familiarity with this documentation

Specialist for electrotechnical work

Any electrotechnical work may be performed only by electrically skilled persons with a suitable education. Electrically skilled persons in the context of this documentation are persons who are familiar with electrical installation, startup, troubleshooting, and maintenance of the product who possess the following qualifications:

- Qualification in the electrotechnical area in accordance with the national regulations
- Familiarity with this documentation

Additional qualification

In addition to that, these persons must be familiar with the valid safety regulations and laws, as well as with the requirements of the standards, directives, and laws specified in this documentation.

The persons must have the express authorization of the company to operate, program, parameterize, label, and ground devices, systems, and circuits in accordance with the standards of safety technology.

Instructed persons

All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately. The purpose of the instruction is to give persons the ability to perform the required tasks and work steps in a safe and correct manner.

2.6 Functional safety technology

The product must not perform any safety functions without a higher-level safety system, unless explicitly allowed by the documentation.

2.7 Transport

Inspect the shipment for damage as soon as you receive the delivery. Inform the shipping company immediately about any damage. If the product is damaged, it must not be assembled, installed or started up.

Observe the following notes when transporting the device:

- Ensure that the product is not subject to mechanical impact.

If necessary, use suitable, sufficiently dimensioned handling equipment.

Observe the information on climatic conditions in chapter "Technical data" of the documentation.

2.8 Installation/assembly

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

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Protect the product from strong mechanical strain. The product and its mounting parts must never protrude into the path of persons or vehicles. Ensure that components are not deformed and insulation spaces are not changed, particularly during transportation and handling. Electric components must not be mechanically damaged or destroyed.

Observe the notes in chapter "Mechanical installation" (→ 18) in the documentation.

2.8.1 Restrictions of use

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

- Use in potentially explosive atmospheres
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, and radiation
- Operation in applications with impermissibly high mechanical vibration and shock loads in excess of the regulations stipulated in EN 60068-2-6 and/or EN 60068-2-27.
- Use at an elevation of more than 2000 m above sea level

2.9 Electrical installation

Ensure that all of the required covers are correctly attached after carrying out the electrical installation.

Make sure that preventive measures and protection devices comply with the applicable regulations (e.g. EN 60204-1 or EN 61800-5-1).

2.9.1 Mobile application

Necessary protective measures for the product are:

- Protective separation DIN VDE 0100-410/IEC 60364-4-41
- ESD protection

2.10 Protective separation

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

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2.11 Startup/operation

Observe the safety notes in chapters Startup and Operation in this documentation.

Make sure that any existing transport protection is removed.

Do not deactivate monitoring and protection devices of the machine or system, even for a test run.

Depending on the degree of protection, products may have live, uninsulated, and sometimes moving or rotating parts, as well as hot surfaces during operation.

When the device is switched on, dangerous voltages are present at all power connections as well as at any connected cables and terminals. This is also the case even if the product is inhibited.

Do not separate the connection to the product during operation. This may result in dangerous electric arcs damaging the product.

If you disconnect the product from the voltage supply, do not touch any live components or power connections because energy storage devices might still be charged.

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3 Device structure

3.1 Type designation

TDM90E	MOVITRANS® mobile pick-up with controlled voltage output	
...	Nominal power:	
	007	700 W
	011	1100 W
-		
D	DC	
35	Output voltage: DC 0 – 355 V depending on the state of charge of the energy storage device	
–		
.	System frequency:	
	A	25 kHz
	B	50 kHz
..	Nominal current line cable:	
	06	60 A
	08	85 A
-		
0	Standard design	

3.2 Scope of delivery

Component
MOVITRANS® pick-up with direct supply TDM90E007-D35-A08-0
or
MOVITRANS® pick-up with direct supply TDM90E011-D35-B06-0

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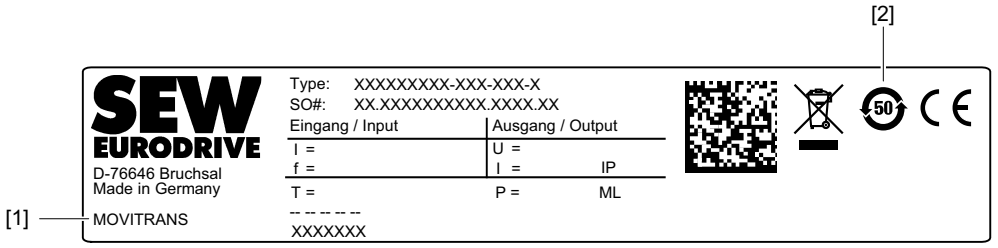
3.3 Short designation

The following short designations are used in this documentation:

Device	Short designation
MOVITRANS® pick-up with direct supply TDM90E007-D35-A08-0 (25 kHz, 85 A)	Device
MOVITRANS® pick-up with direct supply TDM90E011-D35-B06-0 (50 kHz, 60 A)	Device

3.4 Nameplate

The nameplate lists information about the device type. The following figure shows an example of a nameplate:



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[1] Product name
[2] Approval identification

Depending on the device design, the following information is listed on the nameplate:

Value	Specification
Type	Type designation
SO#	Order number
U	Voltage
I	Current
f	Frequency
T	Ambient temperature
P	Nominal power
IP	Degree of protection

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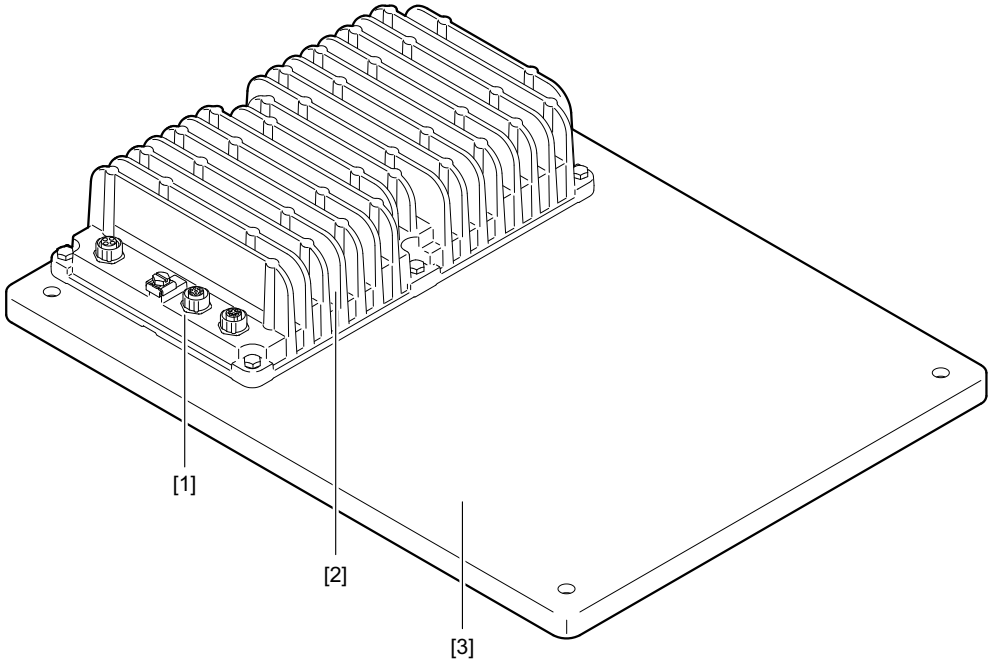
3.5 Device overview

The following figure shows the device structure:



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[1] Connections
[2] Mobile converter
[3] Pick-up

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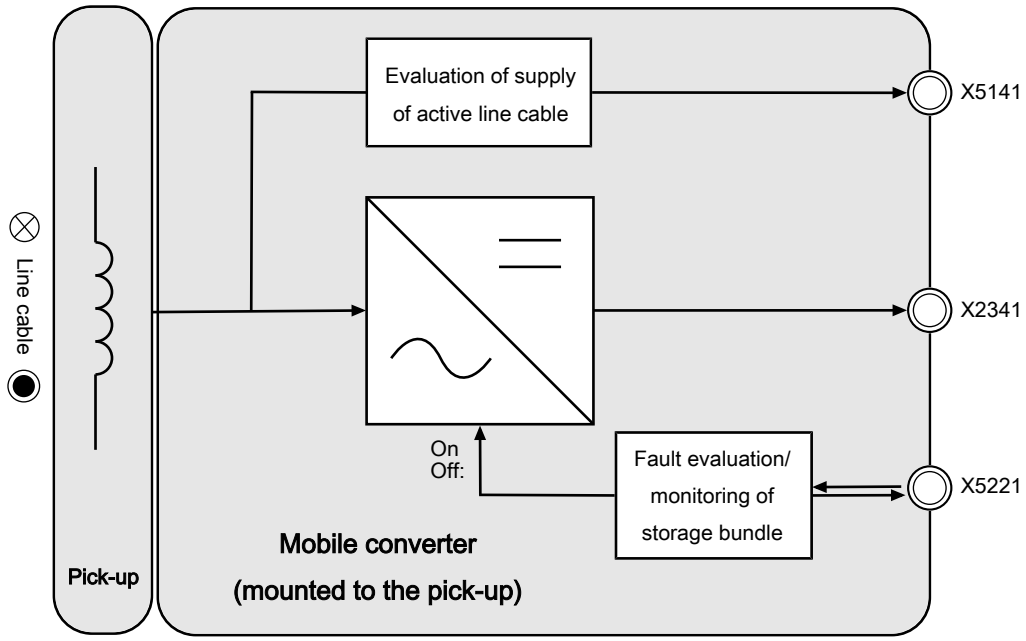
3.6 Functional principle

The block diagram shows the basic structure of the device:



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X2341

If the line cable is energized, the TDM90E pick-up acts as a constant current source. The current is available at the X2341 output. The amount of current depends on the distance between pick-up and line cable. The constant current is used to charge the capacitive energy storage device connected at the X2341 output (MOVI-DPS® storage bundle). The storage bundle supplies the drive system.

The mobile converter monitors the voltage of the storage bundle.

- As soon as the charge voltage has been reached, the current source is switched off.
- If the voltage of the switch-on threshold has been reached, the current source is reactivated.

In case of overvoltage in the mobile converter, the charging process of the storage bundle is permanently canceled by the mobile converter. Restart is only possible if the interlocking has been reset. In the event of an overvoltage error, interlocking is reset by disconnecting the line cable.

In case of overtemperature in the mobile converter, the charging process of the storage bundle is canceled by the mobile converter. After the mobile converter has cooled down, the charging process restarts automatically.

X5141

If the following conditions are met, the mobile converter at the output X5141 sends an operating message of the line cable to the higher-level controller:

- The line cable is energized.
- The output voltage exceeds 60 V.

X5221

After a voltage of 60 V has been reached, the mobile converter at the output X5221 generates a DC voltage that supplies the monitoring assembly in the MOVI-DPS® storage bundle.

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The monitoring assembly reports back the following values to the mobile converter:

- The temperature as analog signal
- Current errors in form of digital signals

In case of overtemperature or overvoltage in the storage bundle, the mobile converter cancels the charging process of the storage bundle. If there are no more error signals at the output X5221, the charging process automatically continues.

The signals at X5221 and X5141 are electrically isolated to each other and to the power output X2341.

For more information on the operation of the TDM90E pick-up with the MOVI-DPS® storage bundle, refer to the product description "TDM90E pick-up with MOVI-DPS® storage bundle" (in preparation).

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4 Mechanical installation

4.1 Requirements

NOTICE

Risk of collision.

Damage to plant and device components.

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

Comply with the following prerequisites:

- Trained specialists perform the installation.
- The information provided in the technical data and the permitted conditions for the operating location of the device are observed.
- The device is only mounted using the intended mounting options.
- The selection and dimensioning of the mounting and locking elements are in line with the applicable standards, the technical data of the devices and the local requirements.
- The bore dimensions are calculated in line with the respective type of fixture. For further information, refer to chapter "Technical data" (→ 🗎 36).
- The mounting and locking elements fit into the existing bores, threads and countersinks.

4.2 Waste heat

Make sure that

- Waste heat can be dissipated at the top of the device
- Sufficient ventilation of the device is ensured (if necessary by active cooling)
- The device is not located in the immediate vicinity of other heat sources

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4.3 Installation

The pick-up is screwed either directly or with a holder to the bottom of the vehicle. The pick-up is fastened with 4 bores with countersinking. SEW-EURODRIVE recommends to fasten the pick-up so that the distance to the line cable can be adjusted.

⚠ WARNING

Risk of crushing if the load falls.

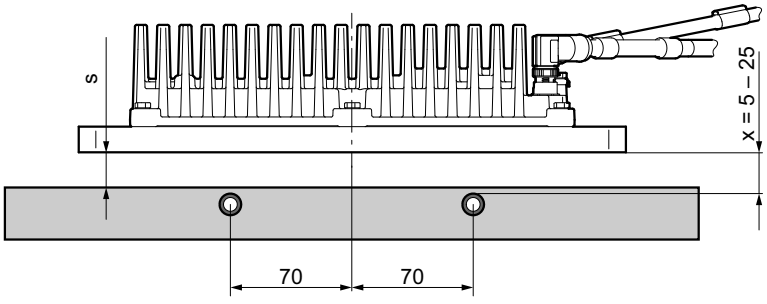
Severe or fatal injuries.

- Do not stand under the load.
- Secure the area where loads can fall down.

1. Ensure that there is enough space left for the cables, see chapter "Cable with angled connector" (→ 🗎 21).
2. ⚠ **CAUTION!** Ejection of parts during acceleration or deceleration of the vehicle. Minor injuries or damage to property. Use 4 cap screws M8 for installation. Use appropriate measures to secure the screws such as liquid threadlocker.
   Attach the device to the bottom of the vehicle.
3. ⚠ **CAUTION!** Metallic objects near the line cable heat up. Minor injuries or damage to property. Install the pick-up in a way that a minimum distance of 5 mm to the line cable is maintained. Make sure there is no protruding screw head.
   Check if the minimum distance is maintained.

The following figure shows the position in operation with the required dimensions in mm:

Line cable TLS10E-025-01-1 or TLS10E-41-01-1 (round design)



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s The ground clearance results from the distance between the line cable and the pick-up minus the line cable cover.

x Distance between the line cable and the pick-up.

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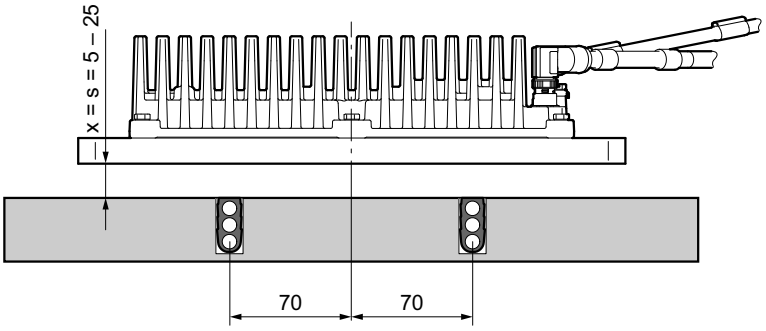
Line cable TLS10K-003-03-1 (wedge-shaped design)



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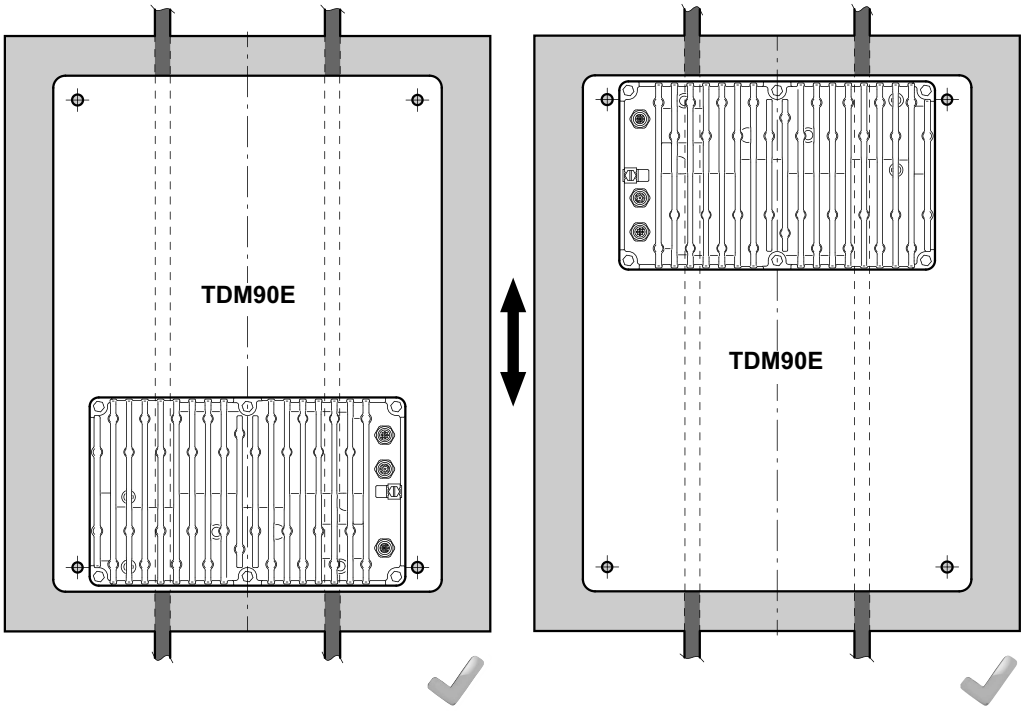
s The ground clearance results from the distance between the line cable and the pick-up.
x Distance between the line cable and the pick-up.

Permitted alignment to line cable



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5 Electrical installation

5.1 Installation notes

Observe the following points for electrical installation:

- Observe the general safety notes.
- Comply with all instructions referring to the technical data and the permissible conditions where the device is operated.

5.2 Cable routing

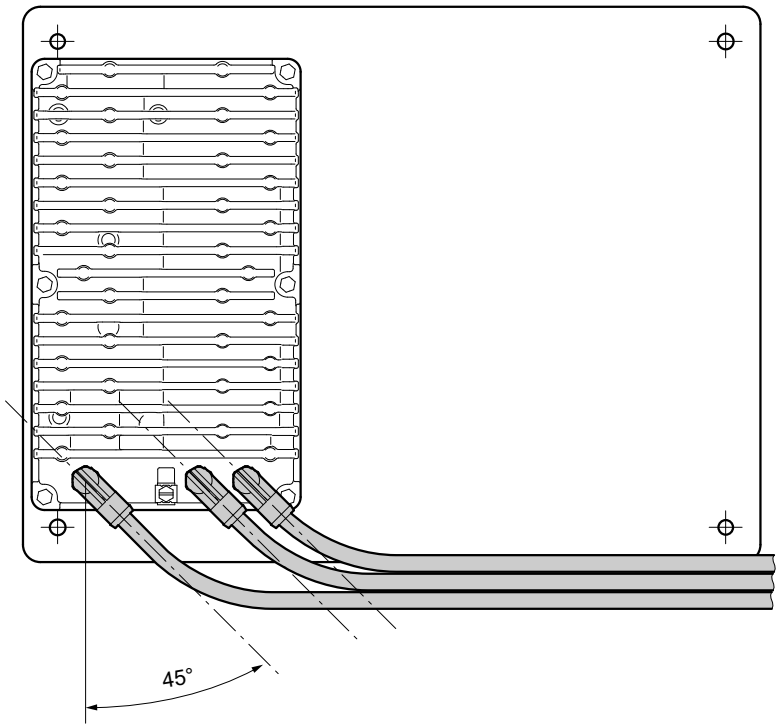
Comply with the following points when installing the cables:

- Route power cables and signal lines in separate cable ducts.
- Maintain the greatest possible distance between power cables and signal lines.
- Avoid using long cables running parallel to one another.
- Route the connection cable with a minimum bending radius of 10 × cable diameter. Also observe the specifications of the connection cables.

5.2.1 Cable with angled connector

Cables with angled connectors lead away from the housing at an angle of 45°. This is due to the installation position of the sockets.

When routing the cables, make sure there is sufficient clearance.



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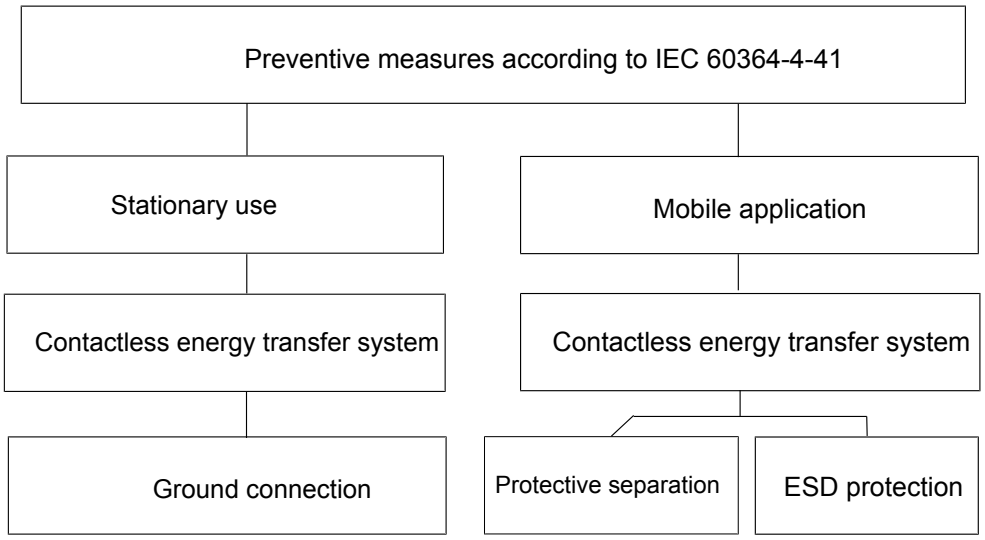
5.3 Protective measures against electrical hazards

5.3.1 Overview



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5.3.2 Installing ground connection or equipotential bonding

⚠ WARNING

Electric shock due to faulty ground connection or equipotential bonding.

Severe or fatal injuries.

- Make sure to install the ground connection and equipotential bonding correctly.

You have to protect all electrical operating resources such as the device or the motor using ground connection or equipotential bonding.

Connection points for mobile applications

For mobile applications, the type of energy transfer determines how you have to apply preventive measure against electrical hazards.

Contactless energy transfer system

The following preventive measures protect mobile systems with contactless energy transfer against electrical hazards:

- Protective separation
- ESD protection

Protective separation

Compliance with the preventive measure "protective separation" in line with VDE 0100 part 410 nominal voltage ≤ 500 V is ensured by the following measures.

All electrical equipment on the mobile part, such as on a vehicle, must be equipotentially bonded to each other. Use the vehicle support frame (vehicle mass) for equipotential bonding.

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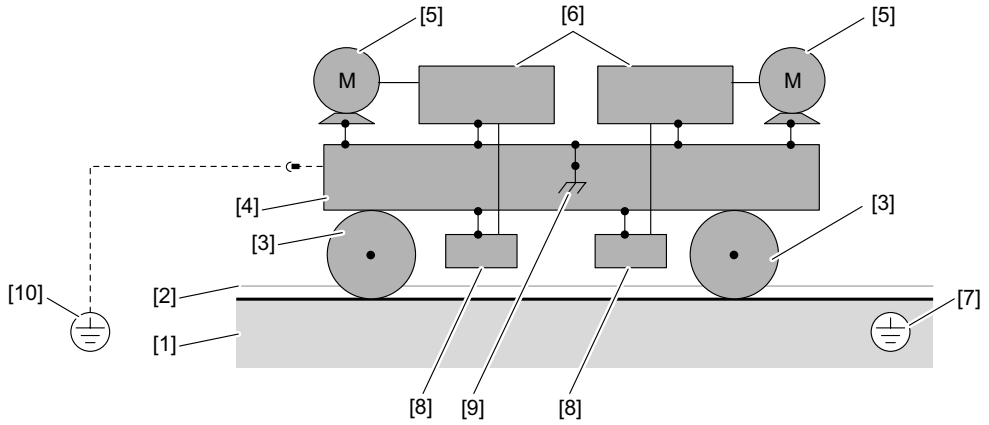
The following figure shows a sample mobile system with contactless energy transfer system:



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[1] Stationary system section
[2] Line cable
[3] Wheels
[4] Vehicle frame
[5] Motor
[6] Drive and application controller
[7] Ground
[8] Pick-ups
[9] Vehicle GND
[10] Temporary ground connection

General information

If it is required in certain production steps, temporary grounding of the vehicle support frame is permitted.

All cables must have double basic insulation. Double insulation is also required for the supply cable of the pick-up. These requirements are always met when using MOVITRANS® components.

Dissipation of electrical charges between vehicle support frame (vehicle mass) and a ground potential (ESD protection) is permitted.

Grounding of mobile systems in areas with "ground connection" as preventive measure does not result in a higher risk potential and is therefore permitted.

Information for operation

For operation in IT systems you have to confirm the following within the context of the cyclic system checks at mobile parts and at the complete system:

- The insulation capacity of the equipment
- The effectiveness of the equipotential bonding

Rule out possible potential transfers on the mobile parts, for example on individual vehicles, by external equipment when planning and operating the systems.

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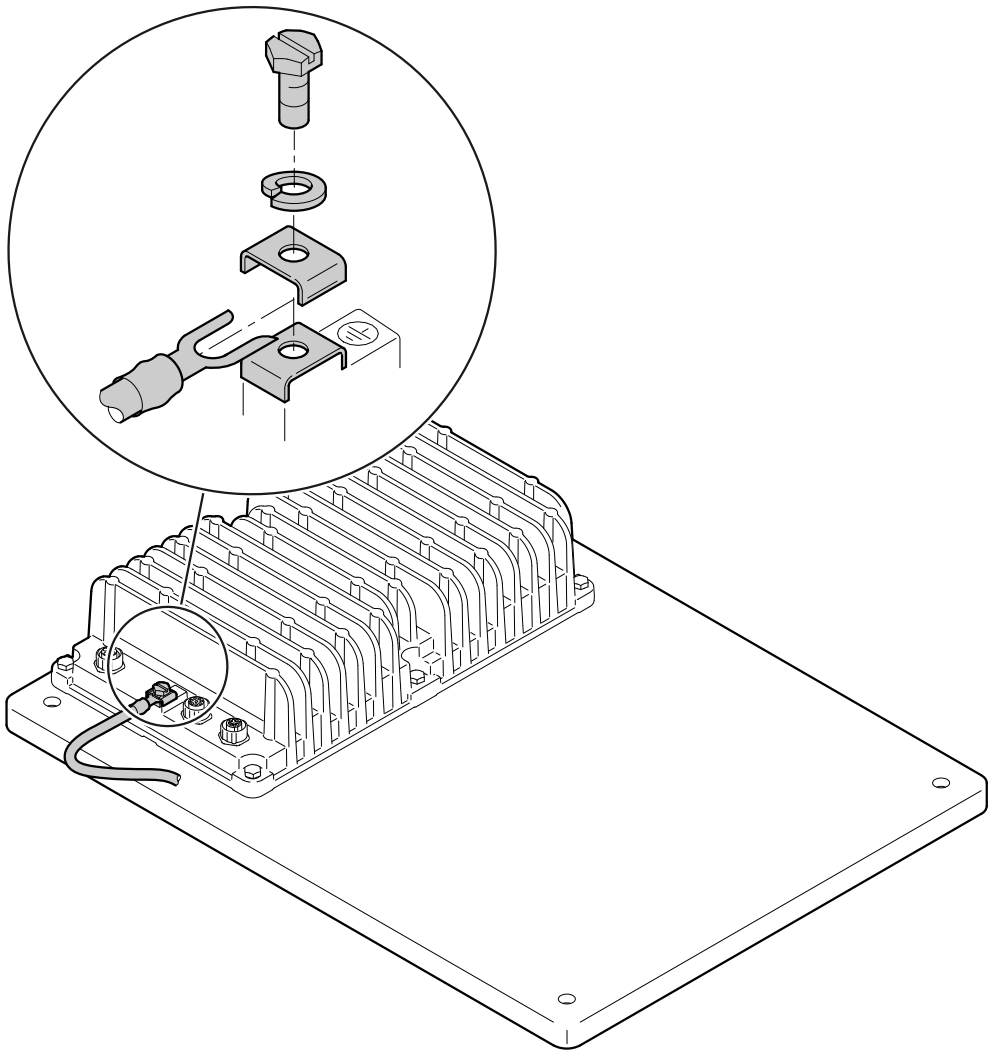
Procedure

The connection point for the equipotential bonding is located on the connection block. The equipotential bonding cable must have a cross section of at least 2.5 mm^2 Cu.

Implement equipotential bonding as follows:

1. Establish low-impedance equipotential bonding between the pick-up and the metallic vehicle support frame (mounting plate) through a cable connection.



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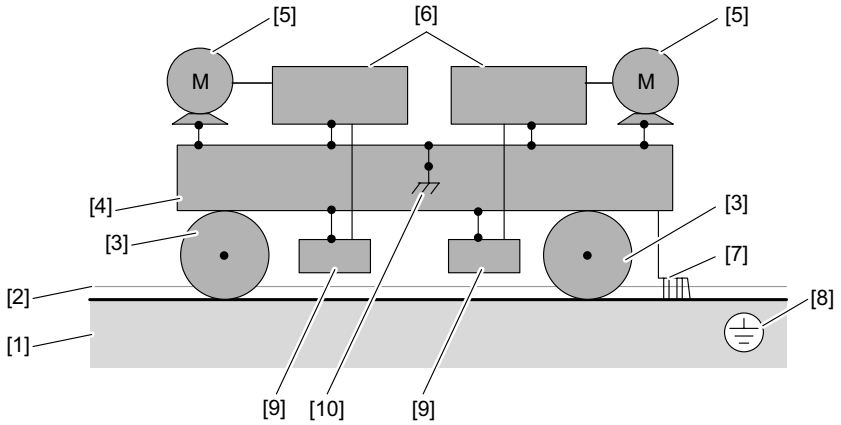
ESD protection

In order to ensure optimal protection against electrostatic discharge (ESD), measures must be taken for all places where non-conductive surfaces rub against one another to ensure that charges are dissipated. This is particularly important for mobile systems such as lifting gears, floor conveyor vehicles, and floor conveyor systems.

You can dissipate charges as follows:

- Via conductive component parts, such as:
  - Combs
  - Brushes
  - Springs
  - Sliders
- With conductive track rollers or wheels
- With conductive floor coverings or work areas

The following figure shows the potential methods for ESD protection:



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[1] Conductive floor coverings or work areas
[2] Line cable
[3] Conductive track rollers or wheels
[4] Vehicle support frame
[5] Motor
[6] Drive and application controllers
[7] Conductive component part
[8] Ground
[9] Pick-ups
[10] Vehicle GND

5.3.3 Cable fuse protection

Protect the connection cable at connection X2341 with a single-pole DC fuse. For information on the design and type of the fuse, refer to chapter "Technical data" (→ 🗎 36).

Insulate the unused wire (2) of the 4-pin connection cable against the vehicle chassis and against wires 1 and 3.

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5.4 Terminal strip

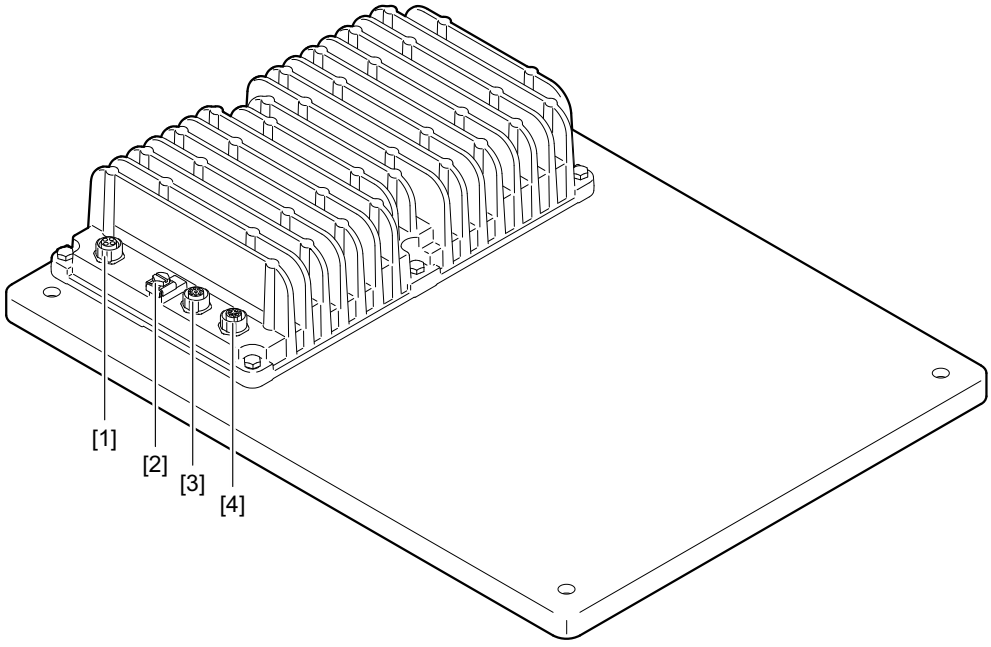
⚠ WARNING

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

Severe or fatal injuries.

- Disconnect all supply voltages.
- Make sure that the device is de-energized.
- Never plug or unplug the plug connectors while they are energized.

The connection designations of your device are specified on the connection block label on the device. Make sure that the latches of the connections engage after you plugged the plug connector into the connections.



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[1] X2341 DC 360 V output
[2] PA Equipotential bonding
[3] X5221 Storage bundle monitoring (galvanically isolated)
[4] X5141 Digital signal output mobile converter (galvanically isolated)

INFORMATION

For mounting the plug connectors to the connections, SEW-EURODRIVE recommends the following assembly tool from PHOENIX CONTACT: Torque screwdriver (part number 1208429) with connector cap (part number 1208432).

5.5 Electrical connections

5.5.1 Representation of connections

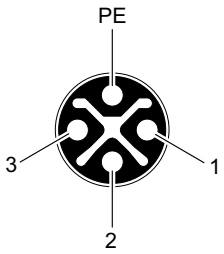
The wiring diagrams show the contact end of the connections.

5.5.2 X2341: DC power output

Function
Charging a double-layer capacitor storage module

Connection type
M12, 4-pin, female, S(ac)-coded

Connection diagram



No.	Name	Function
1	+Uz	energy storage (+) connection
2	n. c.	Not connected
3	-Uz	energy storage (-) connection
PE	PA	Equipotential bonding

Connection cables

Cable	Length/installation type	Component
Custom lengths: 10 m: Part number: 25676830  M12 male ↔ open	Fixed length 	

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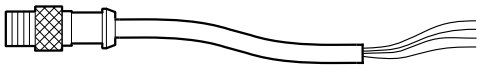
Cable	Length/installation type	Component
Custom lengths: 10 m: Part number: 25676849  M12 male ↔ open	Fixed length 	

Conductor assignment

Part number	Signal name	Core color
25676830 25676849	+Uz	Black/1
	-Uz	Black/3
	PA	Green-yellow

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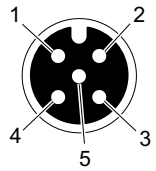
5.5.3 X5141: Digital signal output mobile converter (galvanically isolated)

Function
Digital signal output of the mobile converter (galvanically isolated)

Connection type
M12, 5-pole, female, A-coded

Connection diagram



No.	Name	Function
1	+24V	DC 24 V output
2	res.	Reserved
3	0V24	0V24 reference potential
4	DO_TPM	Digital output mobile converter - Supply status via line cable
5	res.	Reserved

Connection cables

Cable	Length/installation type	Component
Custom lengths: 5 m: Part number: 13286331  M12 male ↔ M12 female	Fixed length 	
Custom lengths: 5 m: Part number: 13281402 10 m: Part number: 25646281  M12 male ↔ Open	Fixed length 	

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Conductor assignment

Part number	Signal name	Core color
13281402	+24V	Shield
	res.	Red
	0V24	Black
	DO_TPM	White
	res.	Blue

Conductor assignment

Part number	Signal name	Core color
25646281	+24V	Brown
	res.	White
	0V24	Blue
	DO_TPM	Black
	res.	Green-yellow

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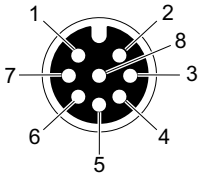
5.5.4 X5221: Storage bundle monitoring (galvanically isolated)

Function
Connection for monitoring the operating state of a MOVI-DPS® storage bundle (galvanically isolated)

Connection type
M12, 8-pole, female, A-coded

Connection image


No.	Name	Function
1	+5V	DC 5 V output
2	ES_DIAG1	Energy storage system – diagnostic signal 1
3	ES_DIAG2	Energy storage system – diagnostic signal 2
4	ES_DIAG3	Energy storage system – diagnostic signal 3
5	0V5	0V5 reference potential
6	ES_DIAG4	Energy storage system – diagnostic signal 4
7	ES_DIAG5	Energy storage system – diagnostic signal 5
8	res.	Reserved

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Connection cables

Cables	Length/installation type	Component
Standard lengths: 1.5 m: Part number 19115881 3 m: Part number 18161103 **Custom lengths:** 1 m: Part number 18161073 2 m: Part number 18161081 4 m: Part number 18161111 5 m: Part number 18161138  M12 male ↔ M12 female	Fixed length 	MOVI-DPS® storage bundle
Custom lengths: 1 m: Part number: 18161146 2 m: Part number: 18161154 3 m: Part number: 18161162 4 m: Part number: 18161170 5 m: Part number: 18161189  M12 male ↔ M12 female	Fixed length 	MOVI-DPS® storage bundle
Custom lengths: 1.5 m: Part number: 25645749  M12 male ↔ M12 female	Fixed length 	MOVI-DPS® storage bundle

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6 Operation

⚠ WARNING

When the device is switched on, dangerous voltages are present at the connectors and at any connected cables and motor terminals. This also applies even when the device is inhibited and the motor is at standstill.

Severe or fatal injuries from electric shock.

- Do not disconnect the device under load.
- Disconnect the device from the voltage supply before you perform any work on the device.

⚠ CAUTION

Risk of burns due to hot surfaces of the device or connected options, e.g. braking resistors.

Injury.

- Provide for covers to secure hot surfaces.
- Install the protection devices according to the regulations.
- Check the protection devices on a regular basis.
- Let the device and the connected options cool down before you start working on them.

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7 Service

7.1 Waste disposal

Dispose of the product and all parts separately in accordance with their material structure and the national regulations. Put the product through a recycling process or contact a specialist waste disposal company. If possible, divide the product into the following categories:

- Iron, steel or cast iron
- Stainless steel
- Magnets
- Aluminum
- Copper
- Electronic parts
- Plastics

The following materials are hazardous to health and the environment. These materials must be collected and disposed of separately.

- Oil and grease

  Collect used oil and grease separately according to type. Ensure that the used oil is not mixed with solvent. Dispose of used oil and grease correctly.
- Screens
- Capacitors

Waste disposal according to WEEE Directive 2012/19/EU

This product and its accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and its accessories according to the national regulations of your country.

For further information, contact the responsible SEW-EURODRIVE branch or an authorized partner of SEW-EURODRIVE.

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8 Technical data

8.1 TDM90E pick-up

The following table shows the technical data of the device:

General		
Ambient temperature	ϑ_U	-25 °C to +40 °C
Climate class		EN 60721-3-3, similar to class 3K3 without condensation
Storage temperature	ϑ_L	-25°C to +75 °C
Degree of protection		IP65
Mass		8.1 kg
Dimensions W × H × D		425 mm × 320 mm × 75 mm
Applicable standards: • EN 61800-5-1: 2017 (with reference to the Low Voltage Directive) • EN 61800-3: 2017 (with reference to the EMC Directive)		

8.1.1 System frequency A

TDM90E007-D35-A08-0

Input		
Nominal current line cable	I_N	AC 85 A
Nominal frequency	f_N	25 kHz

Output		
Output power (x = 15 mm)	P_2	0 – 1050 W, depending on the state of charge
Average output power P_{av}	P_{av}	700 W
Rated output voltage	V_A	DC 0 – 352 V, depending on the state of charge
Overvoltage switch-off	V_{OVP}	DC 375 V
Output current (x = 15 mm)	I_A	DC 3 A
Short-circuit current	I_{short}	< 8 A
Load behavior	DC – current source. The current depends on the state of charge of the energy storage device. If the energy storage device reaches the maximum voltage, hysteresis operation takes place which usually is between 336 V and 352 V.	
Required DC voltage fuse, external	Si	DC 8 A (type SIBA 5019906)
Required minimum load capacity	C_L	10 mF[1)]

1) Use the MOVI-DPS® storage bundle EKV as load capacity. For more information, refer to the product description "TDM90E pick-up with MOVI-DPS® storage bundle".

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8.1.2 System frequency B

TDM90E011-D35-B06-0

Input		
Nominal current line cable	I_N	AC 60 A
Nominal frequency	f_N	50 kHz

Output		
Output power (x = 15 mm)	P_2	0 – 1400 W, depending on the state of charge
Average output power P_{av}	P_{av}	1100 W
Rated output voltage	V_A	DC 0 – 352 V, depending on the state of charge
Overvoltage switch-off	V_{OVP}	DC 375 V
Output current (x = 15 mm)	I_A	DC 4 A
Short-circuit current	I_{short}	< 8 A
Load behavior	DC – current source. The current depends on the state of charge of the energy storage device. If the energy storage device reaches the maximum voltage, hysteresis operation takes place which usually is between 336 V and 352 V.	
Required DC voltage fuse, external	Si	DC 8 A (type SIBA 5019906)
Required minimum load capacity	C_L	10 mF[1)]

1) Use the MOVI-DPS® storage bundle EKV as load capacity. For more information, refer to the product description "TDM90E pick-up with MOVI-DPS® storage bundle".

8.2 Connections

8.2.1 Digital signal output of the mobile converter (galvanically isolated)

X5141				
1	+24V	DC 24 V output	can carry currents up to a maximum of 20 mA (not short-circuit proof)	
4	DO_TPM	Digital output mobile converter - Supply status via line cable	24 V (20 – 26 V) maximum 20 A	• Line cable current feed activated
			0 V	• Line cable current feed off • Output voltage < 60 V

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8.3 Charge characteristic curve and performance data

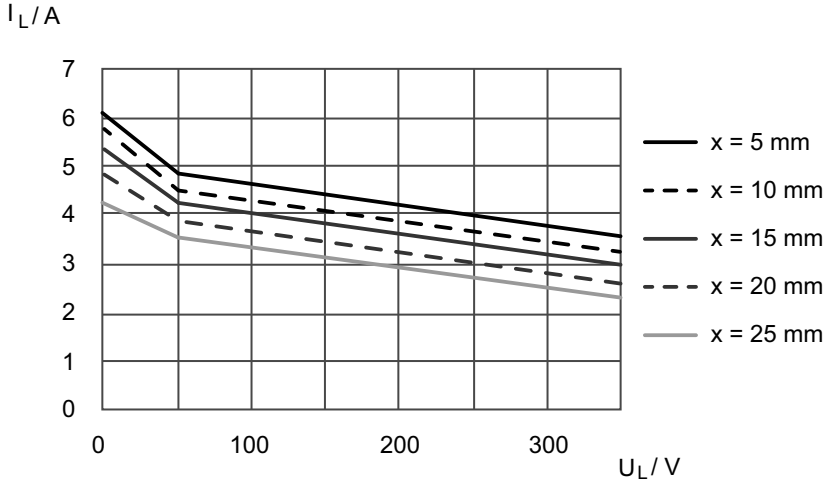
The charge characteristic curve shows the charging current depending on the charging voltage and the distance of the pick-up to the line cable. The characteristic curve is linearized.

The table specifies the peak power P_{max} and the average charging power P_{av} depending on the distance of the pick-up to the line cable. The performance data was determined without iron reinforcement or steel reinforcement in the floor. If the line cable is located directly above the reinforcement in the floor, the performance data is reduced. SEW-EURODRIVE recommends to measure and evaluate the reinforcement of the bottom prior to project planning.

The measured values were determined under the following conditions:

- Lateral offset of maximum ±10 mm (to the centerline) between pick-up and line cable
- No angular offset (parallel alignment)

8.3.1 TDM90E007-D35-A08-0



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I_L Charging current
U_L Charging voltage
x Distance of the pick-up to the line cable, see chapter "Installation" (→ 🗎 19).

x	Peak power P_{max}	Average charging power P_{av}
mm	W	W
25	805	700
20	910	700
15	1050	700
10	1120	700
5	1225	700

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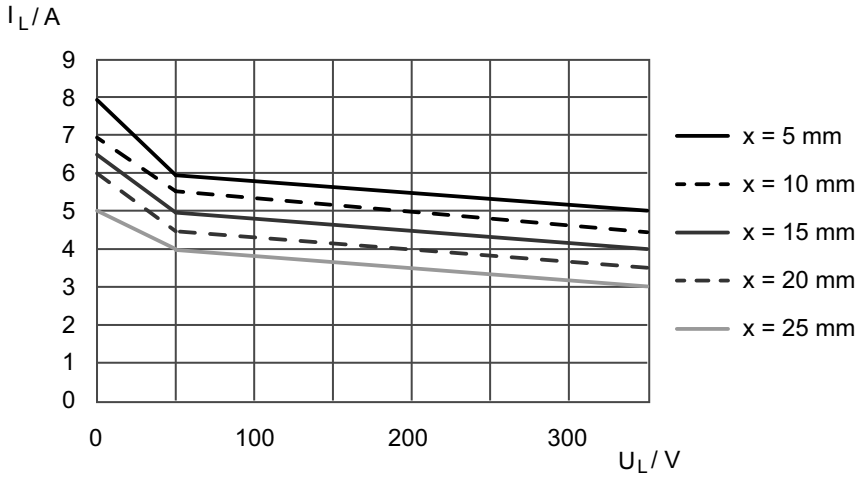
8.3.2 TDM90E011-D35-B06-0



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I_L Charging current
U_L Charging voltage
x Distance of the pick-up to the line cable, see chapter "Installation" (→ 🗎 19).

x	Peak power P_{max}	Average charging power P_{av}
mm	W	W
25	1050	1050
20	1225	1100
15	1400	1100
10	1575	1100
5	1750	1100

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8.4 Charging current with lateral offset/misalignment to the line conductor

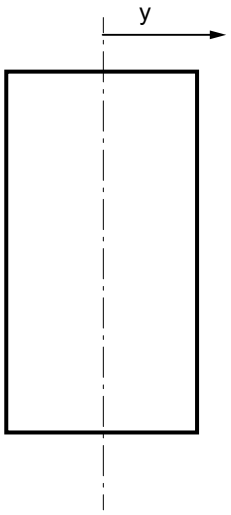
The measured values were determined under the following conditions:

- Measured with TLS025 line cable
- Ambient temperature: 25 °C.
- Values typical, linearized
- Charging current U_L = 350 V

8.4.1 TDM90E007-D35-A08-0

I_L	Charging current	A
x	Distance between pick-up and line cable	mm
y	Lateral offset of pick-up and line cable	mm
α	Torsion angle of pick-up and line cable	Degree

Lateral offset

	y	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	3.5	3.2	3.0	2.6	2.3
	10	3.4	3.1	2.9	2.5	2.2
	20	3.1	2.8	2.6	2.3	2.0
	30	2.6	2.4	2.3	2.0	1.7
	40	2.0	1.8	1.7	1.5	1.3

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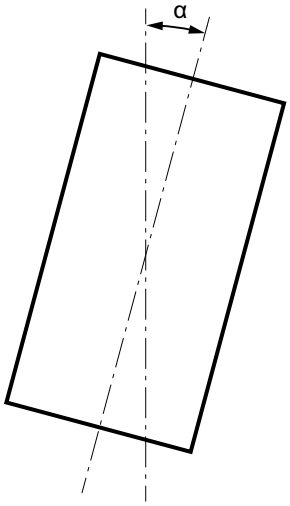
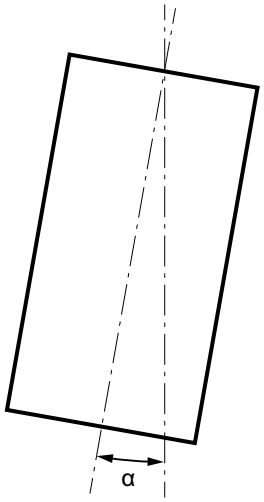
Central torsion

	α	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	3.5	3.2	3.0	2.6	2.3
	5	3.3	3.0	2.9	2.5	2.2
	10	3.2	2.9	2.7	2.3	2.1
	20	2.6	2.4	2.3	2.0	1.7

Unilateral torsion

	α	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	3.5	3.2	3.0	2.6	2.3
	5	3.2	2.9	2.7	2.3	2.1
	10	2.0	1.8	1.7	1.5	1.3
	20	off	off	off	off	off

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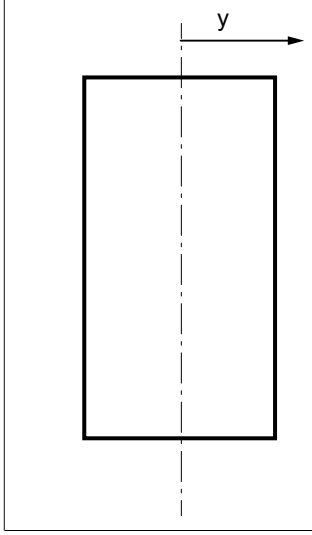
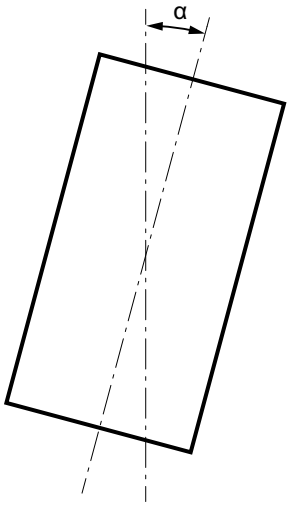
8.4.2 TDM90E011-D35-B06-0

I_L	Charging current	A
x	Distance between pick-up and line cable	mm
y	Lateral offset of pick-up and line cable	mm
α	Torsion angle of pick-up and line cable	Degree

Lateral offset

	y	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	5.0	4.5	4.0	3.5	3.0
	10	4.8	4.3	3.8	3.4	2.9
	20	4.4	4.0	3.5	3.1	2.6
	30	3.8	3.4	3.0	2.6	2.3
	40	2.8	2.5	2.3	2.0	1.7

Central torsion

	α	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	5.0	4.5	4.0	3.5	3.0
	5	4.8	4.3	3.8	3.3	2.9
	10	4.5	4.1	3.6	3.2	2.7
	20	3.8	3.4	3.0	2.6	2.3

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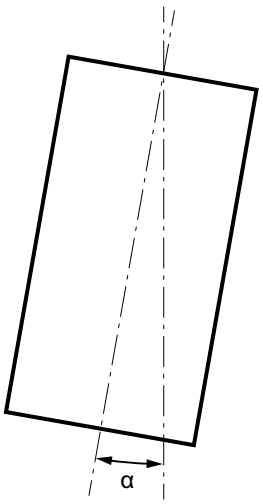
Unilateral torsion

	α	I_L				
		x = 5 mm	x = 10 mm	x = 15 mm	x = 20 mm	x = 25 mm
	0	5.0	4.5	4.0	3.5	3.0
	5	4.5	4.1	3.6	3.2	2.7
	10	2.8	2.5	2.2	2.0	1.7
	20	off	off	off	off	off

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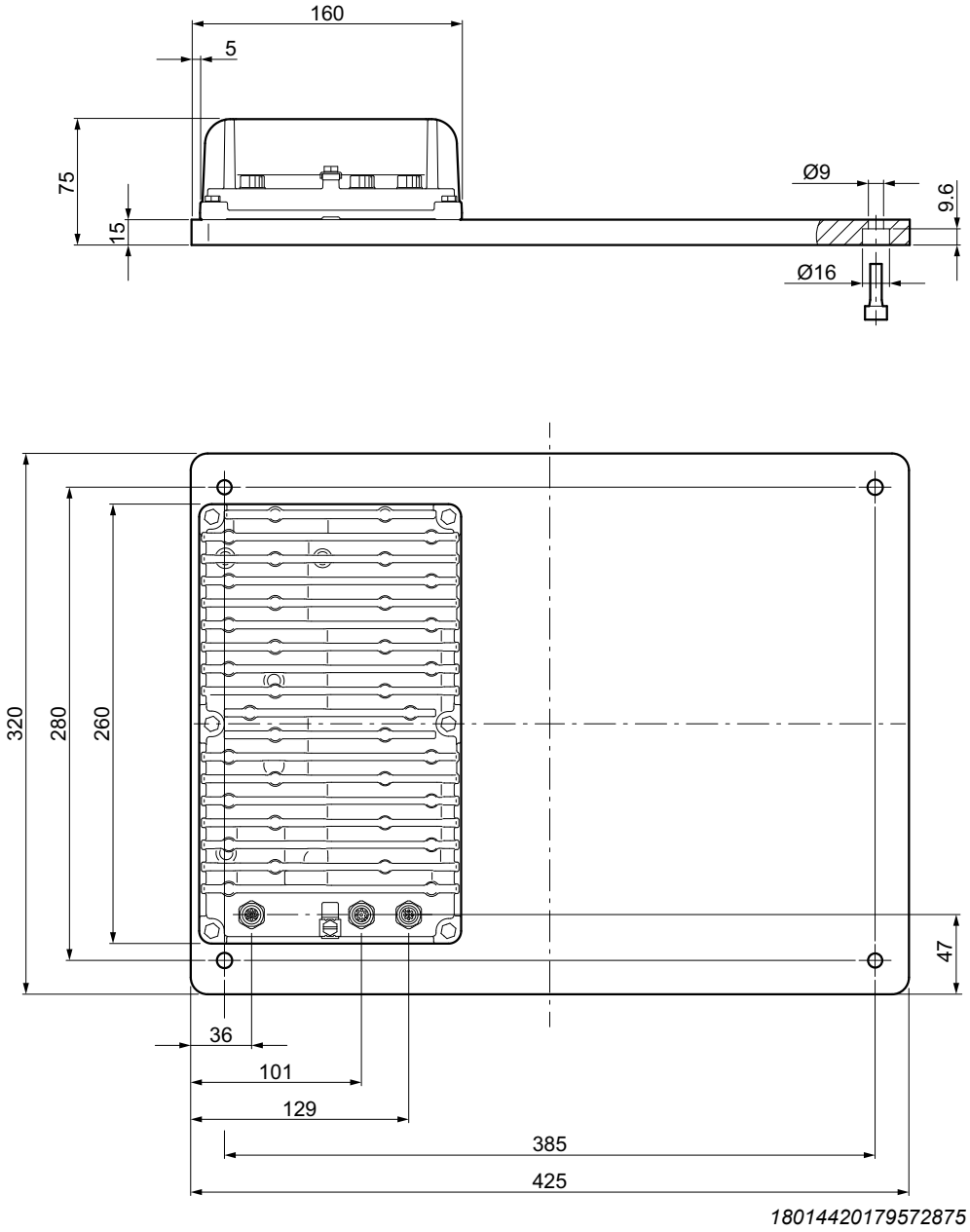
8.5 Dimension drawing

The dimension drawing shows the mechanical dimensions in mm:



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9 Address list

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	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
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Assembly Sales Service	Rio Claro	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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	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. 2001 Ch. de l'Aviation Dorval Quebec H9P 2X6	Tel. +1 514 367-1124 Fax +1 514 367-3677 n.paradis@sew-eurodrive.ca
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	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267922 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
	Taiyuan	SEW-EURODRIVE (Taiyuan) Co,. Ltd. No.3, HuaZhang Street, TaiYuan Economic & Technical Development Zone ShanXi, 030032	Tel. +86-351-7117520 Fax +86-351-7117522 taiyuan@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 84478388 Fax +86 27 84478389 wuhan@sew-eurodrive.cn
	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 68686262 Fax +86 29 68686311 xian@sew-eurodrive.cn
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Sales Service	Zagreb	KOMPEKS d. o. o. Zeleni dol 10 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr
Czech Republic			
Assembly Sales Service	Hostivice	SEW-EURODRIVE CZ s.r.o. Floriánova 2459 253 01 Hostivice	Tel. +420 255 709 601 Fax +420 235 350 613 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
	Drive Service Hotline / 24 Hour Service	+420 800 739 739 (800 SEW SEW)	Service Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz
Denmark			
Assembly Sales Service	Copenhagen	SEW-EURODRIVEA/S Geminivej 28-30 2670 Greve	Tel. +45 43 95 8500 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Service	Vejle	SEW-EURODRIVE A/S Bødkervej 2 7100 Vejle	Tel. +45 43 9585 00 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies Building 10, Block 13005, First Industrial Zone, Obour City Cairo	Tel. +202 44812673 / 79 (7 lines) Fax +202 44812685 http://www.copam-egypt.com copam@copam-egypt.com
Estonia			
Sales	Tallin	ALAS-KUUL AS Loomäe tee 1, Lehmja küla 75306 Rae vald Harjumaa	Tel. +372 6593230 Fax +372 6593231 http://www.alas-kuul.ee veiko.soots@alas-kuul.ee
Finland			
Assembly Sales Service	Hollola	SEW-EURODRIVE OY Vesimäentie 4 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Service	Hollola	SEW-EURODRIVE OY Keskikankaantie 21 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
	Tornio	SEW-EURODRIVE Oy Lossirannankatu 5 95420 Tornio	Tel. +358 201 589 300 Fax +358 3 780 6211 http://www.sew-eurodrive.fi sew@sew.fi
Production Assembly	Karkkila	SEW Industrial Gears Oy Santasalonkatu 6, PL 8 03620 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 http://www.sew-eurodrive.fi sew@sew.fi
France			
Production Sales Service	Hagenau	SEW USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
Production	Forbach	SEW USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00

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France			
	Brumath	SEW USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
Assembly Sales Service	Bordeaux	SEW USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 Fax +33 4 74 99 60 15
	Nantes	SEW USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 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 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Gabon			
Representation: Cameroon			
Germany			
Headquarters Production Sales	Bruchsal	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
	Östringen	SEW-EURODRIVE GmbH & Co KG, Werk Östringen Franz-Gurk-Straße 2 76684 Östringen	Tel. +49 7253 9254-0 Fax +49 7253 9254-90 oestringen@sew-eurodrive.de
Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 dtc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 85551 Kirchheim (München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 dtc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 40764 Langenfeld (Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 dtc-west@sew-eurodrive.de
Drive Center	Berlin	SEW-EURODRIVE GmbH & Co KG Alexander-Meißner-Straße 44 12526 Berlin	Tel. +49 306331131-30 Fax +49 306331131-36 dc-berlin@sew-eurodrive.de
	Hamburg	SEW-EURODRIVE GmbH & Co KG Hasselbinnen 11 22869 Schenefeld	Tel. +49 40 298109-60 Fax +49 40 298109-70 tb-hamburg@sew-eurodrive.de
	Ludwigshafen	SEW-EURODRIVE GmbH & Co KG c/o BASF SE Gebäude W130 Raum 101 67056 Ludwigshafen	Tel. +49 7251 75 3759 Fax +49 7251 75 503759 dc-ludwigshafen@sew-eurodrive.de

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Germany			
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de
	Ulm	SEW-EURODRIVE GmbH & Co KG Dieselstraße 18 89160 Dornstadt	Tel. +49 7348 9885-0 Fax +49 7348 9885-90 dc-ulm@sew-eurodrive.de
	Würzburg	SEW-EURODRIVE GmbH & Co KG Nürnbergerstraße 118 97076 Würzburg-Lengfeld	Tel. +49 931 27886-60 Fax +49 931 27886-66 dc-wuerzburg@sew-eurodrive.de
Drive Service Hotline / 24 Hour Service			0 800 SEWHELP 0 800 7394357
Great Britain			
Assembly Sales Service	Normanton	SEW-EURODRIVE Ltd. DeVilliers Way Trident Park Normanton West Yorkshire WF6 1GX	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk
	Drive Service Hotline / 24 Hour Service		Tel. 01924 896911
Greece			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Hungary			
Sales Service	Budapest	SEW-EURODRIVE Kft. Csillaghegyí út 13. 1037 Budapest	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavík	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
India			
Registered Office Assembly Sales Service	Vadodara	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200 Fax +91 265 3045300 http://www.seweurodriveindia.com salesvadodara@seweurodriveindia.com
Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35 628700 Fax +91 21 35 628715 salespune@seweurodriveindia.com
Sales Service	Gurgaon	SEW-EURODRIVE India Private Limited Drive Center Gurugram Plot no 395, Phase-IV, UdyogVihar Gurugram , 122016 Haryana	Tel. +91 99588 78855 salesgurgaon@seweurodriveindia.com
Indonesia			
Sales	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com

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Indonesia			
	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
	Surabaya	PT. TRIAGRI JAYA ABADI Jl. Sukosemolo No. 63, Galaxi Bumi Permai G6 No. 11 Surabaya 60111	Tel. +62 31 5990128 Fax +62 31 5962666 sales@triagri.co.id http://www.triagri.co.id
	Surabaya	CV. Multi Mas Jl. Raden Saleh 43A Kav. 18 Surabaya 60174	Tel. +62 31 5458589 Fax +62 31 5317220 sianhwa@sby.centrin.net.id http://www.cvmultimas.com
Ireland			
Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie
Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Milan	SEW-EURODRIVE S.a.s. di SEW S.r.l. & Co. Via Bernini,12 20020 Solaro (Milano)	Tel. +39 02 96 980229 Fax +39 02 96 980 999 http://www.sew-eurodrive.it milano@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pêcheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 21 21 81 05 Fax +225 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp
Kazakhstan			
Sales Service	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz
	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz
	Ulaanbaatar	IM Trading LLC Olympic street 28B/3 Sukhbaatar district, Ulaanbaatar 14230, MN	Tel. +976-77109997 Fax +976-77109997 imt@imt.mn
Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C 1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com

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Lebanon			
Sales (Lebanon)	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales (Jordan, Kuwait , Saudi Arabia, Syria)	Beirut	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 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C 63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.irseva.lt irmantas@irseva.lt
Luxembourg			
Representation: Belgium			
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Mexico			
Assembly Sales Service	Quéretaro	SEW-EURODRIVE MEXICO S.A. de C.V. SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Querétaro, México	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Sales Service	Puebla	SEW-EURODRIVE MEXICO S.A. de C.V. Calzada Zavaleta No. 3922 Piso 2 Local 6 Col. Santa Cruz Buenavista C.P. 72154 Puebla, México	Tel. +52 (222) 221 248 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Mongolia			
Technical Office	Ulaanbaatar	IM Trading LLC Olympic street 28B/3 Sukhbaatar district, Ulaanbaatar 14230, MN	Tel. +976-77109997 Tel. +976-99070395 Fax +976-77109997 http://imt.mn/ imt@imt.mn
Morocco			
Sales Service Assembly	Bouskoura	SEW-EURODRIVE Morocco SARL Parc Industriel CFCIM, Lot. 55/59 27182 Bouskoura Grand Casablanca	Tel. +212 522 88 85 00 Fax +212 522 88 84 50 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB MINING & INDUSTRIAL SUPPLIES CC Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam Postbus 10085 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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New Zealand			
Assembly Sales Service	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	Greenpeg Nig. Ltd Plot 296A, Adeyemo Akapo Str. Omole GRA Ikeja Lagos-Nigeria	Tel. +234-701-821-9200-1 http://www.greenpegltd.com bolaji.adekunle@greenpegltd.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 seweurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L De la Victoria 112, Esquina nueva Asunción Departamento Central Fernando de la Mora, Barrio Bernardino	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com
Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt
Romania			
Sales Service	Bucharest	Sialco Trading SRL str. Brazilia nr. 36 011783 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

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Russia			
Assembly Sales Service	St. Petersburg	ЗАО «СЕВ-ЕВРОДРАЙФ» 188660, Russia, Leningrad Region, Vsevolozhsky District, Korabselki, Aleksandra Nevskogo str. building 4, block 1 P.O. Box 36 195220 St. Petersburg	Tel. +7 812 3332522 / +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor 11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs
Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bernolákovo	SEW-Eurodrive SK s.r.o. Priemyselná ulica 6267/7 900 27 Bernolákovo	Tel.+421 2 33595 202, 217, 201 Fax +421 2 33595 200 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net
South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 248-7289 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za
South Korea			
Assembly Sales Service	Ansan	SEW-EURODRIVE KOREA CO., LTD. 7, Dangjaengi-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-eurodrive.kr master.korea@sew-eurodrive.com

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South Korea			
	Busan	SEW-EURODRIVE KOREA CO., LTD. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230
Spain			
Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
Sri Lanka			
Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
Swaziland			
Sales	Manzini	C G Trading Co. (Pty) Ltd Simunye street Matsapha, Manzini	Tel. +268 7602 0790 Fax +268 2 518 5033 charles@cgtrading.co.sz www.cgtradingswaziland.com
Sweden			
Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 553 03 Jönköping Box 3100 S-550 03 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
Switzerland			
Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
Taiwan			
Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
Tanzania			
Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz info@sew.co.tz
Thailand			
Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Tunisia			
Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn
Turkey			
Assembly Sales Service	Kocaeli-Gebze	SEW-EURODRIVE Ana Merkez Gebze Organize Sanayi Böl. 400 Sok No. 401 41480 Gebze Kocaeli	Tel. +90 262 9991000 04 Fax +90 262 9991009 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr

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Ukraine			
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United Arab Emirates			
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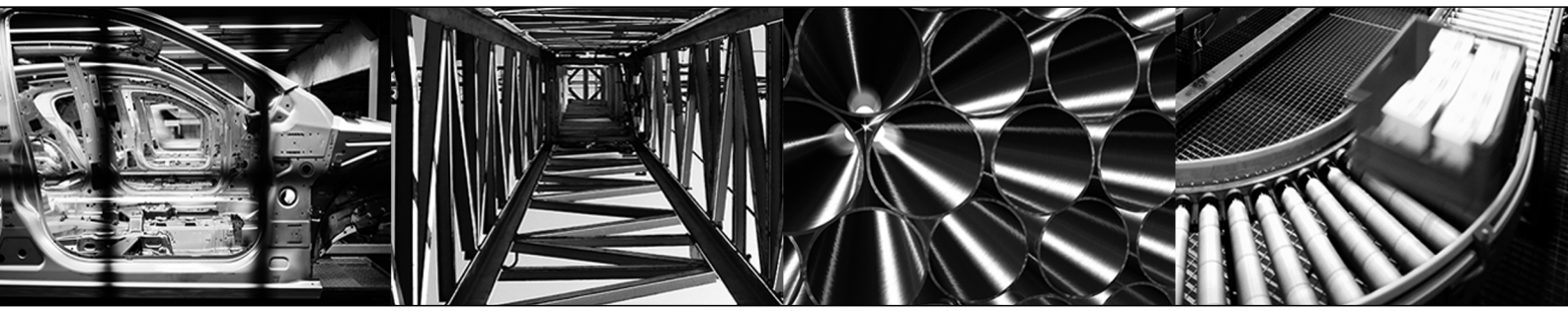

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