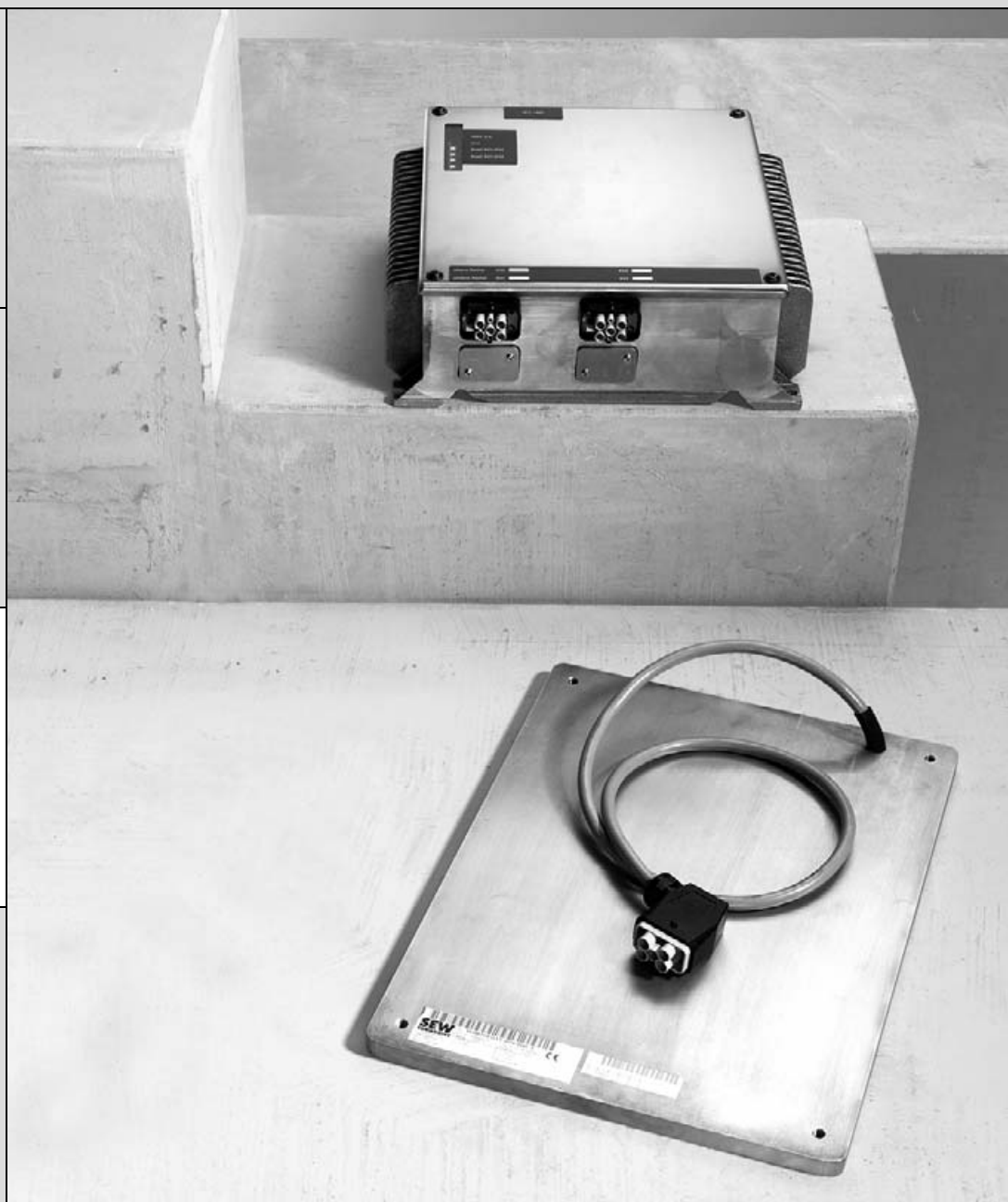
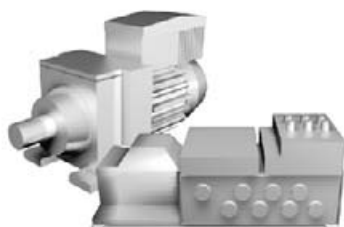




**SEW**  
**EURODRIVE**



# Mobile Energy Supply **MOVITRANS<sup>®</sup> TPM12B Mobile Converter**

GC430000

Edition 06/2005

11361212 / EN

## Operating Instructions





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## 1 Important Notes

### *Safety and warning notes*

Always observe the safety and warning instructions contained in this publication!



#### **Hazard**

Possible consequences: Severe or fatal injuries.



#### **Hazardous situation**

Possible consequences: Slight or minor injuries.



#### **Harmful situation**

Possible consequences: Damage to the drive and the environment.



Tips and useful information.



**A requirement of fault-free operation** and fulfillment of any rights to claim under guarantee is that you adhere to the information in the **operating instructions**. **Read the operating instructions** before you start operating the unit!

The **operating instructions** contain **important information about service** and should be kept **in the vicinity of the unit**.

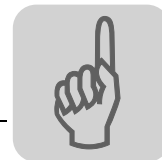
### *Designated use*



MOVITRANS® TPM12B mobile converters are intended for use in industrial and commercial systems for the operation of contactless energy transfer lines. Only connect suitable pick-ups and consumers, such as inverters, to the mobile converters.

MOVITRANS® TPM12B converters are units for mobile applications. Observe all instructions on the technical data and the permitted conditions where the unit is operated.

Do not start up the unit (take it into operation in the designated fashion) until you have established that the machine complies with the EMC Directive 89/336/EEC and that the conformity of the end product has been determined in accordance with the Machinery Directive 89/392/EEC (with reference to EN 60204).

**Operational environment**

The following uses are forbidden unless measures are expressly taken to make them possible:

- Use in explosion-proof areas
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.

**Waste disposal**

Please follow the latest instructions: Dispose of the following materials in accordance with the regulations in force:

- Electronics scrap (circuit boards)
  - Aluminum (housing)
  - Sheet metal
  - Copper
- etc.



## 2 Safety Notes

### Installation and startup

- **Never install damaged products or take them into operation.** Submit a complaint to the shipping company immediately in the event of damage.
- **Installation, startup and service work** to be executed by **trained personnel** only observing applicable accident prevention guidelines and the regulations in force (e.g. EN 60204, VBG 4, DIN-VDE 0100/0113/0160).
- Follow the **specific instructions** during **installation** and **startup** of the other components!



- Ensure that **preventive measures** and **protection devices** apply with the **applicable regulations** (e.g. EN 60204 or EN 50178).
- **The unit meets all requirements for safe disconnection** of power and electronics connections in accordance with EN 50178. **All connected circuits** must also **satisfy the requirements for safe disconnection**.
- Take **appropriate measures** (for example, connect binary input "ENABLE" to 0V24) to ensure that the system does not start up unintentionally **when power is switched on**.

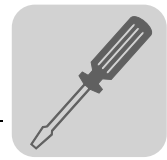
### Operation and service



- **Turn off the power supply before removing the cover** and **disconnect the unit from the pick-ups and the connected consumers**. **Dangerous voltages** may still be present for up to **10 minutes after disconnection**.
- The unit has **IP00** enclosure when **the cover is removed**. **Dangerous voltages** are present in all subassemblies. During operation, the unit must be closed or located in a closed control cabinet.
- When the **unit is switched on**, **dangerous voltages** are present at the **output terminals** as well as any **connected cables and terminals**. These voltages may be present even if the unit is inhibited.
- Even though the **operation LED and other display elements** have gone out, this **does not mean** that the unit has been disconnected from the power supply and is **de-energized**.



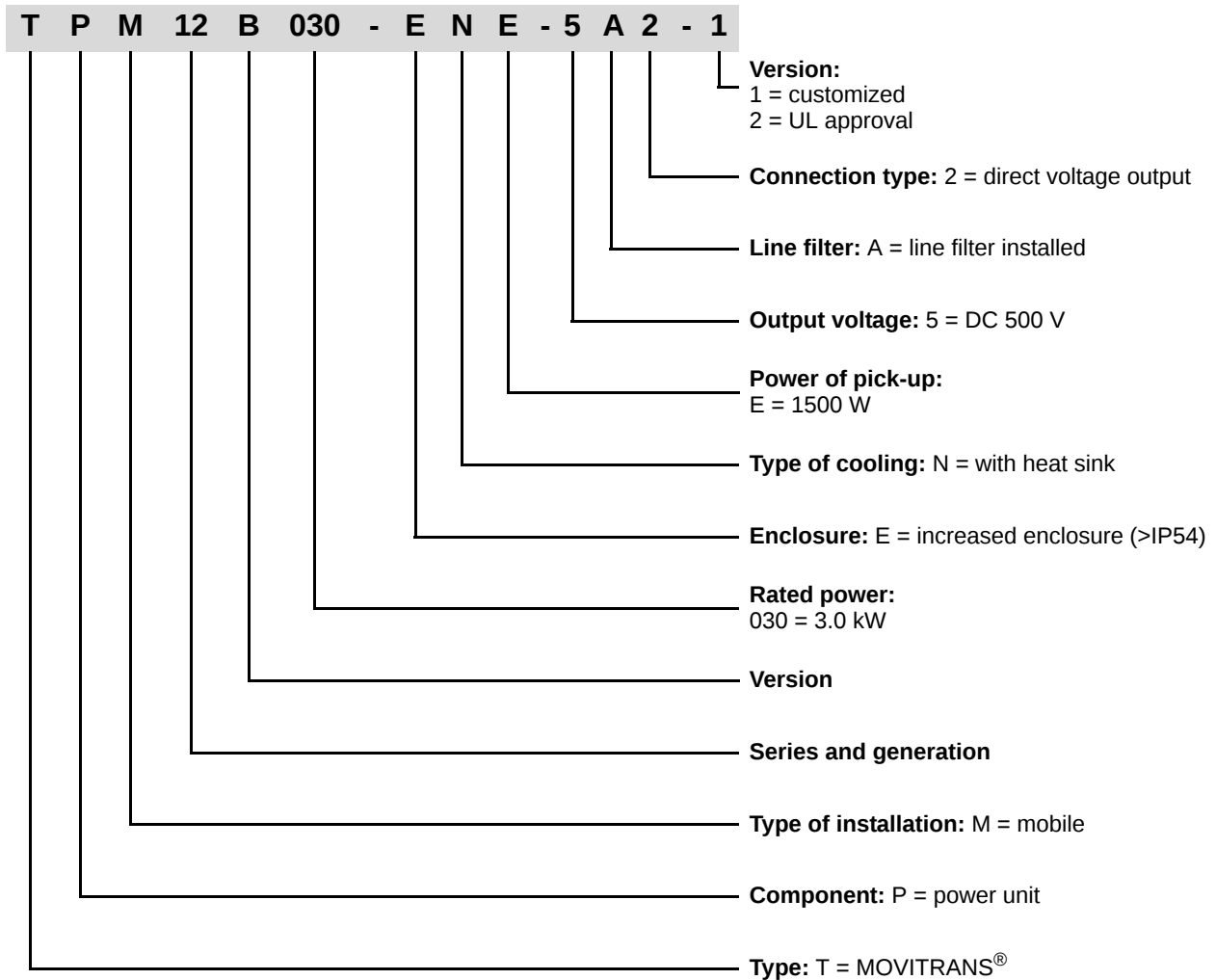
- **Safety functions within the unit** may cause **system standstill**. **Removing the source of the malfunction** or performing a **reset** can result in an **automatic restart of the system**. If, for safety reasons, this is **not permitted**, the **unit must be disconnected from the power supply** before correcting the problem.



### 3 Installation

#### 3.1 Unit designation, nameplates and scope of delivery

##### Sample unit designation





## Installation

### Unit designation, nameplates and scope of delivery

**Example:  
Nameplate  
TPM12B030**

The nameplate is attached to the side of the unit.



Figure 1: MOVITRANS® TPM12B030 nameplate (example)

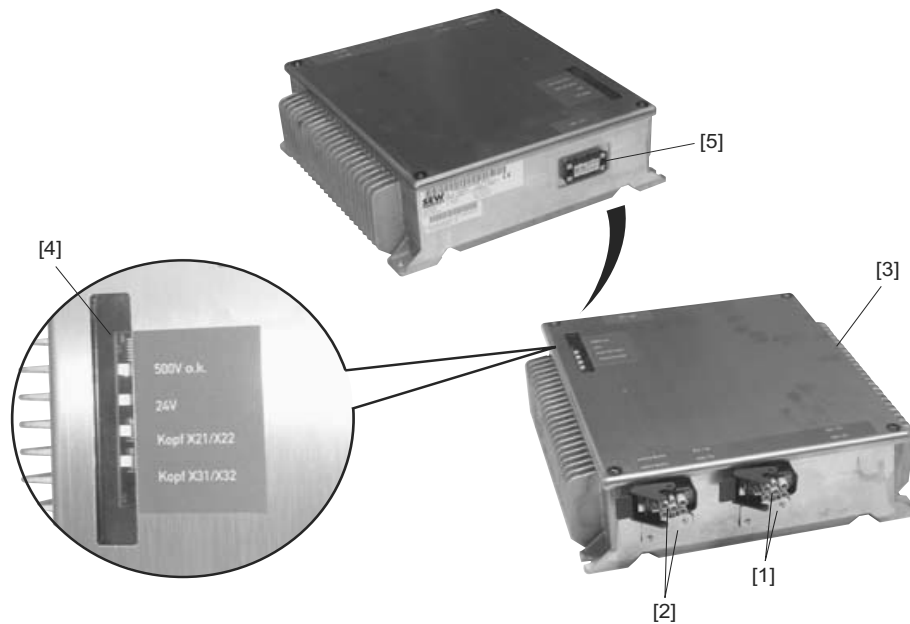
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**Scope of delivery**

The MOVITRANS® TPM12B030 mobile converter is designed for the connection of a suitable pick-up.



### 3.2 TPM12B030 unit design



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Figure 2: MOVITRANS® TPM12B030 unit design

- [1] X22: Power supply 1
- [2] X32: Power supply 2
- [3] Heat sink
- [4] Four operation LEDs to display the operating status
- [5] X11: 2-pole voltage output (DC 500 V), control inputs and outputs



Terminals X21 and X31 are not available with TPM12B030.



### 3.3 Installation notes



Comply with the safety notes during installation.

*Assembly instructions, heat dissipation*

- For optimum cooling results, install the unit so that the natural convection is in the direction of the cooling fins. Ensure unhindered flow of cool air to unit and removal of hot air from unit via cooling fins. For ambient temperature ratings, refer to section "Technical Data."

*Separate cable ducts*

- **Route power cables and electronics cables in separate cable ducts.**

*Cross sections*

- Pick-up cable: Select cable cross section according to the input current  $I_E$  and input frequency  $f_E$ .
- Inverter supply cable: **Cross section according to DC link current  $I_Z$ .**
- Electronics cables: 0.20...1.5 mm<sup>2</sup> (AWG24...16)

*Unit input*

- Only connect **pick-ups approved by SEW-EURODRIVE.**

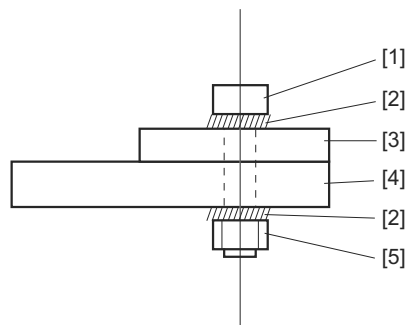
*Unit output*

- Only connect **approved devices**, e. g. inverters (note polarity).
- Use a **shielded output line** and connect the shield at both sides on the ground contact over a large surface area.
- If a low-resistance short circuit occurs when an output voltage is present, this results in very high discharge currents that could cause irreparable damage to the unit. If the unit is connected to a system that already has a short circuit, the current is limited to a value of < 15 A.



### Equipotential bonding

- Local equipotential bonding must be established between the individual mobile electrical units so that excessive contact voltage cannot occur in the event of a fault.
- You have to establish low-impedance equipotential bonding between the TPM12B mobile converter and the metallic mounting surface (frame) on at least one of the TPM12B mounting rests by installing a screw connection with a tooth lock washer on either side (→ following illustration).



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Figure 3: Low-impedance equipotential bonding through screw connection with tooth lock washer on either side

- [1] Screw
- [2] Tooth lock washer
- [3] TPM12B mounting rest
- [4] Mounting surface (sheet metal or frame)
- [5] Nuts

### Binary inputs / binary outputs

- **Binary inputs** are **electrically isolated** by optocouplers. **Binary outputs** are **short-circuit proof** but **not protected against external voltage**. External voltages can cause irreparable damage!

### Shielding and earthing

- The **control cables** must **be shielded**.
- **Connect the shield** by the shortest possible route and make sure it is **earthed over a wide area at both ends**. To avoid ground loops, it is possible to earth one end of the shield via a suppression capacitor (220 nF / 50 V). If using double-shielded cables, earth the outer shield on the unit end and the inner shield on the other end.
- You can also route the cables in grounded sheet metal ducts or metal tubes for shielding purposes. Install the power and signal lines separately.
- Ensure high-frequency compatibility when connecting **MOVITRANS®** and **all additional devices to the reference potential of the mobile unit** (wide area, metallic contact of the unit housing with the non-coated metallic housing of the mobile unit or the non-coated back of the control cabinet).



### 3.4 Wiring diagram

Connect the unit as follows:

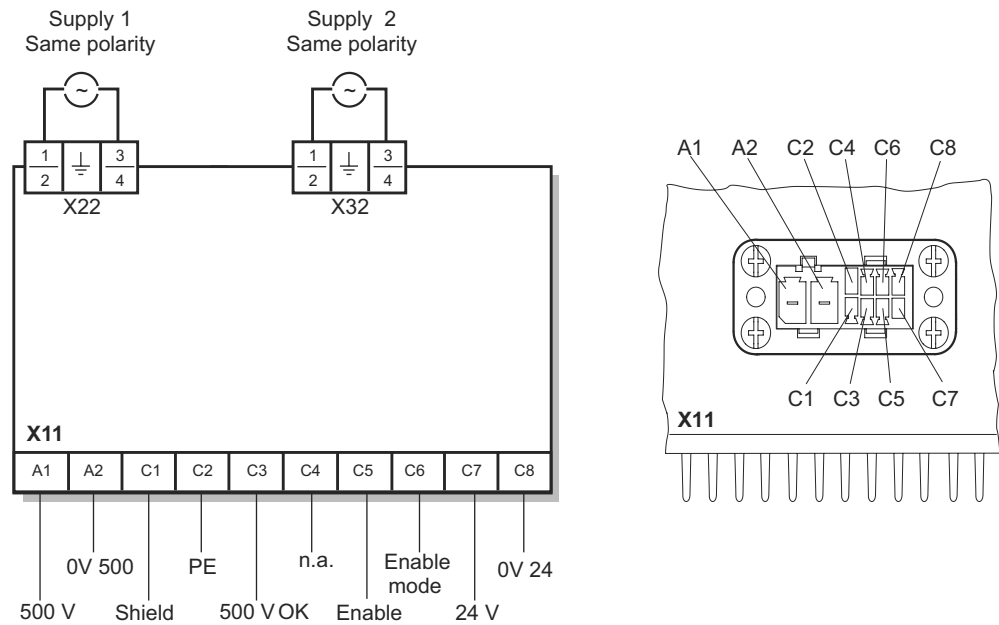
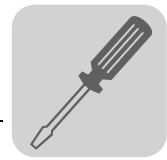


Figure 4: Wiring diagram for MOVITRANS® TPM12B030 (left); arrangement of contacts on connector X11 viewed from outside of unit, heat sink on bottom (right) 54793CEN

Terminal  
assignments for  
X22 and X32

The 2 pick-ups are connected to TPM12B030 at X22 and X32.

| Terminal |                | TPM12B030...          | Cable no. | TPM12B030... | Cable no. |
|----------|----------------|-----------------------|-----------|--------------|-----------|
| X22: 1   | Power supply 1 | Pick-up 1             | Pole 1    | Pick-up 1    | Pole 1    |
| X22: 2   |                | Pick-up 1             | Pole 1    | -            | -         |
| X22: 3   |                | Pick-up 1             | Pole 2    | Pick-up 1    | Pole 2    |
| X22: 4   |                | Pick-up 1             | Pole 2    | -            | -         |
| X22: ⊥   |                | Equipotential bonding | -         | -            | -         |
| X32: 1   | Power supply 2 | Pick-up 2             | Pole 1    | Pick-up 2    | Pole 1    |
| X32: 2   |                | Pick-up 2             | Pole 1    | -            | -         |
| X32: 3   |                | Pick-up 2             | Pole 2    | Pick-up 2    | Pole 2    |
| X32: 4   |                | Pick-up 2             | Pole 2    | -            | -         |
| X32: ⊥   |                | Equipotential bonding | -         | -            | -         |



Terminal  
assignment for X11

| Terminal                                           |                                | Function                                                                                                                                                                                                                                                                     |
|----------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| X11.A1: +U <sub>z</sub><br>X11.A2: -U <sub>z</sub> | 500 V<br>0V500                 | DC 500 V output voltage<br>Reference potential for the DC 500 V output voltage                                                                                                                                                                                               |
| X11: C1, C2<br>X11: C3<br>X11: C4<br>X11: C5       | PE<br>500V OK<br>n/a<br>Enable | Equipotential bonding for line and shield<br>Binary output 500V OK, "1" signal, if DC 500 V output voltage present.<br>Not assigned<br>Binary input enable (for DC 500 V output voltage only):<br>"0" signal = DC 0 V output voltage<br>"1" signal = DC 500 V output voltage |
| X11: C6                                            | Enable mode                    | Binary input enable mode (for DC 500 V output voltage only):<br>"0" signal = delayed enable (ramp)<br>"1" signal = instantaneous enable                                                                                                                                      |
| X11: C7<br>X11: C8                                 | 24 V<br>0V24                   | DC+24 V voltage output (max. DC 2 A)<br>Reference potential for 24 V binary signals                                                                                                                                                                                          |



Terminals **X11:C5 "Enable"** and **X11:C6 "Enable mode"** only affect the **DC 500 V output voltage**. The DC 24 V voltage output X11:C7 is not affected.



## Installation

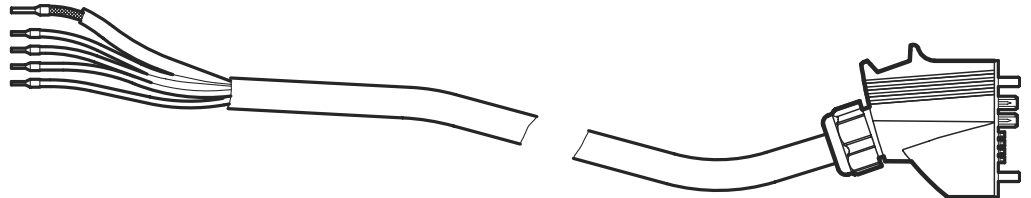
### Connection via hybrid cable

#### 3.5 Connection via hybrid cable

##### Prefabricated hybrid cable

SEW-EURODRIVE GmbH & Co. KG offers a prefabricated hybrid cable for connection to this plug connector. All leads are enclosed in one jacket.

One cable end is fitted with a plug connector for connection to the MOVITRANS® TPM12B mobile converter. The other cable end is open and fitted with wire end sleeves. The cables are available in half-meter lengths from 1 m to 7.5 m.

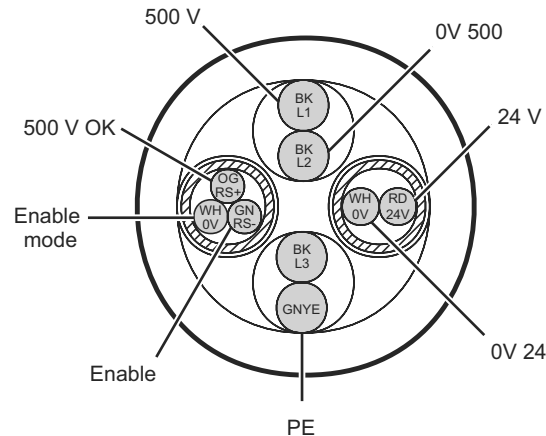


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Figure 5: Prefabricated hybrid cable

##### Cable cross section

The following illustration shows the cross section of the open cable end:



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Figure 6: Cross section of the prefabricated hybrid cable

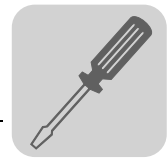
##### Assignment

The table shows the assignment of the strands:

| Designation   | MOVITRANS® TPM                                     | Hybrid cable |
|---------------|----------------------------------------------------|--------------|
| 500V<br>0V500 | X11.A1: +U <sub>z</sub><br>X11.A2: -U <sub>z</sub> | L1<br>L2     |
| PE            | X11: C1                                            | Shielding    |
| PE            | X11: C2                                            | GNYE         |
| 500V OK       | X11: C3                                            | OG           |
| n. a.         | X11: C4                                            | -            |
| Enable        | X11: C5                                            | GN           |
| Enable mode   | X11: C6                                            | WH           |
| 24V           | X11: C7                                            | RD           |
| 0V24          | X11: C8                                            | WH           |



- Strand **L3** of the hybrid cable **must not be connected**.
- Terminals **X11:C5 "Enable"** and **X11:C6 "Enable mode"** only affect the **DC 500 V output voltage**. The DC 24 V voltage output X11:C7 is not affected.



### 3.6 Installing the pick-ups



- Observe the safety instructions!
- Switch off the power supply. Before you remove the protective cover, disconnect the mobile converter from the pick-ups and the other consumers connected. **Dangerous voltages may still be present for up to 10 minutes after disconnection.**

#### Number of pick-ups

The TPM12B030 mobile converter is designed for connecting 1 or 2 pick-ups.

#### Connection options

Flat pick-ups can be connected to TPM12B030:

#### Flat pick-up

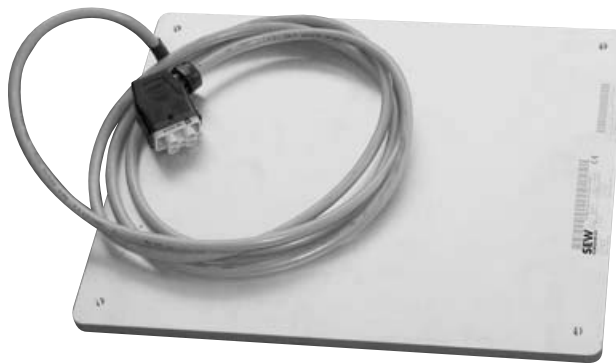


Figure 7: MOVITRANS® THM10E pick-up

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### 3.7 Wiring diagram

#### MOVITRANS® TPM12B030

You can connect two flat pick-ups, each with 1.5 kW rating, to TPM12B030 mobile converters.

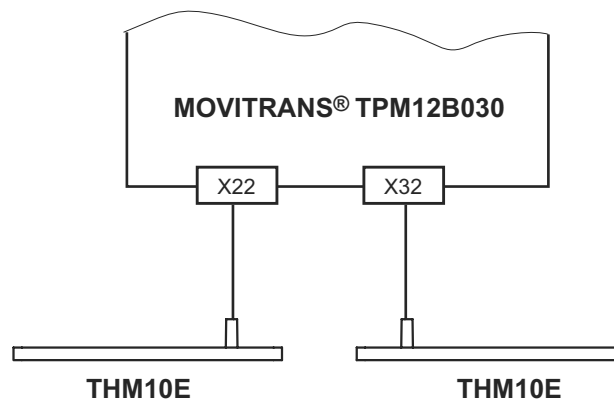
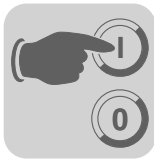


Figure 8: MOVITRANS® TPM12B030 wiring diagram

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## 4 Startup



- **Strictly observe the safety notes during startup!**
- **Correct installation of the unit is a prerequisite for successful startup.**

### 4.1 Start up steps

1. Make sure that compensation has been performed for the line conductor and that the correct current is applied (stationary converter is operating).
2. Make sure that the pick-up(s) with the **correct polarity** (same polarity per supply) is/are connected to the mobile converter **and is/are correctly installed in the line conductor**.
3. Make sure that the load (for example an inverter with motor) is connected correctly to the mobile converter.
4. Select the enable mode of the output voltage (X11:C6 = "0" for delayed enable, "1" for instantaneous enable).
5. Set a "1" signal at the binary input "Enable" (X11:C5 = "1"), the output voltage of 500 V DC will now be available at X11:A1/A2. Irrespective of the 500 V DC output voltage, the 24 V DC output voltage of the TPM12B will be available when the supply is connected.
6. If the output voltage is applied at X11:A1/A2, the binary output "500V OK" will switch from "0" signal to "1" signal. This signal can be used, for example, as an enable signal by the connected load.



## 5 Operation and Service

### 5.1 Operation displays and operating status

**Operation displays**

The operating status of MOVITRANS® TPM12B030 is indicated by four operation LEDs (→ section "TPM12B030 unit design").

| Operation LED   | MOVITRANS® TPM12B030 operating status        |                                                                                                                                           |
|-----------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                 | LED lights up green                          | LED does not light up                                                                                                                     |
| <b>500 V OK</b> | DC 500 V output voltage present at X11:A1/A2 | Output voltage $U_A$ at X11:A1/A2:<br>DC $0\text{ V} < U_A < \text{DC } 460\text{ V}$                                                     |
| <b>24 V</b>     | DC 24 V auxiliary voltage is present         | <ul style="list-style-type: none"> <li>DC 24 V auxiliary voltage is not present</li> <li>24 V short circuit</li> <li>No supply</li> </ul> |
| <b>Unit X22</b> | Coupling > 50 %                              | Coupling 0 ... < 50 %                                                                                                                     |
| <b>Unit X32</b> |                                              |                                                                                                                                           |

**Operating status**

MOVITRANS® TPM12B030 has two operating statuses that are set with the binary input "Enable" (X11:C5):

- "0" signal = DC 0 V output voltage
- "1" signal = DC 500 V output voltage at X11:A1/A2

### 5.2 Fault information

**Unit protection**

The unit is protected against overtemperature and overvoltage. The unit turns itself off in case of a malfunction; the binary output "500 V OK" is then set to a "0" signal and the LED "500 V OK" goes out. The DC 24 V auxiliary power supply (X11:C7) remains intact.

**Reset**

Proceed as follows to perform a reset:

- Enter a "0" signal at binary input "Enable" (X11:C5 = "0").  
DC 0 V output voltage will now be applied at X11:A1/A2.
- After a waiting period of about one second, enter a "1" signal at binary input "Enable" (X11:C5 = "1"). DC 500 V output voltage will now be applied at X11:A1/A2.



### 5.3 Electronics service

#### ***Sending in for repair***

Contact the **SEW-EURODRIVE Electronics Service** if a fault **cannot be rectified**. Always specify the service code number when you contact the electronics service.

**Please provide the following information when sending the unit in for repair:**

- Serial number (→ nameplate)
- Unit designation
- Service code number
- Brief description of the application
- Connected load
- Nature of the fault
- Accompanying circumstances
- Your own presumption of what has happened
- Any unusual events preceding the problem, etc.

#### ***Service label***

MOVITRANS® TPM12B030 is equipped with a service label attached next to the nameplate. The service code [1] and the type designation [2] are listed on the service label.

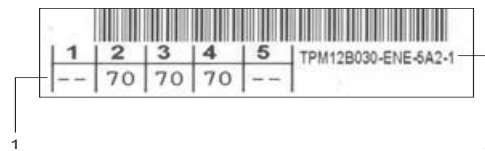
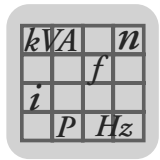


Figure 9: MOVITRANS® TPM12B030 service label (example)

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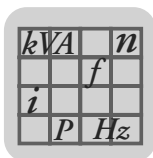
## 6 Technical Data

### 6.1 General information

The following table lists the technical data that applies to all MOVITRANS® TPM12B mobile converters, regardless of their size and power.

| MOVITRANS® TPM12B                                     |                       | All sizes                                                                                                                                              |
|-------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interference immunity                                 |                       | Meets EN 61800-3                                                                                                                                       |
| Interference emission with EMC-compliant installation |                       | Class A limit according to EN 55011 and EN 55014, meets EN 61800-3                                                                                     |
| Heat sink temperature<br>Climate class                |                       | 0 °...+85 °C<br>EN 60721-3-3, class 3K3                                                                                                                |
| Ambient temperature                                   | $\vartheta$           | 0 °C ... +45 °C (cyclic duration factor cdf = 100 %)                                                                                                   |
| Storage and transport temperature                     | $\vartheta_L$         | –25 °C...+75 °C (EN 60721-3-3, class 3K3)                                                                                                              |
| Enclosure                                             |                       | IP54                                                                                                                                                   |
| Pollution class                                       |                       | 2 according to IEC 60664-1 (VDE 0110-1)                                                                                                                |
| Operating mode                                        |                       | DB (EN 60149-1-1 and 1-3)                                                                                                                              |
| Installation altitude                                 |                       | $h \leq 1000$ m (3300 ft)                                                                                                                              |
| Resistance to vibration                               |                       | Fulfills EN 50178                                                                                                                                      |
| Output voltage                                        | $V_{out}$             | DC 500 V                                                                                                                                               |
| Mass                                                  |                       | 10.3 kg                                                                                                                                                |
| Dimensions                                            | $W \times H \times D$ | 463 <sup>1)</sup> x 330 x 117 mm                                                                                                                       |
| Pick-up connection                                    | X22, X32              | HAN Q4/2 by Harting                                                                                                                                    |
| 500 V <sub>DC</sub> connection                        | X11:A1/A2             | Separable terminal blocks, 1.5 mm <sup>2</sup> , Phönix type PLUSCON®                                                                                  |
| Control terminals                                     | X11:C1-C8             | Separable terminal blocks, 0.5 mm <sup>2</sup> , Phönix type PLUSCON®                                                                                  |
| Reference terminal 0V24                               | X11:C8                | Reference potential for DC 24 V signals (connected to housing ground)                                                                                  |
| Binary output "500V OK"                               | X11:C3                | PLC compatible (EN 61131-2)<br><b>Important:</b> Do not apply external voltage!<br>$I_{max} = 50$ mA (short-circuit proof)<br>"0" = 0 V, "1" = DC 24 V |
|                                                       | Signal level          |                                                                                                                                                        |
|                                                       | Function              | Fixed assignment 500 V OK:<br>"0" = DC 500 V output voltage not present<br>"1" = DC 500 V output voltage present                                       |
| Binary input "Enable"                                 | X11:C5                | Isolated via optocoupler (EN 61131-2), $R_i \approx 3$ k $\Omega$ , $I_E \approx 10$ mA<br>PLC compatible                                              |
|                                                       | Signal level          | DC+13 ... +30 V = "1" = contact closed according to EN 61131-2<br>DC– 3 ... +5 V = "0" = Contact open                                                  |
|                                                       | Control function      | With fixed assignment enable "0" = DC 0 V output voltage<br>"1" = DC 500 V output voltage                                                              |
| Binary input "Enable mode"                            | X11:C6                | Isolated via optocoupler (EN 61131-2), $R_i \approx 3.0$ k $\Omega$ , $I_E \approx 10$ mA<br>PLC compatible                                            |
|                                                       | Signal level          | DC+13 ... +30 V = "1" = contact closed according to EN 61131-2<br>DC– 3 ... +5 V = "0" = Contact open                                                  |
|                                                       | Control function      | With fixed assignment enable mode:<br>"0" = delayed enable DC 500 V output voltage<br>"1" = instantaneous enable DC 500 V output voltage               |
| Auxiliary supply output 24 V                          | X11:C7                | V = DC 24 V, current carrying capacity: $I_{max} = DC 2$ A                                                                                             |
| Cable                                                 | X11:C1                | Shield connection of connecting cable                                                                                                                  |
|                                                       | X11:C2                | Equipotential bonding connection of connection cable                                                                                                   |

1) Width including connector



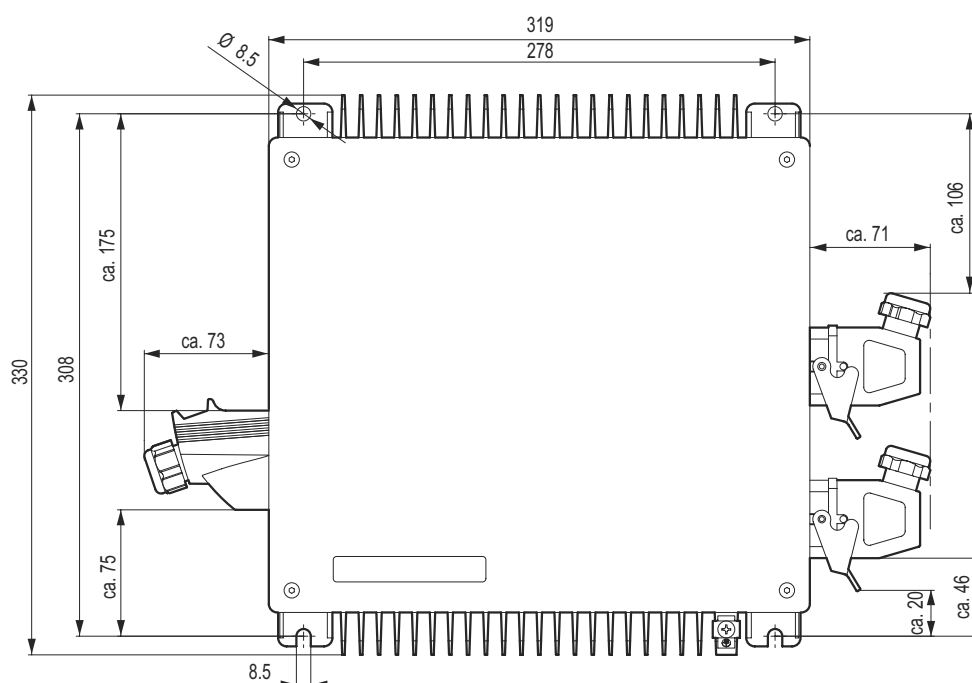
### 6.2 Unit data



The data in the following table is only applicable if the connected pick-ups have a coupling of 100% (→ MOVITRANS® THM10E Pick-Up operating instructions).

| MOVITRANS® TPM12B                                                     |                  | 030-ENE-5A2-1 |        |         |        |
|-----------------------------------------------------------------------|------------------|---------------|--------|---------|--------|
| Part number                                                           |                  | 13000020      |        |         |        |
| Current in line cable<br>(at input frequency f <sub>i</sub> = 25 kHz) | I <sub>1</sub>   | AC 60 A       |        | AC 85 A |        |
| Input frequency                                                       | f <sub>i</sub>   | 25 kHz        |        |         |        |
| Pick-up power rating                                                  | P <sub>1</sub>   | 950 W         |        | 1500 W  |        |
| Number of connected pick-ups                                          |                  | 2             | 1      | 2       | 1      |
| Design of pick-up                                                     |                  | Flat pick-up  |        |         |        |
| Rated output power                                                    | P <sub>N</sub>   | 0.95 kW       | 1.9 kW | 3.0 kW  | 1.5 kW |
| Output power of DC 24 V supply                                        | P <sub>24V</sub> | 32 W          | 16 W   | 48 W    | 24 W   |
| Power loss<br>(X11:C5 has "1" signal)                                 | P <sub>V</sub>   | 60 W          | 30 W   | 120 W   | 60 W   |
| Power loss<br>(X11:C5 has "0" signal)                                 | P <sub>V</sub>   | 12 W          | 6 W    | 15 W    | 8 W    |

### 6.3 Dimension drawing



53292AXX

Figure 10: MOVITRANS® TPM12B dimension drawing



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## Address List

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| Service<br>Competence Center                                    | Central<br>Gear units /<br>Motors                                | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 1<br>D-76676 Graben-Neudorf                                            | Tel. +49 7251 75-1710<br>Fax +49 7251 75-1711<br><a href="mailto:sc-mitte-gm@sew-eurodrive.de">sc-mitte-gm@sew-eurodrive.de</a>                                                       |
|                                                                 | Central<br>Electronics                                           | SEW-EURODRIVE GmbH & Co KG<br>Ernst-Blickle-Straße 42<br>D-76646 Bruchsal                                                 | Tel. +49 7251 75-1780<br>Fax +49 7251 75-1769<br><a href="mailto:sc-mitte-e@sew-eurodrive.de">sc-mitte-e@sew-eurodrive.de</a>                                                         |
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|                                            |                                                                 |                                                                                                                                                                                |                                                                                                                                                                                                                  |
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| <b>Greece</b>                         |                   |                                                                                                                                    |                                                                                                                                                          |
| <b>Sales<br/>Service</b>              | <b>Athen</b>      | Christ. Boznos & Son S.A.<br>12, Mavromichali Street<br>P.O. Box 80136, GR-18545 Piraeus                                           | Tel. +30 2 1042 251-34<br>Fax +30 2 1042 251-59<br><a href="http://www.boznos.gr">http://www.boznos.gr</a><br>info@boznos.gr                             |
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| <b>Assembly<br/>Sales<br/>Service</b> | <b>Hong Kong</b>  | SEW-EURODRIVE LTD.<br>Unit No. 801-806, 8th Floor<br>Hong Leong Industrial Complex<br>No. 4, Wang Kwong Road<br>Kowloon, Hong Kong | Tel. +852 2 7960477 + 79604654<br>Fax +852 2 7959129<br>sew@sewhk.com                                                                                    |



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| <b>Israel</b>                 |                   |                                                                                                                   |                                                                                                   |
| <b>Sales</b>                  | <b>Tel-Aviv</b>   | Liraz Handasa Ltd.<br>Ahofer Str 34B / 228<br>58858 Holon                                                         | Tel. +972 3 5599511<br>Fax +972 3 5599512<br>lirazhandasa@barak-online.net                        |
| <b>Italy</b>                  |                   |                                                                                                                   |                                                                                                   |
| <b>Assembly Sales Service</b> | <b>Milano</b>     | SEW-EURODRIVE di R. Blickle & Co.s.a.s.<br>Via Bernini,14<br>I-20020 Solaro (Milano)                              | Tel. +39 02 96 9801<br>Fax +39 02 96 799781<br>sewit@sew-eurodrive.it                             |
| <b>Ivory Coast</b>            |                   |                                                                                                                   |                                                                                                   |
| <b>Sales</b>                  | <b>Abidjan</b>    | SICA<br>Ste industrielle et commerciale pour l'Afrique<br>165, Bld de Marseille<br>B.P. 2323, Abidjan 08          | Tel. +225 2579-44<br>Fax +225 2584-36                                                             |
| <b>Japan</b>                  |                   |                                                                                                                   |                                                                                                   |
| <b>Assembly Sales Service</b> | <b>Toyoda-cho</b> | SEW-EURODRIVE JAPAN CO., LTD<br>250-1, Shimoman-no,<br>Iwata<br>Shizuoka 438-0818                                 | Tel. +81 538 373811<br>Fax +81 538 373814<br>sewjapan@sew-eurodrive.co.jp                         |
| <b>Korea</b>                  |                   |                                                                                                                   |                                                                                                   |
| <b>Assembly Sales Service</b> | <b>Ansan-City</b> | SEW-EURODRIVE KOREA CO., LTD.<br>B 601-4, Banweol Industrial Estate<br>Unit 1048-4, Shingil-Dong<br>Ansan 425-120 | Tel. +82 31 492-8051<br>Fax +82 31 492-8056<br>master@sew-korea.co.kr                             |
| <b>Latvia</b>                 |                   |                                                                                                                   |                                                                                                   |
| <b>Sales</b>                  | <b>Riga</b>       | SIA Alas-Kuul<br>Katlakalna 11C<br>LV-1073 Riga                                                                   | Tel. +371 7139386<br>Fax +371 7139386<br>info@alas-kuul.ee                                        |
| <b>Lebanon</b>                |                   |                                                                                                                   |                                                                                                   |
| <b>Sales</b>                  | <b>Beirut</b>     | Gabriel Acar & Fils sarl<br>B. P. 80484<br>Bourj Hammoud, Beirut                                                  | Tel. +961 1 4947-86<br>+961 1 4982-72<br>+961 3 2745-39<br>Fax +961 1 4949-71<br>gacar@beirut.com |



## Address List

| Lithuania                    |              |                                                                                                                                                     |                                                                                                    |
|------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Sales                        | Alytus       | UAB Irseva<br>Merkines g. 2A<br>LT-62252 Alytus                                                                                                     | Tel. +370 315 79204<br>Fax +370 315 56175<br>info@irseva.lt<br>www.sew-eurodrive.lt                |
| Luxembourg                   |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Brüssel      | CARON-VECTOR S.A.<br>Avenue Eiffel 5<br>B-1300 Wavre                                                                                                | Tel. +32 10 231-311<br>Fax +32 10 231-336<br>http://www.caron-vector.be<br>info@caron-vector.be    |
| Malaysia                     |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Johore       | SEW-EURODRIVE SDN BHD<br>No. 95, Jalan Seroja 39, Taman Johor Jaya<br>81000 Johor Bahru, Johor<br>West Malaysia                                     | Tel. +60 7 3549409<br>Fax +60 7 3541404<br>kchtan@pd.jaring.my                                     |
| Mexico                       |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Queretaro    | SEW-EURODRIVE, Sales and Distribution,<br>S. A. de C. V.<br>Privada Tequisquiapan No. 102<br>Parque Ind. Queretaro C. P. 76220<br>Queretaro, Mexico | Tel. +52 442 1030-300<br>Fax +52 442 1030-301<br>scmexico@seweurodrive.com.mx                      |
| Morocco                      |              |                                                                                                                                                     |                                                                                                    |
| Sales                        | Casablanca   | S. R. M.<br>Société de Réalisations Mécaniques<br>5, rue Emir Abdelkader<br>05 Casablanca                                                           | Tel. +212 2 6186-69 + 6186-70 + 6186-71<br>Fax +212 2 6215-88<br>srm@marocnet.net.ma               |
| Netherlands                  |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Rotterdam    | VECTOR Aandrijftechniek B.V.<br>Industrieweg 175<br>NL-3044 AS Rotterdam<br>Postbus 10085<br>NL-3004 AB Rotterdam                                   | Tel. +31 10 4463-700<br>Fax +31 10 4155-552<br>http://www.vector.nu<br>info@vector.nu              |
| New Zealand                  |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Auckland     | SEW-EURODRIVE NEW ZEALAND LTD.<br>P.O. Box 58-428<br>82 Greenmount drive<br>East Tamaki Auckland                                                    | Tel. +64 9 2745627<br>Fax +64 9 2740165<br>sales@sew-eurodrive.co.nz                               |
|                              | Christchurch | SEW-EURODRIVE NEW ZEALAND LTD.<br>10 Settlers Crescent, Ferrymead<br>Christchurch                                                                   | Tel. +64 3 384-6251<br>Fax +64 3 384-6455<br>sales@sew-eurodrive.co.nz                             |
| Norway                       |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Moss         | SEW-EURODRIVE A/S<br>Solgaard skog 71<br>N-1599 Moss                                                                                                | Tel. +47 69 241-020<br>Fax +47 69 241-040<br>sew@sew-eurodrive.no                                  |
| Peru                         |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Lima         | SEW DEL PERU MOTORES REDUCTORES<br>S.A.C.<br>Los Calderos, 120-124<br>Urbanizacion Industrial Vulcano, ATE, Lima                                    | Tel. +51 1 3495280<br>Fax +51 1 3493002<br>sewperu@sew-eurodrive.com.pe                            |
| Poland                       |              |                                                                                                                                                     |                                                                                                    |
| Assembly<br>Sales<br>Service | Lodz         | SEW-EURODRIVE Polska Sp.z.o.o.<br>ul. Techniczna 5<br>PL-92-518 Lodz                                                                                | Tel. +48 42 67710-90<br>Fax +48 42 67710-99<br>http://www.sew-eurodrive.pl<br>sew@sew-eurodrive.pl |



|                                       |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
|---------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Portugal</b>                       |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Assembly<br/>Sales<br/>Service</b> | <b>Coimbra</b>        | SEW-EURODRIVE, LDA.<br>Apartado 15<br>P-3050-901 Mealhada                                                                                                                 | Tel. +351 231 20 9670<br>Fax +351 231 20 3685<br><a href="http://www.sew-eurodrive.pt">http://www.sew-eurodrive.pt</a><br><a href="mailto:infosew@sew-eurodrive.pt">infosew@sew-eurodrive.pt</a>  |
| <b>Romania</b>                        |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales<br/>Service</b>              | <b>Bucuresti</b>      | Sialco Trading SRL<br>str. Madrid nr.4<br>011785 Bucuresti                                                                                                                | Tel. +40 21 230-1328<br>Fax +40 21 230-7170<br><a href="mailto:sialco@sialco.ro">sialco@sialco.ro</a>                                                                                             |
| <b>Russia</b>                         |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales</b>                          | <b>St. Petersburg</b> | ZAO SEW-EURODRIVE<br>P.O. Box 263<br>RUS-195220 St. Petersburg                                                                                                            | Tel. +7 812 5357142 +812 5350430<br>Fax +7 812 5352287<br><a href="http://www.sew-eurodrive.ru">http://www.sew-eurodrive.ru</a><br><a href="mailto:sew@sew-eurodrive.ru">sew@sew-eurodrive.ru</a> |
| <b>Senegal</b>                        |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales</b>                          | <b>Dakar</b>          | SENEMECA<br>Mécanique Générale<br>Km 8, Route de Rufisque<br>B.P. 3251, Dakar                                                                                             | Tel. +221 849 47-70<br>Fax +221 849 47-71<br><a href="mailto:senemeca@sentoo.sn">senemeca@sentoo.sn</a>                                                                                           |
| <b>Serbia and Montenegro</b>          |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales</b>                          | <b>Beograd</b>        | DIPAR d.o.o.<br>Kajmakcalanska 54<br>SCG-11000 Beograd                                                                                                                    | Tel. +381 11 3088677 / +381 11 3088678<br>Fax +381 11 3809380<br><a href="mailto:dipar@yubc.net">dipar@yubc.net</a>                                                                               |
| <b>Singapore</b>                      |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Assembly<br/>Sales<br/>Service</b> | <b>Singapore</b>      | SEW-EURODRIVE PTE. LTD.<br>No 9, Tuas Drive 2<br>Jurong Industrial Estate<br>Singapore 638644                                                                             | Tel. +65 68621701<br>Fax +65 68612827<br><a href="mailto:sewsingapore@sew-eurodrive.com">sewsingapore@sew-eurodrive.com</a>                                                                       |
| <b>Slovakia</b>                       |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales</b>                          | <b>Sered</b>          | SEW-Eurodrive SK s.r.o.<br>Trnavska 920<br>SK-926 01 Sered                                                                                                                | Tel. +421 31 7891311<br>Fax +421 31 7891312<br><a href="mailto:sew@sew-eurodrive.sk">sew@sew-eurodrive.sk</a>                                                                                     |
| <b>Slovenia</b>                       |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Sales<br/>Service</b>              | <b>Celje</b>          | Pakman - Pogonska Tehnika d.o.o.<br>Ul. XIV. divizije 14<br>SLO – 3000 Celje                                                                                              | Tel. +386 3 490 83-20<br>Fax +386 3 490 83-21<br><a href="mailto:pakman@siol.net">pakman@siol.net</a>                                                                                             |
| <b>South Africa</b>                   |                       |                                                                                                                                                                           |                                                                                                                                                                                                   |
| <b>Assembly<br/>Sales<br/>Service</b> | <b>Johannesburg</b>   | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Eurodrive House<br>Cnr. Adcock Ingram and Aerodrome Roads<br>Aeroton Ext. 2<br>Johannesburg 2013<br>P.O.Box 90004<br>Bertsham 2013 | Tel. +27 11 248-7000<br>Fax +27 11 494-3104<br><a href="mailto:dross@sew.co.za">dross@sew.co.za</a>                                                                                               |
|                                       | <b>Capetown</b>       | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>Rainbow Park<br>Cnr. Racecourse & Omuramba Road<br>Montague Gardens<br>Cape Town<br>P.O.Box 36556<br>Chempet 7442<br>Cape Town     | Tel. +27 21 552-9820<br>Fax +27 21 552-9830<br>Telex 576 062<br><a href="mailto:dswanepoel@sew.co.za">dswanepoel@sew.co.za</a>                                                                    |
|                                       | <b>Durban</b>         | SEW-EURODRIVE (PROPRIETARY) LIMITED<br>2 Monaceo Place<br>Pinetown<br>Durban<br>P.O. Box 10433, Ashwood 3605                                                              | Tel. +27 31 700-3451<br>Fax +27 31 700-3847<br><a href="mailto:dtait@sew.co.za">dtait@sew.co.za</a>                                                                                               |

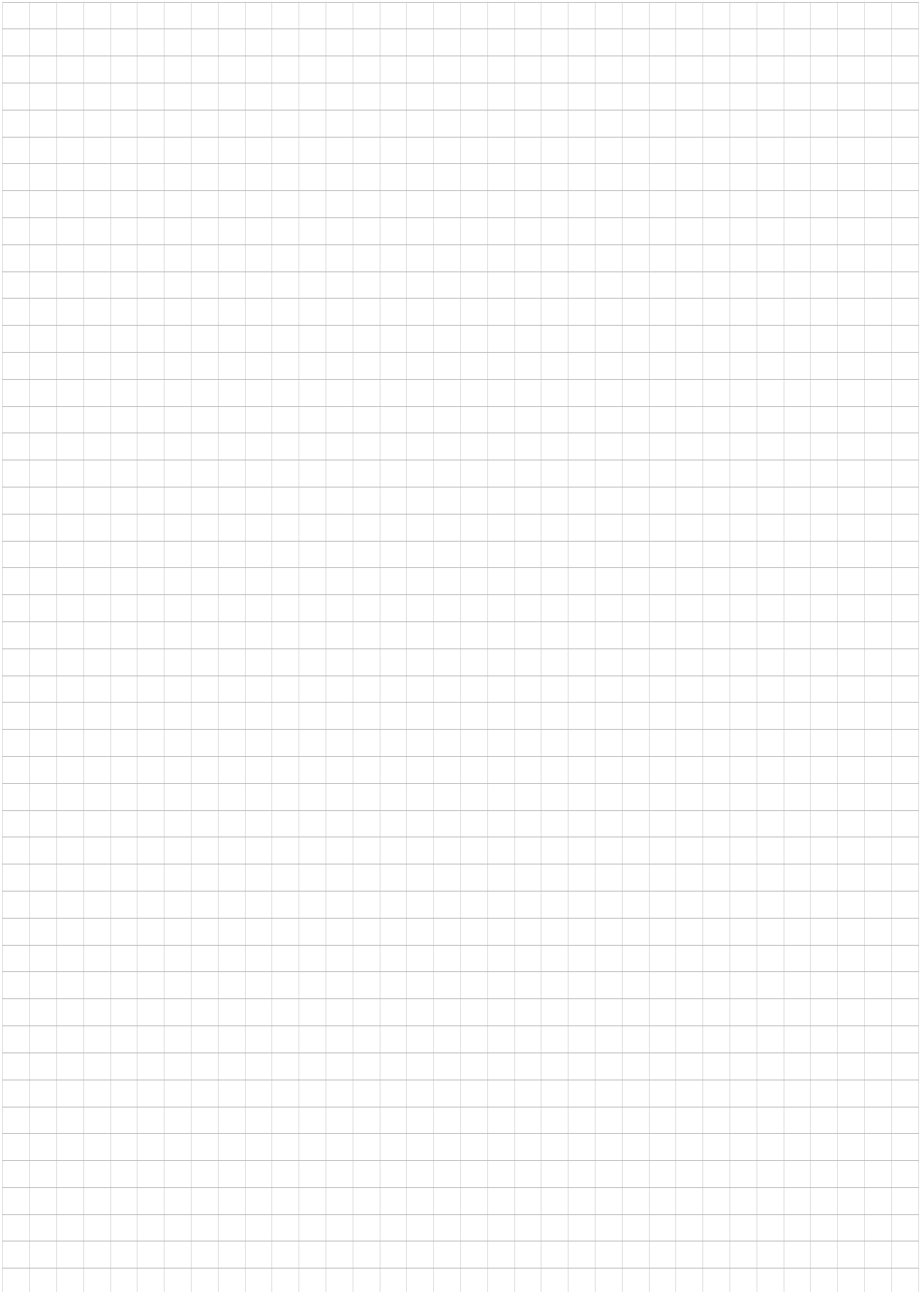


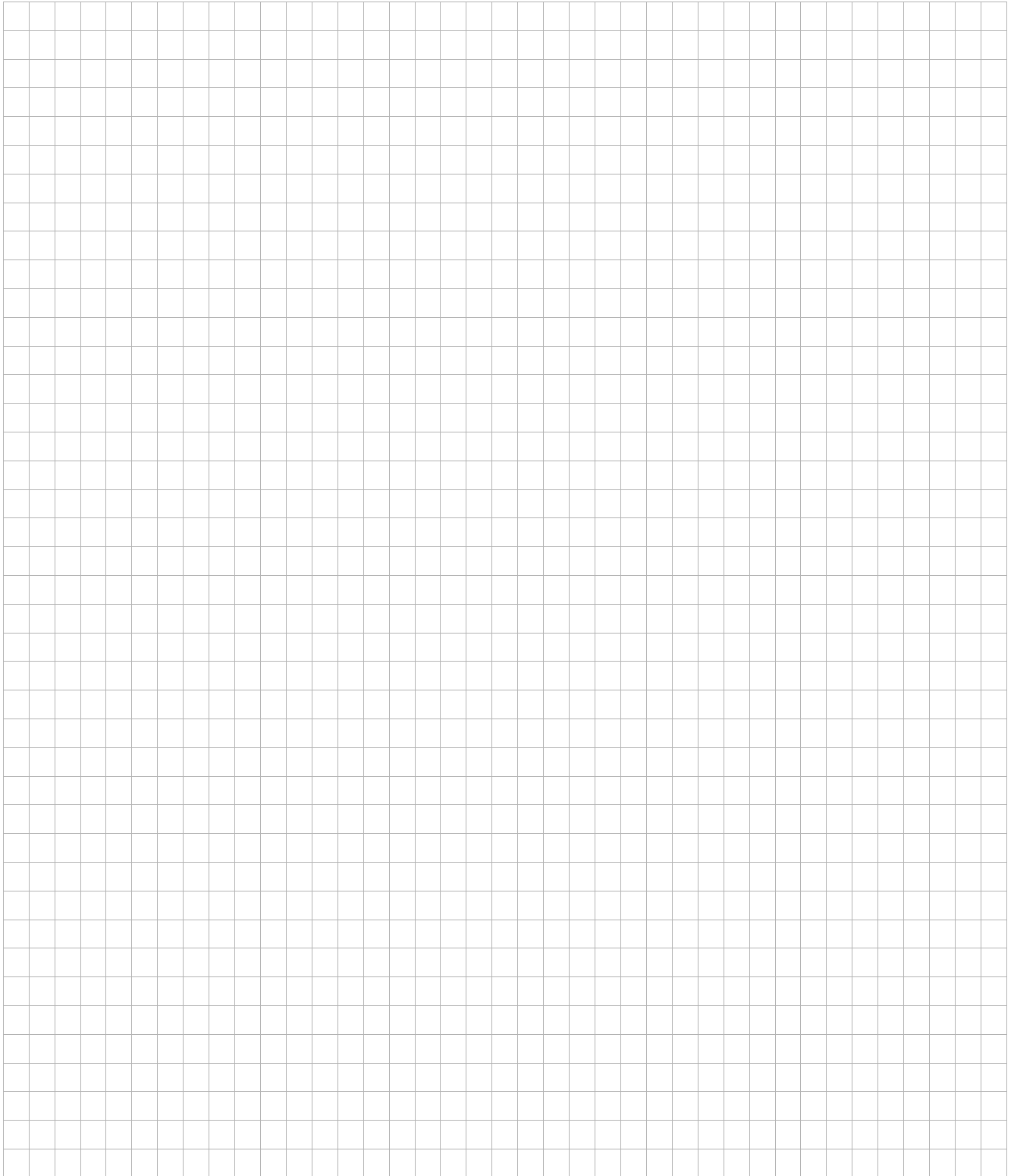
## Address List

| Spain                                                            |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
|------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assembly<br>Sales<br>Service                                     | Bilbao          | SEW-EURODRIVE ESPAÑA, S.L.<br>Parque Tecnológico, Edificio, 302<br>E-48170 Zamudio (Vizcaya)                                           | Tel. +34 9 4431 84-70<br>Fax +34 9 4431 84-71<br>sew.spain@sew-eurodrive.es                                                                                                                                                       |
| Sweden                                                           |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Assembly<br>Sales<br>Service                                     | Jönköping       | SEW-EURODRIVE AB<br>Gnejsvägen 6-8<br>S-55303 Jönköping<br>Box 3100 S-55003 Jönköping                                                  | Tel. +46 36 3442-00<br>Fax +46 36 3442-80<br><a href="http://www.sew-eurodrive.se">http://www.sew-eurodrive.se</a><br>info@sew-eurodrive.se                                                                                       |
| Switzerland                                                      |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Assembly<br>Sales<br>Service                                     | Basel           | Alfred Imhof A.G.<br>Jurastrasse 10<br>CH-4142 Münchenstein bei Basel                                                                  | Tel. +41 61 41717-17<br>Fax +41 61 41717-00<br><a href="http://www.imhof-sew.ch">http://www.imhof-sew.ch</a><br>info@imhof-sew.ch                                                                                                 |
| Thailand                                                         |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Assembly<br>Sales<br>Service                                     | Chon Buri       | SEW-EURODRIVE (Thailand) Ltd.<br>Bangpakong Industrial Park 2<br>700/456, Moo.7, Tambol Donhuaroh<br>Muang District<br>Chon Buri 20000 | Tel. +66 38 454281<br>Fax +66 38 454288<br>sewthailand@sew-eurodrive.co.th                                                                                                                                                        |
| Tunisia                                                          |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Sales                                                            | Tunis           | T. M.S. Technic Marketing Service<br>7, rue Ibn El Heithem<br>Z.I. SMMT<br>2014 Mégrine Erriadh                                        | Tel. +216 1 4340-64 + 1 4320-29<br>Fax +216 1 4329-76                                                                                                                                                                             |
| Turkey                                                           |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Assembly<br>Sales<br>Service                                     | Istanbul        | SEW-EURODRIVE<br>Hareket Sistemleri Sirketi<br>Bagdat Cad. Koruma Cikmazi No. 3<br>TR-34846 Maltepe ISTANBUL                           | Tel. +90 216 4419163 + 216 4419164 +<br>216 3838014<br>Fax +90 216 3055867<br>sew@sew-eurodrive.com.tr                                                                                                                            |
| Ukraine                                                          |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Sales<br>Service                                                 | Dnepropetrovsk  | SEW-EURODRIVE<br>Str. Rabochaja 23-B, Office 409<br>49008 Dnepropetrovsk                                                               | Tel. +380 56 370 3211<br>Fax +380 56 372 2078<br>m.piatnitsa@sew-eurodrive.de                                                                                                                                                     |
| USA                                                              |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |
| Production<br>Assembly<br>Sales<br>Service                       | Greenville      | SEW-EURODRIVE INC.<br>1295 Old Spartanburg Highway<br>P.O. Box 518<br>Lyman, S.C. 29365                                                | Tel. +1 864 439-7537<br>Fax Sales +1 864 439-7830<br>Fax Manuf. +1 864 439-9948<br>Fax Ass. +1 864 439-0566<br>Telex 805 550<br><a href="http://www.seweurodrive.com">http://www.seweurodrive.com</a><br>cslyman@seweurodrive.com |
| Assembly<br>Sales<br>Service                                     | San Francisco   | SEW-EURODRIVE INC.<br>30599 San Antonio St.<br>Hayward, California 94544-7101                                                          | Tel. +1 510 487-3560<br>Fax +1 510 487-6381<br>cshayward@seweurodrive.com                                                                                                                                                         |
|                                                                  | Philadelphia/PA | SEW-EURODRIVE INC.<br>Pureland Ind. Complex<br>2107 High Hill Road, P.O. Box 481<br>Bridgeport, New Jersey 08014                       | Tel. +1 856 467-2277<br>Fax +1 856 845-3179<br>csbridgeport@seweurodrive.com                                                                                                                                                      |
|                                                                  | Dayton          | SEW-EURODRIVE INC.<br>2001 West Main Street<br>Troy, Ohio 45373                                                                        | Tel. +1 937 335-0036<br>Fax +1 937 440-3799<br>cstroy@seweurodrive.com                                                                                                                                                            |
|                                                                  | Dallas          | SEW-EURODRIVE INC.<br>3950 Platinum Way<br>Dallas, Texas 75237                                                                         | Tel. +1 214 330-4824<br>Fax +1 214 330-4724<br>csdallas@seweurodrive.com                                                                                                                                                          |
| Additional addresses for service in the USA provided on request! |                 |                                                                                                                                        |                                                                                                                                                                                                                                   |



| Venezuela                             |                 |                                                                                                                                    |                                                                                               |
|---------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Assembly<br/>Sales<br/>Service</b> | <b>Valencia</b> | SEW-EURODRIVE Venezuela S.A.<br>Av. Norte Sur No. 3, Galpon 84-319<br>Zona Industrial Municipal Norte<br>Valencia, Estado Carabobo | Tel. +58 241 832-9804<br>Fax +58 241 838-6275<br>sewventas@cantv.net<br>sewfinanzas@cantv.net |





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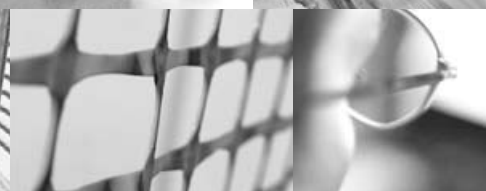


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