SEW EURODRIVE

Operating Instructions

Decentralized Drive Controller

MOVIFIT® MC

Edition 01/2015

19484828/EN

Table of contents

19484828/EN – 01/2015

19484828/EN – 01/2015

1 General information

1.1 About this documentation

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

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

1.2 Structure of the safety notes

1.2.1 Meaning of signal words

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

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

1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:

SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

19484828/EN – 01/2015

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 of risk of crushing
	Warning of suspended load
	Warning of automatic restart

1.2.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

- ⚠ **SIGNAL WORD** Type and source of hazard.

  Possible consequence(s) if disregarded.

  – Measure(s) to prevent the hazard.

19484828/EN – 01/2015

1.3 Rights to claim under limited warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation. Read the documentation before you start working with the product.

1.4 Exclusion of liability

You must comply with the information contained in this documentation to ensure safe operation and to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

1.5 Other applicable documentation

Note also the following documentation:

- "MOVIMOT® MM..D" operating instructions
- "DR.71 – 315 AC Motors" operating instructions
- Manual of the fieldbus interface
  - e.g. "MOVIFIT® Function Level 'Classic'.."
  - e.g. "MOVIFIT® Function Level 'Technology'.."
- Functional safety manual
  - e.g. "MOVIFIT® MC/FC – Functional Safety"
  - e.g. "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" (only for MOVIFIT® with S12 safety option)

You can download or order these publications on the Internet (**http://www.sew-eurodrive.com** under the heading "Documentation").

1.6 Product names and trademarks

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

1.7 Copyright notice

19484828/EN – 01/2015

2 Safety notes

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

2.1 Preliminary information

The following safety notes are principally concerned with the use of MOVIFIT® units. If you use other SEW components, also refer to the safety notes for these particular components in the corresponding documentation.

Also observe the additional safety notes provided in the individual chapters of this document.

2.2 General information

Never install or operate damaged products. In the event of damage, submit a complaint to the shipping company immediately.

During operation, the MOVIFIT® unit can have live or uninsulated parts, as well as hot surfaces according to the degree of protection.

Removing required covers without authorization, improper use or incorrect installation and operation may result in severe injury to persons, or damage to machinery. Refer to the documentation for more information.

2.3 Target group

Only qualified electricians are authorized to install, start up or service the units or correct unit faults (observing IEC 60364 or CENELEC HD 384 or DIN VDE 0100 and IEC 60664 or DIN VDE 0110 as well as national accident prevention regulations).

Qualified electricians in the context of these basic safety notes are all persons familiar with installation, assembly, startup and operation of the product who possess the necessary qualifications.

All persons involved in any other work, such as transportation, storage, operation and waste disposal, must be trained appropriately.

19484828/EN – 01/2015

2.4 Designated use

MOVIFIT® is a component intended for installation in electrical systems or machines.

In case of installation in machines, startup of MOVIFIT® units (i.e. start of designated operation) is prohibited until it is determined that the machine meets the requirements stipulated in the Machinery Directive 2006/42/EC.

Startup (i.e. the start of designated use) is only permitted under observance of EMC Directive 2004/108/EC.

MOVIFIT® meets the requirements stipulated in the low voltage directive 2006/95/EC. The standards contained in the declaration of conformity are used for MOVIFIT®.

Adhere to the technical data and information on the connection requirements as provided on the nameplate and in the documentation.

2.4.1 Safety functions

MOVIFIT® may not perform any safety functions unless they are described and expressly approved.

For safety applications, ensure that the information in the following publications is observed.

- For MOVIFIT® with STO (with or without S11 PROFIsafe option):

  "MOVIFIT® MC/FC – Functional Safety" manual
- For MOVIFIT® with S12 safety option:

  "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual

Use only those components in safety applications that were explicitly designed and delivered for this purpose by SEW-EURODRIVE. Safety-related components are marked with the FS logo for functional safety.

2.4.2 Lifting applications

MOVIMOT® drives are only suitable for lifting applications to a limited degree; see the "MOVIMOT® MM..D" operating instructions.

MOVIMOT® drives are not designed for use as safety devices in lifting applications.

2.5 Transportation, storage

Observe the notes on transportation, storage and proper handling. Observe the climatic conditions as stated in the "Technical Data" sections.

19484828/EN – 01/2015

2.6 Installation

The units must be installed and cooled according to the regulations and specifications in the corresponding documentation.

Protect MOVIFIT® from excessive strain.

The following applications are prohibited unless explicitly permitted:

- Use in potentially explosive atmospheres.
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.
- Use in non-stationary applications with strong mechanical oscillation and impact loads; see chapter "Technical Data".

2.7 Electrical connection

Observe applicable national accident prevention guidelines (e.g. BGV A3) when working on a live MOVIFIT®.

Perform electrical installation according to the pertinent regulations (e.g. cable cross sections, fusing, protective conductor connection). For any additional information, refer to the applicable documentation.

For notes on EMC-compliant installation, such as shielding, grounding, arrangement of filters and routing of lines, refer to chapter "Installation instructions". The manufacturer of the system or machine is responsible for maintaining the limits established by EMC legislation.

Protective measures and protection devices must comply with the regulations in force (e.g. EN 60204-1 or EN 61800-5-1).

2.8 Safe disconnection

MOVIFIT® meets all requirements for safe disconnection of power and electronic connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for safe disconnection to ensure reliable isolation.

19484828/EN – 01/2015

2.9 Operation

Systems in which MOVIFIT® is installed must, if necessary, be equipped with additional monitoring and protection devices according to applicable safety regulations; e.g., the German law governing technical equipment (Gesetz über technische Arbeitsmittel), accident prevention regulations, etc. Additional protective measures may be necessary for applications with increased hazard potential. Changes to MOVIFIT® using the operating software are permitted.

Do not touch live components or power connections immediately after disconnecting the MOVIFIT® from the supply voltage because there may still be some charged capacitors. Wait at least for 1 minute after having switched off the supply voltage.

As soon as supply voltage is present at the MOVIFIT®, the ABOX must be closed i.e., the MOVIFIT® EBOX and any hybrid cable connector must be connected and screwed on.

Do not disconnect the EBOX of the MOVIFIT® or any power plug connectors during operation. Doing so can lead to dangerous electric arcs forming, which can cause irreparable damage to the unit (fire risk, irreparable contacts).

Important: The MOVIFIT® maintenance switch disconnects only the integrated frequency inverter from the grid. The terminals of the MOVIFIT® unit are still connected to the line voltage after the maintenance switch is activated.

The unit may still be live and connected to the supply system, even if the operation LEDs and other display elements are no longer illuminated.

Mechanical blocking or internal safety functions of the unit can cause a motor standstill. Eliminating the cause of the problem or performing a reset may result in the drive re-starting automatically. If this is not permitted for the driven machine for safety reasons, disconnect the unit from the supply system before you start correcting the error.

Caution: Risk of burns: The surface temperature of the MOVIFIT® and the external options, e.g. the braking resistor heat sink, can exceed 60 °C during operation.

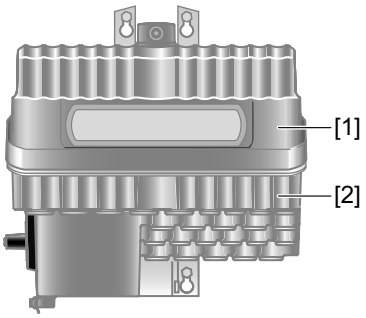
19484828/EN – 01/2015

3 Unit structure

3.1 MOVIFIT® MC

MOVIFIT® MC is a decentralized drive controller for controlling up to 3 MOVIMOT® drives.

The following figure shows a standard MOVIFIT® MC unit:



4285969931

[1] EBOX (active electronics unit)
[2] ABOX (passive connection unit)

3.1.1 Features of the MOVIFIT® MC unit

- Up to 3 MOVIMOT® drives may be connected using hybrid cables
- Voltage range of 3 x 380 to 500 V
- Integrated power distribution and line protection
- Optional maintenance switch
- Integrated fieldbus interfaces

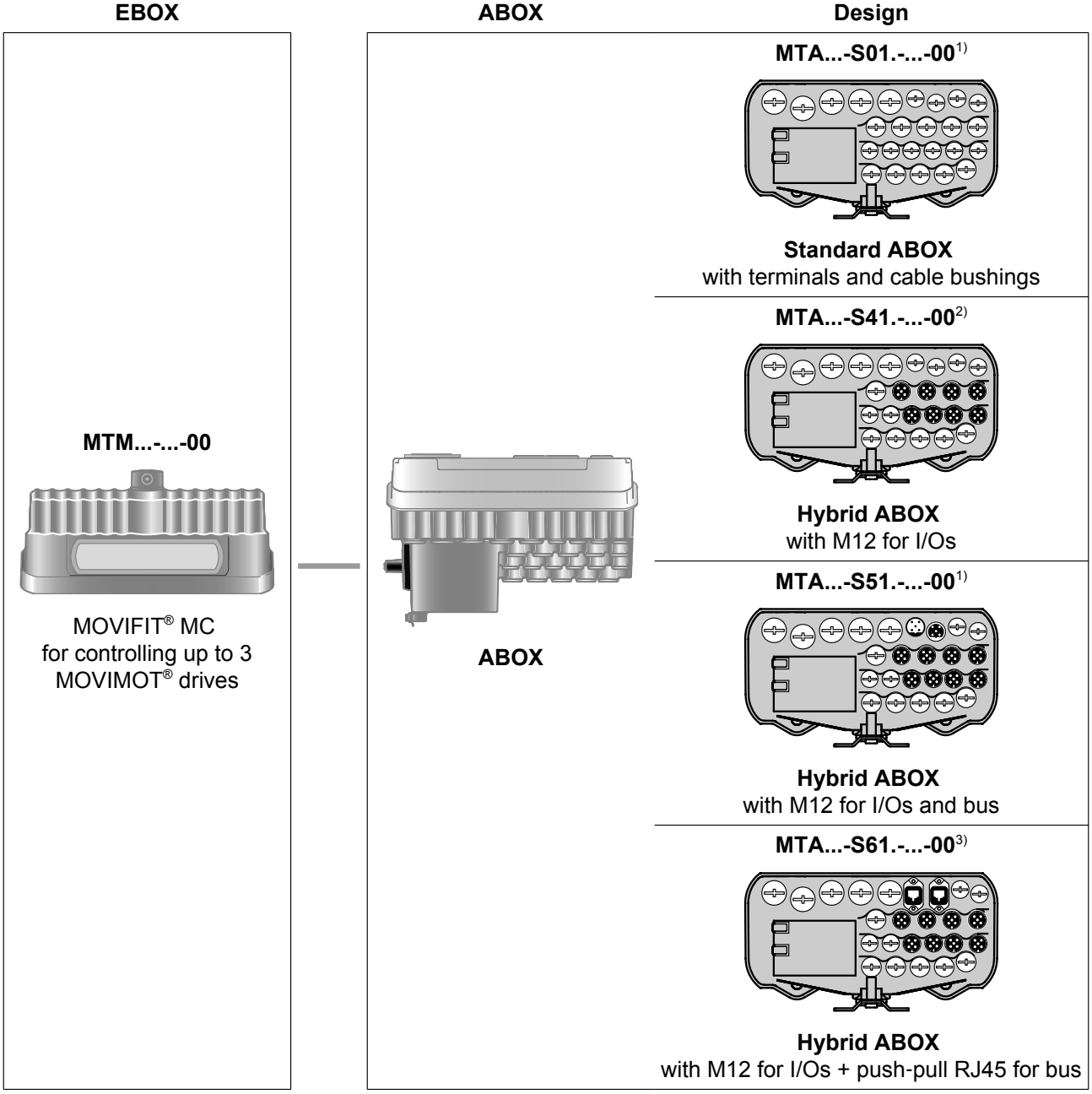
PROFIBUS	EtherNet/IP™
PROFINET IO	Modbus/TCP
PROFINET POF	DeviceNet™

- Binary inputs + 4 binary inputs/outputs
- CAN/SBus interface
- "Safe torque off" STO function
- S11 PROFIsafe option or S12 safety option with safety-related inputs and outputs
- Simple and fast parameterization using a DIP switch or fieldbus

19484828/EN – 01/2015

3.2 Overview – Connection configuration

The following figure shows the MOVIFIT® designs described in these operating instructions with the standard ABOX and the hybrid ABOX:



1) In connection with DeviceNet™: micro-style connector for DeviceNet™ connection

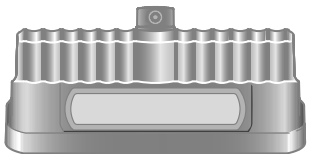
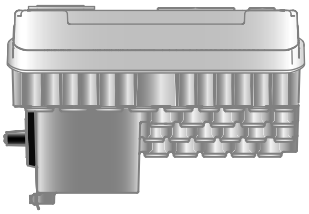
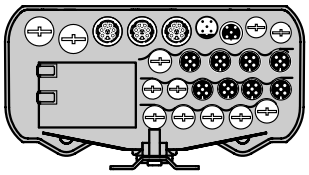
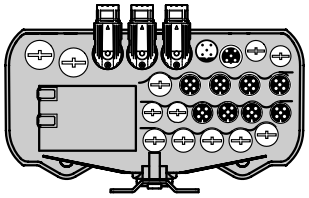
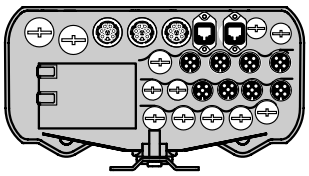
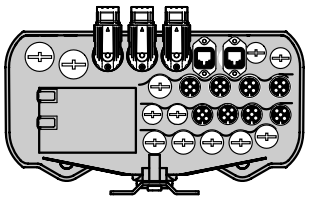
2) Not available with DeviceNet™

3) Not available with DeviceNet™ and PROFIBUS

More designs are listed on the next page.

19484828/EN – 01/2015

Designs with a circular connector (Intercontec) for connection to MOVIMOT® drives:

EBOX	ABOX	Design
MTM...-...-00  MOVIFIT® MC for controlling up to 3 MOVIMOT® drives	 **ABOX**	**MTA...-I51.-...-00**  **Hybrid ABOX** with 3 circular connectors (Intercontec) 3 MOVIMOT® outputs on bottom and M12 for I/Os and bus
		MTA...-G51.-...-00  **Hybrid ABOX** with 3 circular connectors (Intercontec) 3 MOVIMOT® outputs on front and M12 for I/Os and bus
		MTA...-I61.-...-00[1)]  **Hybrid ABOX** with 3 circular connectors (Intercontec) 3 MOVIMOT® outputs on bottom, M12 for I/Os and push-pull RJ45 for bus
		MTA...-G61.-...-00[1)]  **Hybrid ABOX** with 3 circular connectors (Intercontec) 3 MOVIMOT® outputs on front, M12 for I/Os and push-pull RJ45 for bus

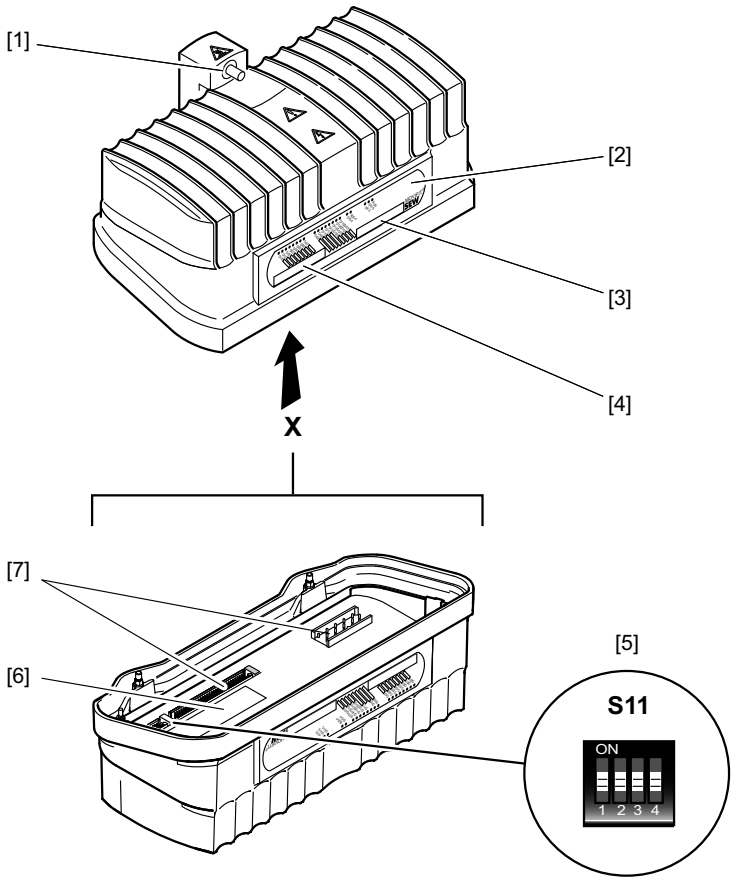
1) Not available with DeviceNet™ and PROFIBUS

19484828/EN – 01/2015

3.3 EBOX (active electronics unit)

The MOVIFIT® MC EBOX is a closed electronics unit with a communication interface and I/Os for controlling MOVIMOT® drives:

EBOX "MTM...-....-00"



9007200272377867

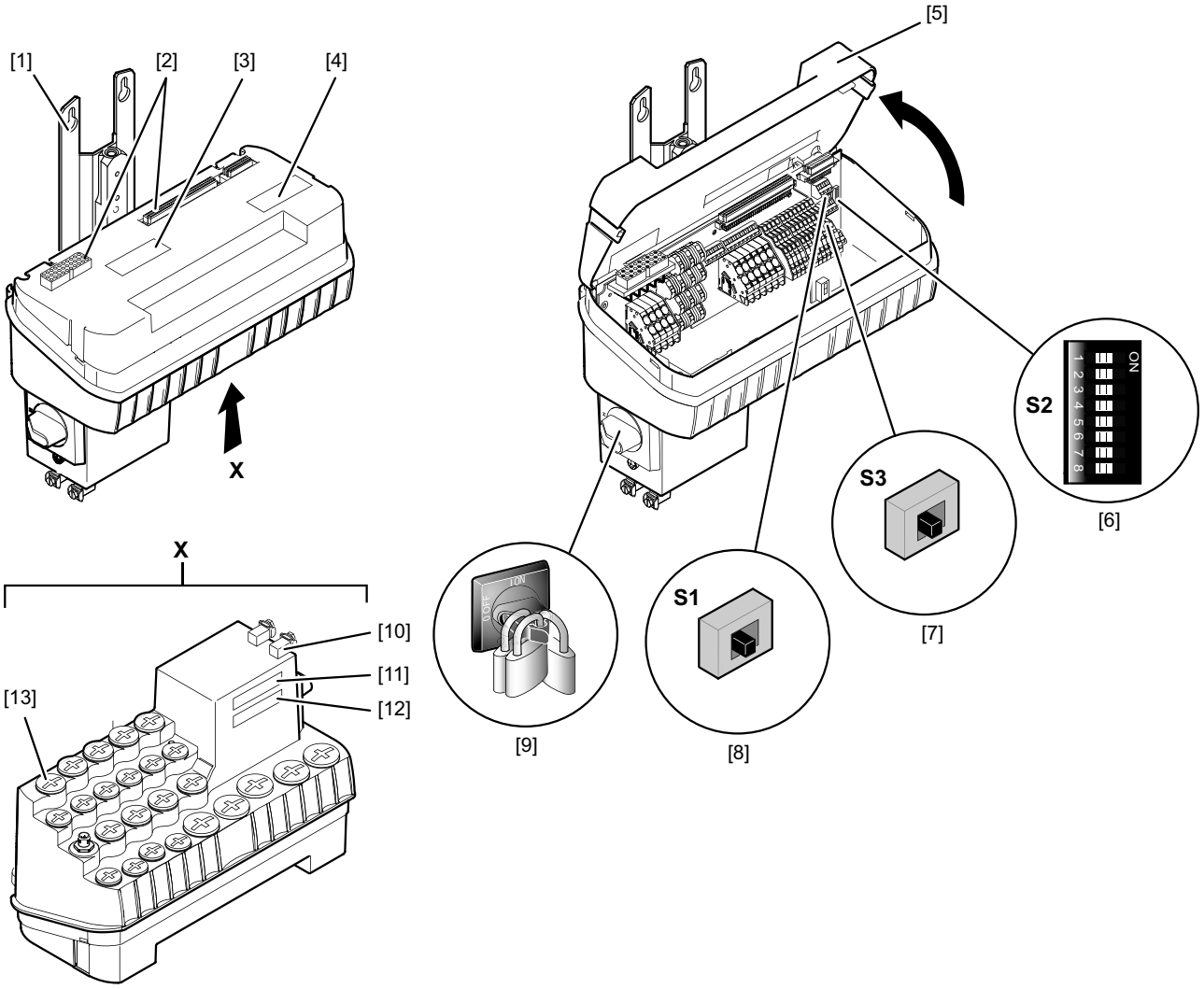
[1] Central opening/closing mechanism
[2] Operation LEDs for I/Os (can be labeled), communication, and unit status
[3] External nameplate
[4] Device identification
[5] DIP switch S11 for IP parameters
(only for PROFINET IO, EtherNet/IP™, Modbus/TCP)
[6] Internal nameplate
[7] Connection to ABOX (connection box)

19484828/EN – 01/2015

3.4 ABOX (passive connection unit)

The following figure provides an example of the MOVIFIT® ABOX:

ABOX "MTA...-...-00"



9007200272383883

[1] Mounting rail
[2] Connection to EBOX
[3] Nameplate of the complete unit (EBOX and ABOX)
[4] Internal nameplate of the ABOX
[5] Protection cover
[6] DIP switch S2 for bus address (PROFIBUS and DeviceNet™ design only)
[7] DIP switch S3 for SBus bus termination
[8] DIP switch S1 for bus termination (PROFIBUS design only)
[9] Maintenance switch (triple lock)
[10] Grounding screws
[11] ABOX device identification
[12] External nameplate of the ABOX
[13] Diagnostic interface below screw fitting

19484828/EN – 01/2015

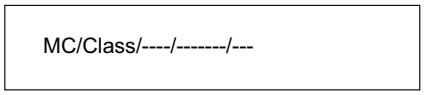
3.5 MOVIFIT® MC type designation

3.5.1 EBOX

EBOX nameplates

EBOX device identification

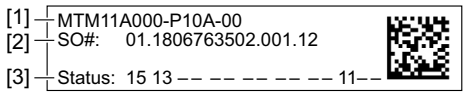
The following figure shows an example of the device identification of the MOVIFIT® MC EBOX:



13469955083

EBOX external nameplate

The following figure shows an example of the **external** nameplate of the MOVIFIT® MC EBOX:

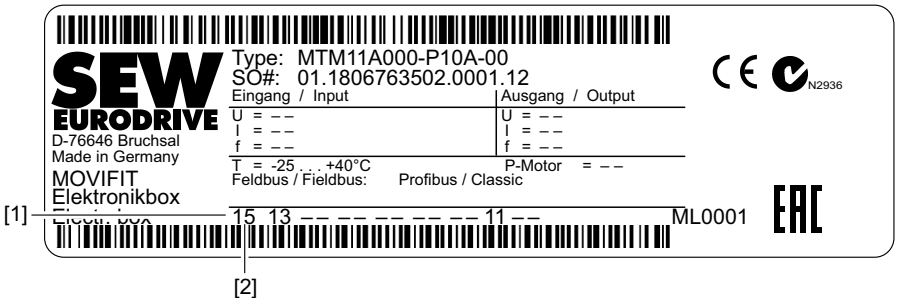


5836399115

[1] EBOX type designation
[2] Serial number
[3] Status field

EBOX internal nameplate

The following figure shows an example of the **internal** nameplate of the MOVIFIT® MC EBOX:



5836380299

[1] EBOX status field
[2] Firmware status of control unit

19484828/EN – 01/2015

EBOX type designation

The following table shows an example of the type designation of the MOVIFIT® EBOX **MTM11A000-P10A-00/S11**:

MT	**Unit series**	MT = MOVIFIT®
M	**Device type**	M = MOVIFIT® MC (controller)
11	**Series**	11 = Standard (IP65)
A	**Version A**	
000	**Unit power**	Version MTM (MOVIFIT® MC)
-		
P1	**Fieldbus**	P1 = PROFIBUS E2 = PROFINET IO D1 = DeviceNet™ E3 = EtherNet/IP™, Modbus/TCP[1)]
0	**Function level**	0 = Classic 1 = Technology
A	**Version A**	
-		
00	**EBOX design**	00 = Series
/		
S11	**EBOX option**	S11 = PROFIsafe option S11 [2)] S12A = Safety option S12A S12B = Safety option S12B

1) Only available with "Technology" function level

2) Only available with PROFIBUS or PROFINET IO

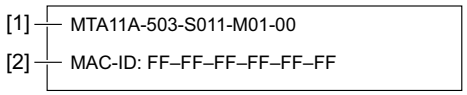
19484828/EN – 01/2015

3.5.2 ABOX

ABOX nameplates

ABOX device identification

The following figure shows an example of the device identification of the MOVIFIT® MC ABOX:

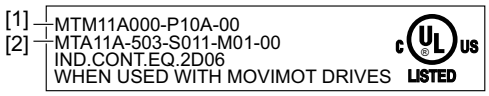


13470606859

[1] ABOX type designation
[2] MAC ID of the fieldbus interface

ABOX external nameplate

The following figure shows an example of the **external** nameplate of the MOVIFIT® MC ABOX:

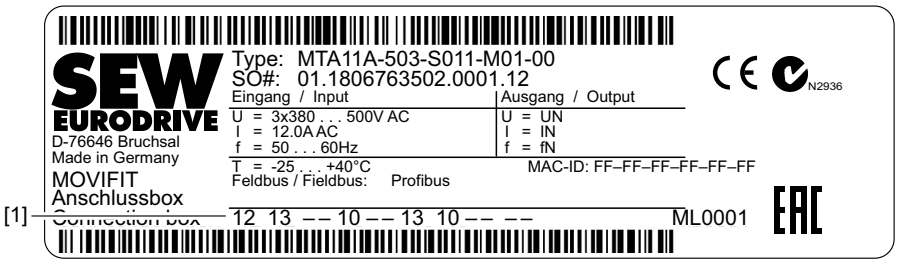


13470300171

[1] EBOX type designation
[2] ABOX type designation

ABOX internal nameplate

The following figure shows an example of the **internal** nameplate of the MOVIFIT® MC ABOX:

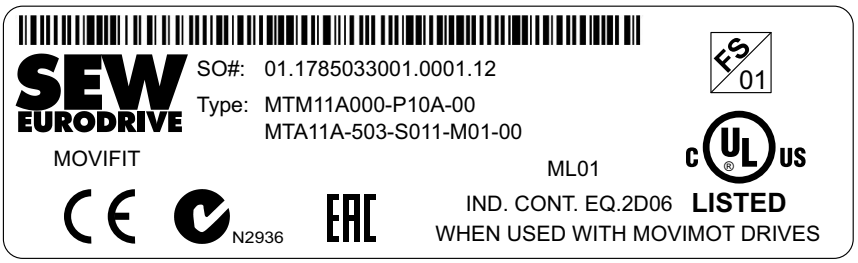


5836636555

[1] ABOX status field

Nameplate of complete unit

The following figure provides an example of a nameplate of the complete MOVIFIT® MC unit (EBOX and ABOX):



6872634379

This nameplate is only available if the EBOX and the ABOX have been ordered as one unit.

INFORMATION

Only components marked with the FS logo for functional safety may be installed in safety applications. For combinations of units without the FS logo (consisting of individual EBOX and ABOX), the safety function must be described in the documentation.

FS logo description

The FS logo can be displayed on the complete unit nameplate of MOVIFIT® in the following designs:

MOVIFIT® with STO (with or without S11 PROFIsafe option)

For more information about MOVIFIT® with **FS01** logo, refer to the "MOVIFIT® MC / FC – Functional Safety" manual.

MOVIFIT® with S12 safety option

For more information about MOVIFIT® with **FS80** logo, refer to the "MOVIFIT® MC / FC – Functional Safety with Safety Option S12" manual.

19484828/EN – 01/2015

ABOX type designation

The following table shows an example of the type designation of the MOVIFIT® ABOX **MTA11A-503-S011-M01-00/M11**:

MT	**Unit series**	MT = MOVIFIT®
A	**Device type**	A = ABOX (connection box)
11	**Series**	11 = Standard (IP65)
A	**Version A**	
-		
50	**Connection voltage**	50 = AC 380 – 500 V
3	**Connection type**	3 = 3-phase
-		
S01	**Connection configuration**	S01 = Standard ABOX with terminals and cable bushings S41 = Hybrid ABOX with M12 for I/Os S51 = Hybrid ABOX with M12 for I/Os + bus S61 = Hybrid ABOX with M12 for I/Os, push-pull RJ45 for bus I51 = Hybrid ABOX with circular connector (Intercontec), 3x MOVIMOT® downward output, M12 for I/Os + bus G51 = Hybrid ABOX with circular connector (Intercontec), 3x MOVIMOT® forward output, M12 for I/Os + bus I61 = Hybrid ABOX with circular connector (Intercontec), 3x MOVIMOT® downward output, M12 for I/Os, push-pull RJ45 for bus G61 = Hybrid ABOX with circular connector (Intercontec), 3x MOVIMOT® forward output, M12 for I/Os, push-pull RJ45 for bus
1	**Fieldbus**	1 = PROFIBUS 2 = DeviceNet™ 3 = EtherNet/IP™, PROFINET IO, Modbus/TCP
-		
M01	**Maintenance switch**	M01 = Load disconnector and line protection up to 12 A[1)] M14 = Load disconnector and line protection up to 9 A[2)] M15 = Load disconnector and line protection up to 12 A[2)]
-		
00	**ABOX design**	00 = Series
/		

19484828/EN – 01/2015

M11	**ABOX option**	00S = STO plug connector M11 = Stainless steel mounting rail M1S = Stainless steel mounting rail and STO plug connector M2A = Corrosion-resistant mounting rail M2S = Corrosion-resistant mounting rail and STO plug connector

1) When used with UL, the maintenance switch is only a load disconnector.

2) Only available with UL.

19484828/EN – 01/2015

4 Mechanical installation

4.1 General information

⚠ CAUTION

Risk of injury due to protruding parts, especially the mounting rail.

Risk of cutting or crushing.

- Cover sharp and protruding parts, especially the mounting rail, to protect against injury and damage.
- MOVIFIT® may only be installed by qualified personnel.

Observe the following notes on mechanical installation:

- Observe the general safety notes.
- Only install MOVIFIT® on a level, low-vibration, and torsionally rigid support structure, see "Mounting position" chapter.
- Strictly observe all instructions referring to the technical data and the permissible conditions regarding the place of installation.
- Use only the provided attachment options when mounting the unit.
- When selecting and dimensioning the mounting and safety elements, observe the applicable standards, the technical data of the unit, and the local circumstances.
- Use suitable screw fittings for the cables (use reducing adapters if necessary). Use suitable mating connectors with plug connector variants.
- Close all unused cable entries with suitable closing plugs.
- Cover the unused plug connectors with blind caps.

4.2 Tools required

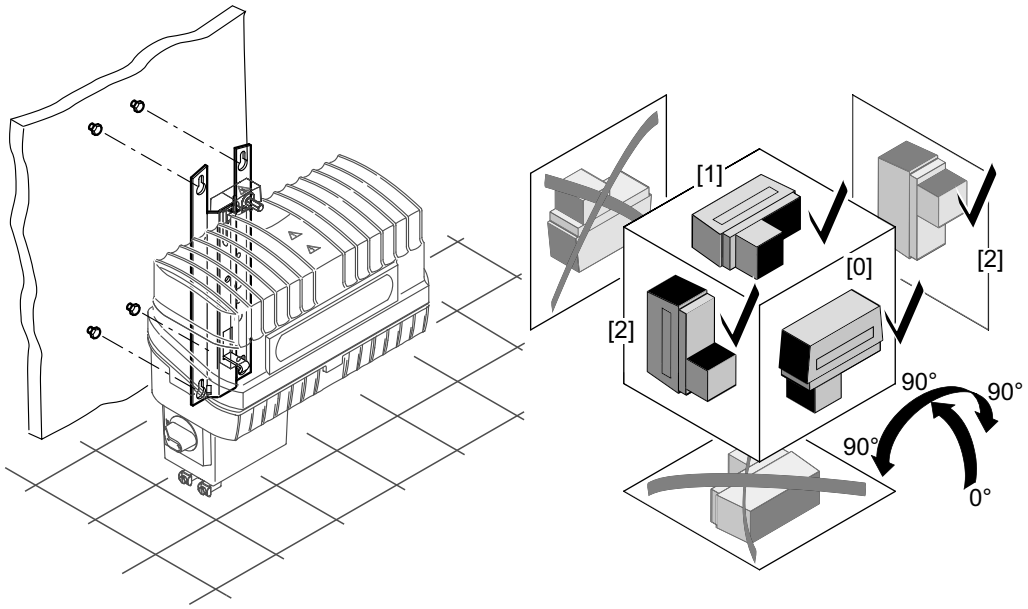
- Set of wrenches
- Socket wrench, SW8 mm
- Torque wrench
- Screwdriver set

19484828/EN – 01/2015

4.3 Permitted mounting position

MOVIFIT® is attached using a mounting plate to the four screws already installed in the mounting surface. For detailed information, refer to chapter "Mounting" (→ 🗎 25).

The following figure depicts the approved mounting positions for MOVIFIT®.



9007204406580235

[0] Mounting position 0 (standard)
[1] Mounting position 1 (tilted)
[2] Mounting position 2 (tilted)

INFORMATION

In this chapter, the standard design with terminals and cable bushings is used as an example. However, the assembly information is applicable for all designs.

All tilted mounting positions between mounting positions 0, 1, and 2 are permitted.

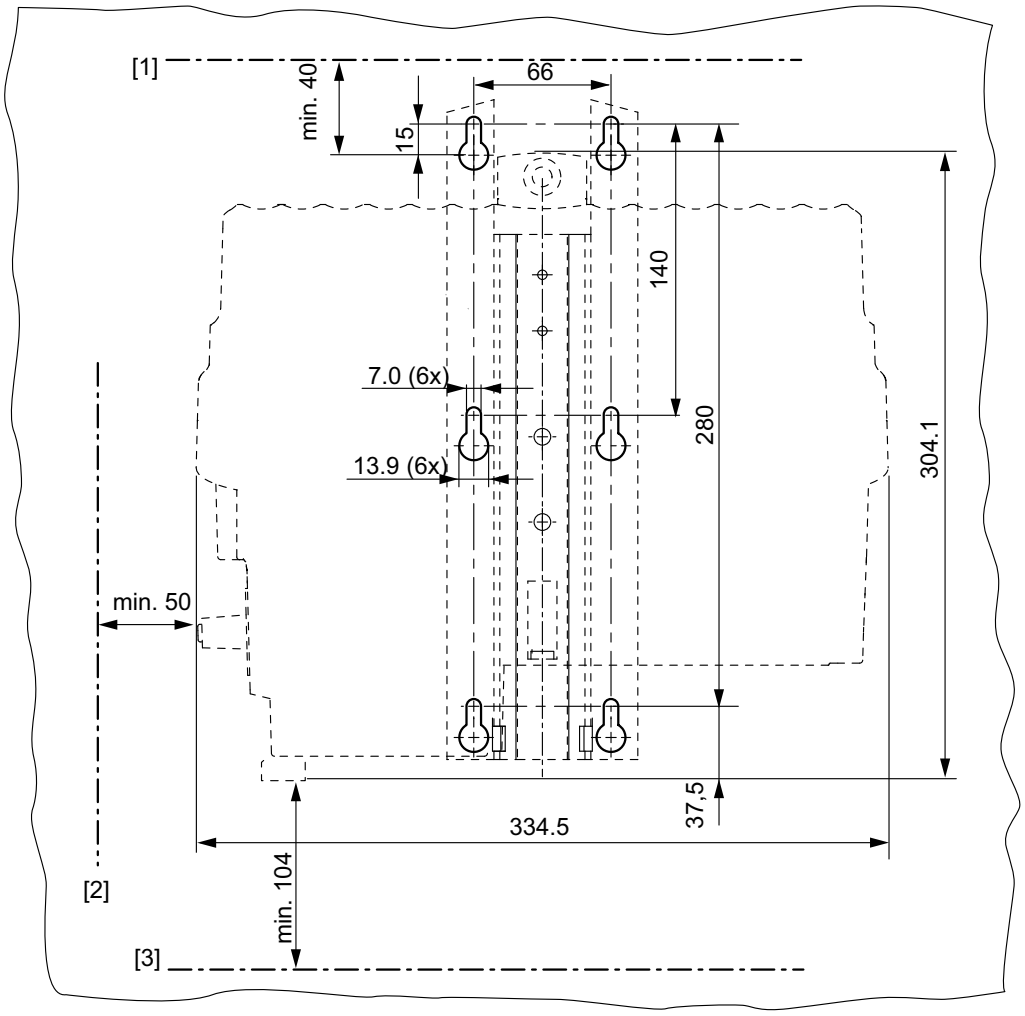
19484828/EN – 01/2015

4.4 Installation

4.4.1 Mounting rail

MOVIFIT® is equipped with a mounting rail to attach the unit to a level, low-vibration mounting surface using M6 screws. For bore dimensions of the respective type of fixture, see the following figures.

Drilling template for standard mounting rail



27021598522763275

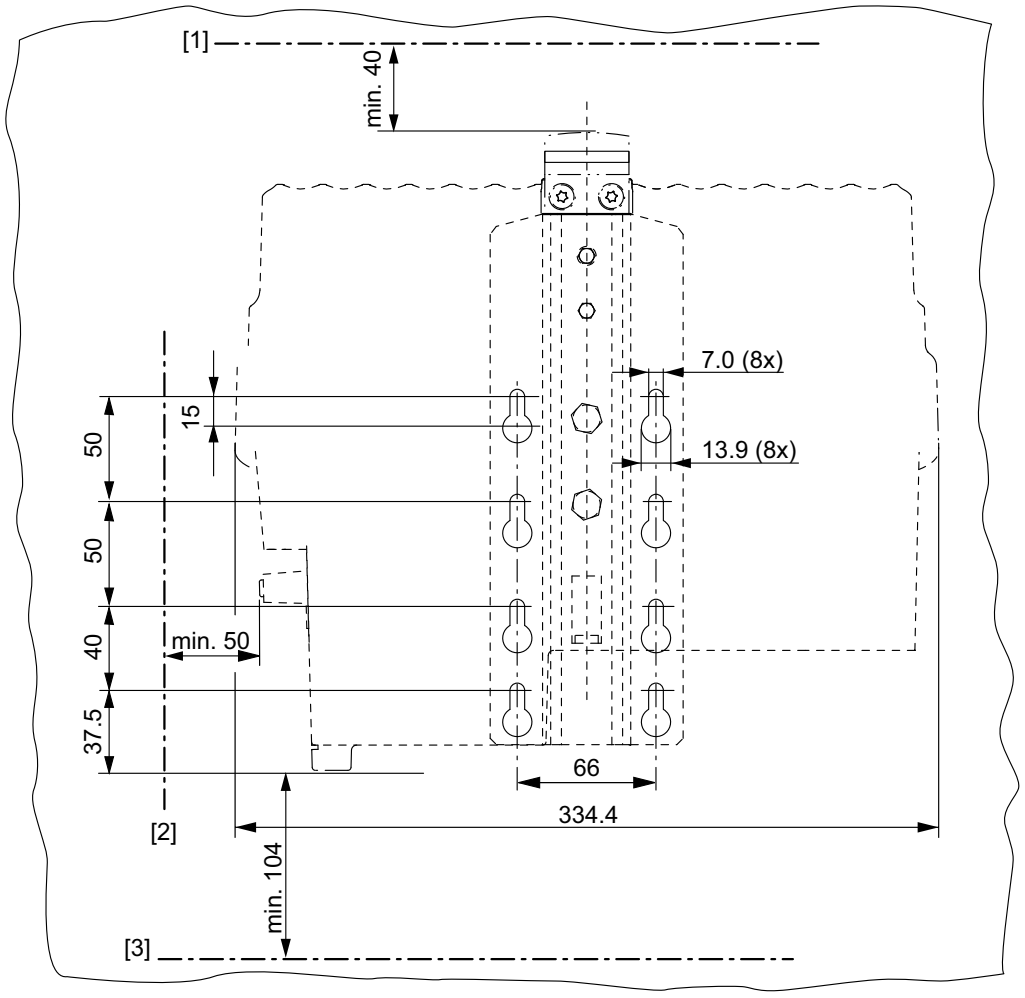
The hole pattern is also valid for the corrosion-resistant M2A mounting rail.

- [1] Observe the minimum installation clearance so that the EBOX can be removed from the ABOX.
- [2] Observe the minimum installation clearance required to operate the maintenance switch and to ensure heat dissipation for the unit.
- Make sure that the permitted bending radii of the cables used are not exceeded when connecting the cables.
- [3] Observe the minimum downward clearance of 104 mm for all ABOXes with circular connectors (Intercontec), downward motor output.
- Observe the minimum clearance of 191 mm to the front for all ABOXes with circular connectors (Intercontec), motor output at the front.

For detailed dimension drawings, refer to chapter "Technical data" > "Dimension drawings".

19484828/EN – 01/2015

Drilling template for optional mounting rail /M11



18014399308791819

- [1] Observe the minimum installation clearance so that the EBOX can be removed from the ABOX.
- [2] Observe the minimum installation clearance required to operate the maintenance switch and to ensure heat dissipation for the unit.
- [3] Observe the minimum downward clearance of 104 mm for all ABOXes with circular connectors (Intercontec), downward motor output.
- Observe the minimum clearance of 191 mm to the front for all ABOXes with circular connectors (Intercontec), motor output at the front.

For detailed dimension drawings, refer to chapter "Technical data" > "Dimension drawings".

4.4.2 Fastening

⚠ CAUTION

Risk of crushing if the load falls.

Severe or fatal injuries.

- Do not sit or stand underneath the load.
- Secure the hazard area.

⚠ CAUTION

Risk of injury due to protruding parts.

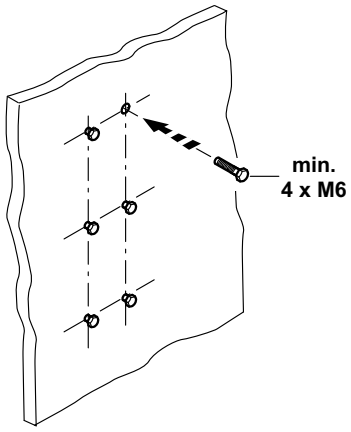
Risk of cutting or crushing injuries.

- Secure sharp and protruding parts by using covers.
- The installation may only be carried out by trained specialists.

1. Bore the holes required for mounting at least 4 screws into the mounting surface according to the previous figures.

   SEW-EURODRIVE recommends the following:

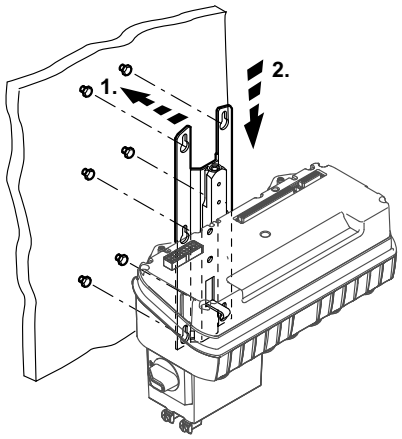
   - Screws of size M6
   - Dowels suitable for the particular base
2. Mount at least 4 screws on the mounting surface.



9007200013291403

19484828/EN – 01/2015

3. Attach the ABOX to the screws using the mounting plate.



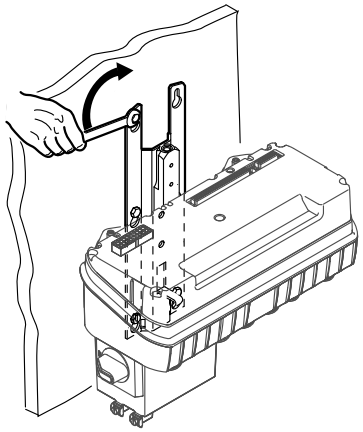
9007200013306891

4. Tighten the screws.

   ⚠ **CAUTION!** Risk of injury if the load falls.

   Minor injuries

   - Tighten at least 4 wall screws to ensure a secure fit after mounting.



9007200013331723

19484828/EN – 01/2015

4.5 Central opening/closing mechanism

⚠ WARNING

Risk of burns due to hot surfaces of the MOVIFIT® unit.

Serious injuries.

- Do not touch the MOVIFIT® unit until it has cooled down sufficiently.

⚠ CAUTION

Risk of injury if the EBOX falls.

Minor injuries.

- Make sure that the EBOX cannot fall when it is opened or closed.

NOTICE

The degree of protection specified in the technical data only applies when a unit is mounted correctly. When the EBOX is removed from the ABOX, moisture, dust, or foreign particles can damage the MOVIFIT® unit.

Damage to the MOVIFIT® unit.

- Protect the ABOX and the EBOX when the unit is open.

NOTICE

The central opening/closing mechanism may be damaged as a result.

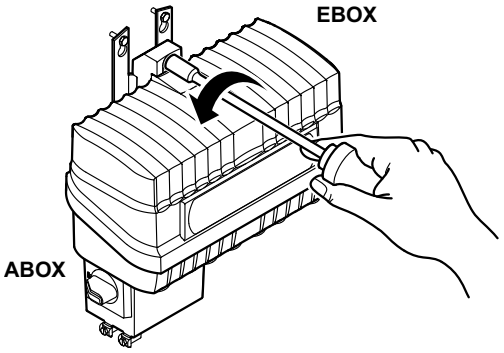
Destruction of central opening/closing mechanism.

- When opening or closing the EBOX in tilted mounting position, make sure the EBOX does not jam and use your hand to move the EBOX.

4.5.1 Opening

You need a socket wrench (SW8) for the central retaining screw.

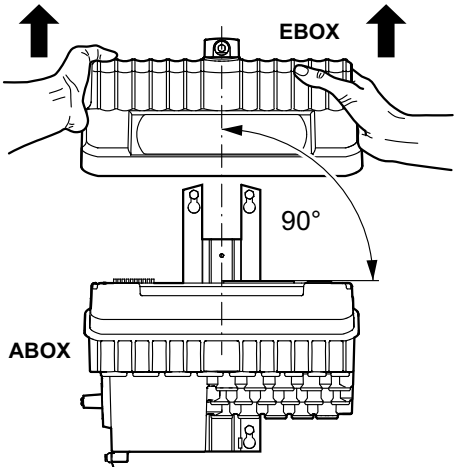
1. Loosen the central retaining screw and continue to turn in counterclockwise direction until the EBOX does not move further up.



813086859

19484828/EN – 01/2015

2. Remove the EBOX from the ABOX by lifting it upwards. Do not jam the EBOX during this procedure.



813353099

4.5.2 Closing

You need a socket wrench (SW8) for the central retaining screw.

1. **NOTICE** An improperly seated gasket in the EBOX creates a strong counterforce when closing the MOVIFIT® unit.

   The central opening/closing mechanism may be damaged as a result.

   - Make sure that the gasket is properly seated in the groove of the EBOX.

     This means that

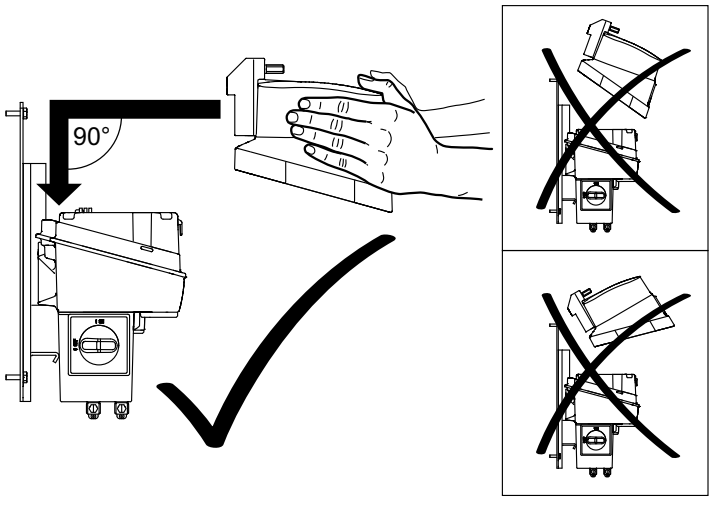
   – the gasket is inserted into the groove over the entire circumference

   – and does not protrude from the groove.

2. Position the EBOX on the ABOX.

   - Do not jam the EBOX during this procedure.
   - Hold the EBOX only on both sides during the procedure.

     See following figure.



813362059

19484828/EN – 01/2015

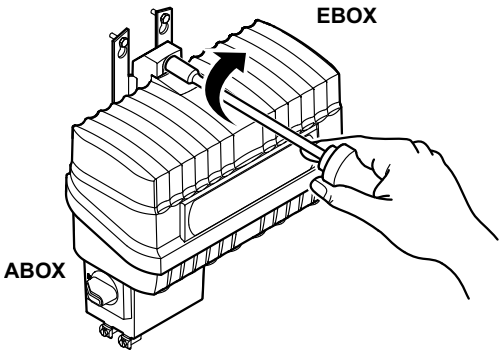
3. Check the EBOX for correct position.

   NOTICE The central opening/closing mechanism may be damaged as a result.

   Destruction of central opening/closing mechanism.

   - Carefully close the EBOX manually if it is in a tilted mounting position.
   - Make sure that the EBOX does not get jammed.

4. Tighten the retaining screw up to the stop using a tightening torque of 7 Nm.

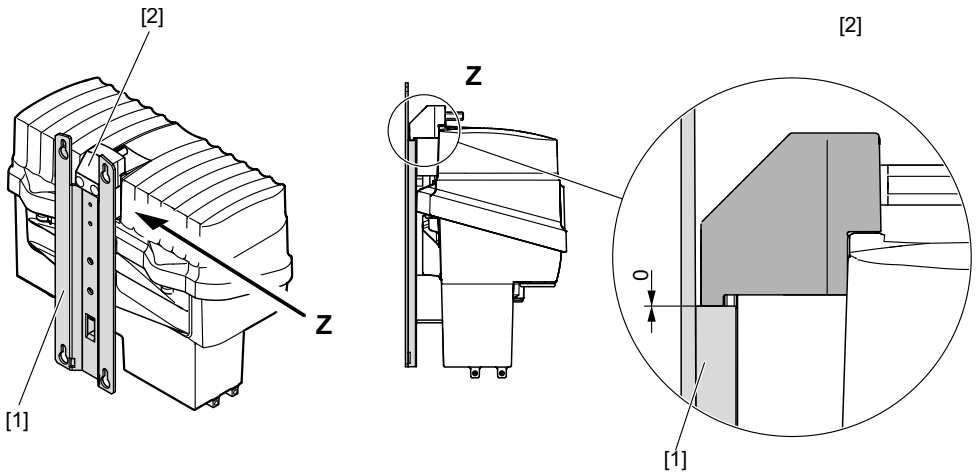


813384075

   NOTICE If the torque is too high, the central opening/closing mechanism can be destroyed.

   - Tighten the retaining screw with a maximum tightening torque of 7 Nm.
   - If there is a noticeable counter-torque, remove the EBOX again and check to see that the gasket is seated properly. If necessary, press the gasket firmly into the groove.
   - Never tighten the retaining screws with impermissibly high tightening torques.

5. MOVIFIT® is closed correctly when the redirector of the closing mechanism [2] is on the mounting panel [1].



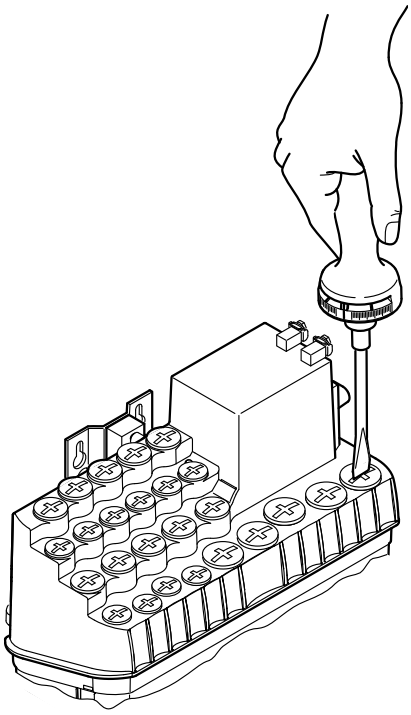
813392395

19484828/EN – 01/2015

4.6 Tightening torques

4.6.1 Blanking plugs

Tighten the blanking plugs **included in the delivery** with 2.5 Nm:

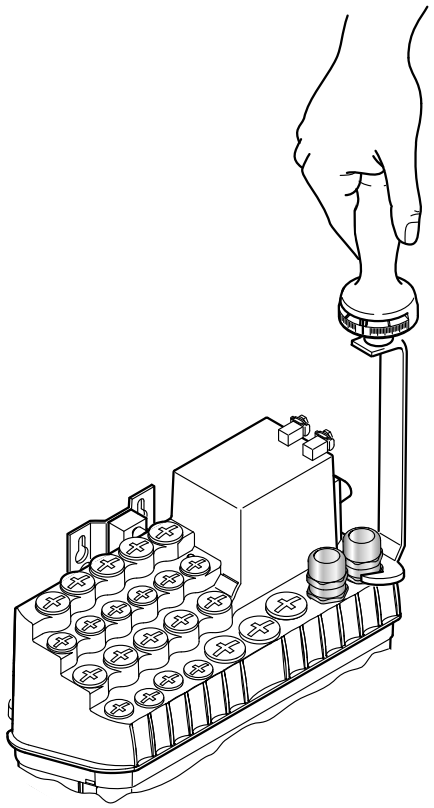


758614667

19484828/EN – 01/2015

4.6.2 EMC cable glands

Tighten the EMC cable glands **optionally** supplied by SEW-EURODRIVE to the following torques:



758624523

Screw fitting	Part number	Size	Tightening torque
EMC cable glands (nickel-plated brass)	18204783	M16 x 1.5	3.5 Nm to 4.5 Nm
	18204791	M20 x 1.5	5.0 Nm to 6.5 Nm
	18204805	M25 x 1.5	6.0 Nm to 7.5 Nm
EMC cable glands (stainless steel)	18216366	M16 x 1.5	3.5 Nm to 4.5 Nm
	18216374	M20 x 1.5	5.0 Nm to 6.5 Nm
	18216382	M25 x 1.5	6.0 Nm to 7.5 Nm

The cable retention in the cable gland must withstand the following removal force of the cable from the cable gland:

- Cable with outer diameter > 10 mm: ≥ 160 N
- Cable with outer diameter < 10 mm: = 100 N

19484828/EN – 01/2015

5 Electrical installation

5.1 General information

Observe the following notes on electrical installation:

- Observe the general safety notes.
- Strictly observe all instructions referring to the technical data and the permissible conditions regarding the place of installation.
- Use suitable cable glands for the cables (use reducing adapters if necessary). With connector plug variants, you must use a suitable mating connector.
- Seal open cable entries with screw plugs.
- Use protective caps to seal plug connectors not in use.

5.2 Installation planning taking EMC aspects into account

INFORMATION

This drive system is not designed for operation on a public low voltage supply system that supplies residential areas.

MOVIFIT® units can cause EMC interference within the permitted limit range according to EN 61800-3. In this case, it is recommended for the operator to take suitable measures.

For detailed information on EMC compliant installation, refer to the SEW publication Drive Engineering – Practical Implementation, "Electromagnetic Compatibility in Drive Engineering".

Successful installation of decentralized drives depends on selecting the correct cables, providing correct grounding and a functioning equipotential bonding.

Always apply the **relevant standards**.

Observe the notes in the following chapters in particular.

19484828/EN – 01/2015

5.2.1 Equipotential bonding

Regardless of the PE connection, it is essential that low-impedance, **HF-capable equipotential bonding** is provided (see also EN 60204-1 or DIN VDE 0100-540):

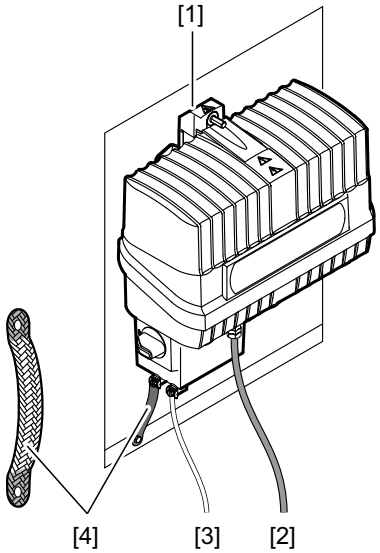
- Establish a connection over a wide surface area between the MOVIFIT® mounting rail and the system (untreated, unpainted, uncoated mounting surface).
- To do so, use a ground strap (HF litz wire) to connect MOVIFIT® and the system's grounding point.

[1] Conductive connection over a large area between MOVIFIT® unit and the mounting plate

[2] PE conductor in the supply cable

[3] 2nd PE conductor via separate terminals

[4] EMC-compliant equipotential bonding, for example using a ground strap (HF litz wire)



9007200851970059

- Do not use the cable shields of data lines for equipotential bonding.

5.2.2 Data lines and 24 V supply

Route data lines and 24 V supply separately from cables that emit interference (such as control cables of solenoid valves, motor cables).

5.2.3 Connection between MOVIFIT® and MOVIMOT®

Only use hybrid cables from SEW-EURODRIVE for the connection between MOVIFIT® and MOVIMOT®.

5.2.4 Line shields

- Must have good EMC properties (high screening attenuation)
- May not serve only as mechanical protection for the cable
- Must be connected to a wide area of the unit's metal housing at the cable ends (see also chapter "Connecting the PROFIBUS cable" (→ 🗎 52) and chapter "Connecting the MOVIMOT® hybrid cable" (→ 🗎 53)).

19484828/EN – 01/2015

5.3 Installation instructions (all versions)

5.3.1 Connecting supply system leads

- The nominal voltage and frequency of the MOVIFIT® unit must correspond to the data of the supplying system.
- Size the cable cross section according to the input current I_{line} for rated power (see "Technical data" chapter).
- Install fuses at the beginning of the power supply cables behind the supply bus junction.

  The following fuses are permitted:

  – Fuses in utilization category gG

  – Power circuit breakers with characteristic B or C

  – Motor protection switch

  Size the fuses according to the cable cross section.
- Use contactor switch contacts from utilization category AC-3 according to EN 60947-4-1 to connect MOVIFIT® drives.
- Switch the MOVIFIT®unit output with inhibited output stage only.

5.3.2 Residual current device

⚠ WARNING

No protection against electric shock if an incorrect type of residual current device is used.

Severe or fatal injuries.

- Use only universal current sensitive residual current devices of type B for 3-phase frequency inverters.

- A 3-phase frequency inverter creates a DC component in the leakage current and may greatly reduce the sensitivity of a type-A residual current device. A type-A residual current device is therefore not permitted as a protection device.

  Use only a type-B residual current device.
- If the use of a residual current device is not stipulated in the standards, SEW-EURODRIVE recommends not using a residual current device.

5.3.3 Line contactor

- Use contactor switch contacts of utilization category AC-3 according to EN 60947-4-1 to connect the supply system cable.

19484828/EN – 01/2015

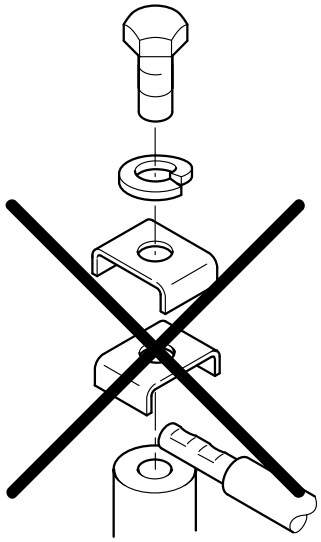
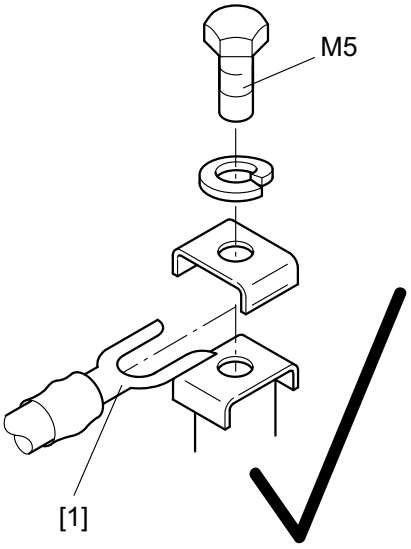
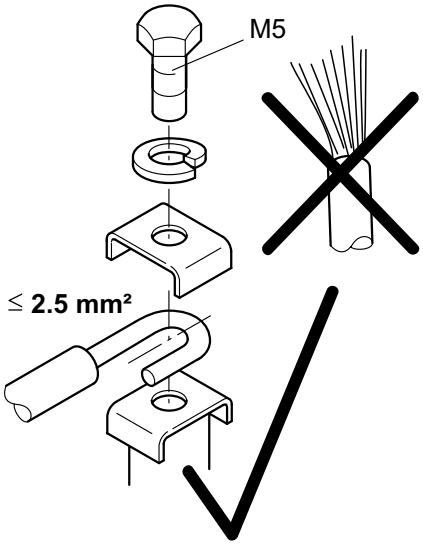
5.3.4 Notes on PE connection and/or equipotential bonding

⚠ WARNING

Electric shock due to incorrect connection of PE.

Severe, fatal injuries.

- The permitted tightening torque for the screw is 2.0 to 2.4 Nm (18 to 21 lb.in)
- Observe the following notes regarding the PE connection:

Prohibited assembly	Recommendation: Assembly with forked cable lug Permitted for all cross sections	Assembly with solid connecting wire Permitted for cross section up to max. 2.5 mm²
 9007199577783435	 9007199577775243	 9007199577779339

[1] Forked cable lug suitable for M5 PE screws

Leakage currents ≥ 3.5 mA can occur during normal operation. To meet the requirements of EN 61800-5-1, observe the following notes:

- The protective earth (PE) connection must meet the requirements for plants with high earth-leakage currents.
- This usually means
  - installing a PE connection cable with a minimum cross section of 10 mm²
  - or installing a second PE connection cable in parallel with the original PE connection.

19484828/EN – 01/2015

5.3.5 Definition PE, FE

⚠ WARNING

Electric shock due to incorrect connection of PE to the terminals marked with "FE" (functional earth). The FE connections are not designed for this purpose. This means electrical safety is not guaranteed.

Severe or fatal injuries.

- The permitted tightening torque for the retaining screw is 2.0 to 2.4 Nm.
- Observe the following notes regarding the PE connection:

- **PE** refers to the mains-side protective earth connection. The PE conductor in the mains connection cable may only be connected with terminals marked with "PE". These are dimensioned for the max. permitted line connection cross section.
- **FE** refers to connections for "functional earth". You can connect any existing grounding conductor in the 24 V connection lead.

5.3.6 Meaning of the 24 V voltage levels

MOVIFIT® has a total of 4 different 24 V potential levels, which are electrically isolated from each other:

- 1) 24V_C: C = Continuous
- 2) 24V_S: S = Switched
- 3) 24V_P: P = Power section
- 4) 24V_O: O = Option

Depending on the requirements of the application, these can either be isolated, supplied externally, or connected to each other via a X29 distributor terminal.

24V_C = Electronics and sensor supply

The 24V_C voltage level supplies:

- MOVIFIT® control electronics
- The sensors connected to the sensor supply outputs VO24_I, VO24_II and VO24_III.

Do not disconnect the 24V_C voltage level during operation. If you do this, you can no longer control the MOVIFIT® unit via fieldbus or network, and the sensor signals are no longer processed.

When restarted, the MOVIFIT® unit needs a certain amount of time to boot.

19484828/EN – 01/2015

24V_S = Actuator supply

The 24V_S voltage level supplies:

- The digital outputs DO..
- The connected actuators
- The VO24_IV sensor supply output

The digital inputs DI12 – DI15 are connected to the reference potential 0V24_S as these can be connected to the same connections as an alternative to the outputs.

To centrally deactivate the actuators of the plant, you can disconnect the 24V_S voltage level during operation, if required.

24V_P = Inverter supply

The 24V_P voltage level supplies the connected MOVIMOT® inverter with 24 V. The voltage is conveyed through the EBOX, where it supplies the RS485 interfaces of the MOVIMOT® inverters.

Depending on the application, the 24V_P voltage level can be supplied by 24V_C or 24V_S (via jumpers at X29) or externally. The required jumpers are included in the delivery.

⚠ WARNING

Faulty connection of the safety relay or the safety controller can cause a hazard in applications with a safe disconnection function.

Severe or fatal injuries may result.

- For such applications with a safe disconnection function, 24V_P must be connected via a suitable safety relay or a safety controller.
- If you are using a MOVIFIT® with the S11 PROFIsafe option, observe the permitted wiring diagrams and the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety" manual.
- If you are using a MOVIFIT® with the S12 safety option, observe the diagrams of permitted connections and the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

You must ensure that the connected MOVIMOT® inverters are no longer supplied with 24 V when switching off the voltage. This causes an error message.

19484828/EN – 01/2015

24V_O = Option supply

The 24V_O voltage level supplies:

- the integrated option card S11, S12A or S12B
- and the sensor/actuator interfaces on the S11 option card.

With PROFIsafe option S11 and safety option S12, the complete safety electronics and the safe inputs/outputs are supplied from 24V_O.

⚠ WARNING

Danger with applications with safe disconnection due to incorrect safe disconnection.

Severe or fatal injuries.

- If you use MOVIFIT® with the PROFIsafe option S11, observe the permissible wiring diagrams as well as the safety conditions specified in the "MOVIFIT® MC / FC – Functional Safety" manual.
- If you use MOVIFIT® with the safety option S12, observe the permissible wiring diagrams as well as the safety conditions specified in the "MOVIFIT® MC / FC – Functional Safety with Safety Option S12" manual.

Depending on the application, the 24V_O voltage level is supplied by:

- The 24V_C voltage level
- The 24V_S voltage level (via jumpers at terminal X29)
- An external source

Note that the entire S11/S12 option card with the connected sensors and actuators is no longer supplied when the voltage level is disconnected. This causes an error message.

Connection of voltages

Connect the 24V_C and 24V_S voltage levels to terminal X20 with a large cable cross section. Loop the 24V_C and 24V_S voltage levels through to the next MOVIFIT® unit as "24 V power bus" with a large cable cross section.

Connect the 24V_P and 24V_O voltage levels to terminal X29.

INFORMATION

- For connection examples, refer to chapter "Power bus connection examples" (→ 🗎 97).
- For the permitted connection cross sections, refer to chapter "Standard ABOX.." > Additional installation instructions" > "Permitted connection cross section".

19484828/EN – 01/2015

5.3.7 Dimensioning the 24 V voltage supply

This chapter describes the dimensioning of the DC 24 V supply.

The following table gives an overview of the current consumption and power demand of the DC 24 components of MOVIFIT®:

24 V voltage level	Component	Fieldbus function level	Current consumption	Power at V_{IN} = 24 V [1]
24V_C	MOVIFIT® control electronics	"Classic" PROFIBUS	100 mA	2.4 W
		"Classic" DeviceNet™	100 mA	2.4 W
		"Classic" PROFINET IO	250 mA	6.0 W
		"Technology" PROFIBUS	250 mA	6.0 W
		"Technology" DeviceNet™	200 mA	4.8 W
		"Technology" PROFINET IO	250 mA	6.0 W
		"Technology" ModbusTCP	250 mA	6.0 W
		"Technology" EtherNet/IP™	250 mA	6.0 W
	POF option L10		180 mA	4.0 W
	Sensors at DI.. (VO24_I – VO24_III)		[2]	[2]
24V_S	Sensors at DI.. (VO24_IV)		[2]	[2]
	Actuators at DO.. (VO24_IV)		[2]	[2]
24V_P	MOVIFIT® MC with n x MOVIMOT® MM..D		n x 120 mA	n x 2.9 W
	MOVIFIT® SC (motor starter)		100 mA	2.4 W
	MOVIFIT® FC (inverter)		180 mA	4.3 W
24V_O	PROFIsafe option S11		100 mA	2.4 W
	S12A safety option		100 mA	2.4 W
	S12B safety option		100 mA	2.4 W
	Sensors at F-DI..		[2]	[2]
	Actuators at F-DO..		[2]	[2]

1) The power demand is respectively reduced/increased with deviating voltage input.

2) Observe the specifications of the sensor/actuator manufacturer for this value. If several sensors/actuators are use with the MOVIFIT®, multiply the value by the number of sensors/actuators.

When the 24 V supply 24V_P of the inverter power section is connected or the STO safety function is deactivated, increased capacitive charging currents may briefly occur.

The duration and amount of the charging currents depend on:

- Cable length and cross section
- Number of stations that are connected simultaneously
- Characteristics such as internal resistance and current limiting as well as overload capacity of the 24 V power supply unit

The 24 V supply and the lines must be configured in a way that all units are always supplied with at least 18 V.

19484828/EN – 01/2015

Example 1

MOVIFIT® MC with:

- "Classic" function level
- PROFINET IO interface
- S12A safety option

Type designation

EBOX: MTM11A000-E20A-00\S12A

ABOX: MTA11A-503-S613-M01-00

Connected components

The following components are connected to the MOVIFIT® unit:

- 3 MOVIMOT® MM..D inverters
- 0 sensors
- 0 actuators
- 4 sensors (safety related) each with 50 mA (1.2 W)
- 1 actuator (safety related) with 200 mA (4.8 W)

Current and power demand

The following table shows the current and power demands of the components that must be taken into account when dimensioning the 24 V supply:

24 V voltage level	Component	Current demand	Power at V_{IN} = 24 V
24V_C	MOVIFIT® control electronics "Classic" PROFINET IO	250 mA	6.0 W
	0 sensors at DI00 to DI11 (VO24_I to VO24_III)	–	–
24V_S	0 sensors at DI12 to DI15.. (VO24_IV)	–	–
	0 actuators at DO00, DO03 (VO24_IV)	–	–
24V_P	3 x MOVIMOT® MM..D	3 x 120 mA	3 x 2.9 W
24V_O	S12A safety option	100 mA	2.4 W
	4 sensors at F-DI.. (F-SS0, F-SS1)	200 mA	4.8 W
	1 actuator at F-DO..	200 mA	4.8 W
Total consumption of the MOVIFIT® unit (incl. MOVIMOT®):		**1110 mA**	**26.7 W**

INFORMATION

The current and power demands (400 V) of the connected MOVIMOT® drives are not taken into account.

19484828/EN – 01/2015

Example 2

MOVIFIT® MC with:

- "Technology" function level
- EtherNet/IP™ interface

Type designation

EBOX: MTM11A000-E31A-00

ABOX: MTA11A-503-S513-M01-00

Connected components

The following components are connected to the MOVIFIT® unit:

- 2 MOVIMOT® MM..D inverters
- 8 sensors, each with 50 mA (1.2 W)
- 2 actuators, each with 100 mA (2.4 W)
- 0 sensors (safety related)
- 0 actuators (safety related)

Current and power demand

The following table shows the current and power demands of the components that must be taken into account when dimensioning the 24 V supply:

24 V voltage level	Component	Current consumption	Power at V_{IN} = 24 V
24V_C	MOVIFIT® control electronics "Technology" EtherNet/IP™	250 mA	6.0 W
	8 sensors at DI00 to DI11 (VO24_I to VO24_III)	400 mA	9.6 W
24V_S	0 sensors at DI12 to DI15.. (VO24_IV)	–	–
	2 actuators at DO00, DO01 (VO24_IV)	200 mA	4.8 W
24V_P	2 x MOVIMOT® MM..D	2 x 120 mA	2 x 2.9 W
24V_O	0 options	–	–
	0 sensors at F-DI..	–	–
	0 actuators at F-DO..	–	–
Total consumption of the MOVIFIT® unit (incl. MOVIMOT®):		**1090 mA**	**26.2 W**

INFORMATION

The current and power demands (400 V) of the connected MOVIMOT® drives are not taken into account.

19484828/EN – 01/2015

5.3.8 Plug connectors

All MOVIFIT® plug connectors are illustrated in these operating instructions with view on the contact end.

5.3.9 Protection devices

MOVIFIT® drives have integrated protection devices against overloads. External overload devices are not necessary.

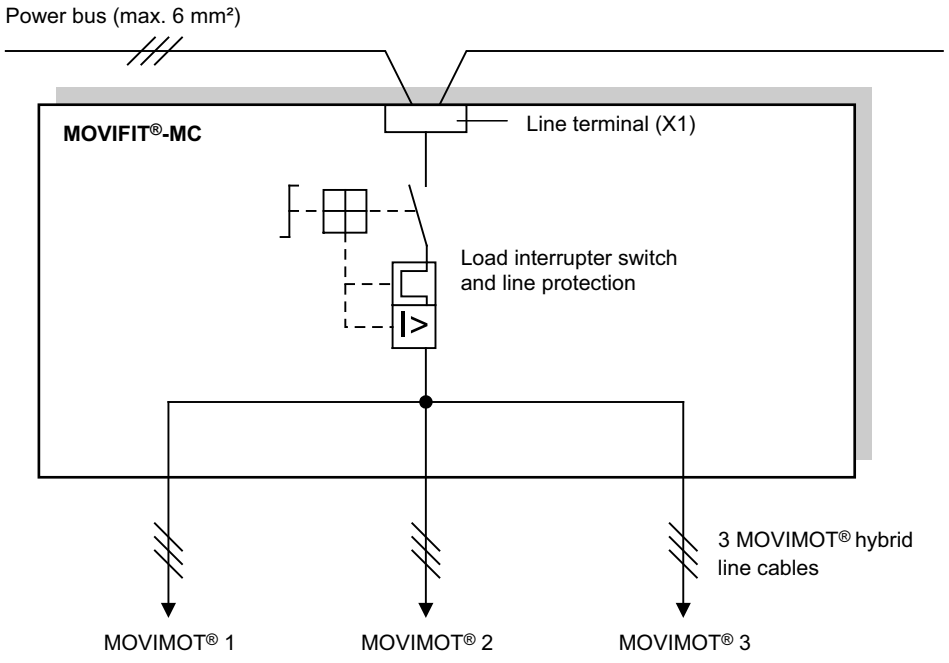
5.3.10 Installation altitude higher than 1000 m above sea level

MOVIFIT® units with supply voltages of 380 to 500 V can be used at altitudes above 1000 up to 4000 m above sea level. To do so, you must observe the following basic conditions.

- At heights above 1000 m above sea level, the nominal continuous power is reduced due to reduced cooling: I_N reduction by 1% per 100 m.
- At altitudes of 2000 to 4000 m above sea level you must take limiting measures which reduce the line side overvoltage from category III to category II for the entire system.

5.3.11 Power distribution and line protection

MOVIFIT® MC has an integrated motor protection switch.



9007200274584715

The switch provides joint protection for the maximum of 3 MOVIMOT® supply system lines (hybrid cables). The switch is designed for hybrid cables with a core cross section of 1.5 mm² or 2.5 mm².

When dimensioning the system, ensure that the connected MOVIMOT® supply system lines are protected against short circuiting and overloading (according to IEC 60364-4-43, HD 60364-4-43, DIN VDE 0100-430) based on the particular grid impedance, the line lengths and the transition resistances.

For UL-compliant installation, you must observe additional restrictions; see the chapter "Installation instructions" > "UL-compliant installation".

5.3.12 UL-compliant installation

INFORMATION

Due to UL requirements, the following chapter is always printed in English independent of the language of the publication.

Field wiring power terminals

Observe the following notes for UL-compliant installation:

- Use 75 °C copper wire only
- MOVIFIT® uses cage clamp terminals.

Short circuit current rating

Suitable for use on a circuit capable of delivering not more than 200 000 rms symmetrical amperes when protected as follows:

For 240 V systems:

250 V minimum, 25 A maximum, non-semiconductor fuses

or 250 V minimum, 25 A maximum, inverse time circuit breakers

For 500 V systems:

- MOVIFIT® MC, max. voltage is limited to 500 V.

Branch circuit protection

Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.

For maximum branch circuit protection see table below.

Series	Non-semiconductor fuses	Inverse time circuit breakers
MOVIFIT® MC	250 V/500 V minimum, 25 A maximum	250 V/500 V minimum, 25 A maximum

Motor overload protection

MOVIFIT® MC is not equipped with solid state motor overload protection or the equivalent.

Device and line protection

MOVIFIT® MC: Units equipped with ABOXes MTA...-M14-.. or MTA...-M15-.. are provided with device protection and line protection.

Ambient temperature

MOVIFIT® MC is suitable for an ambient temperature of 40 °C, max. 60 °C with derated output current. To determine the output current rating at higher than 40 °C, the output current should be derated at 3.0% per °C between 40 °C and 60 °C.

19484828/EN – 01/2015

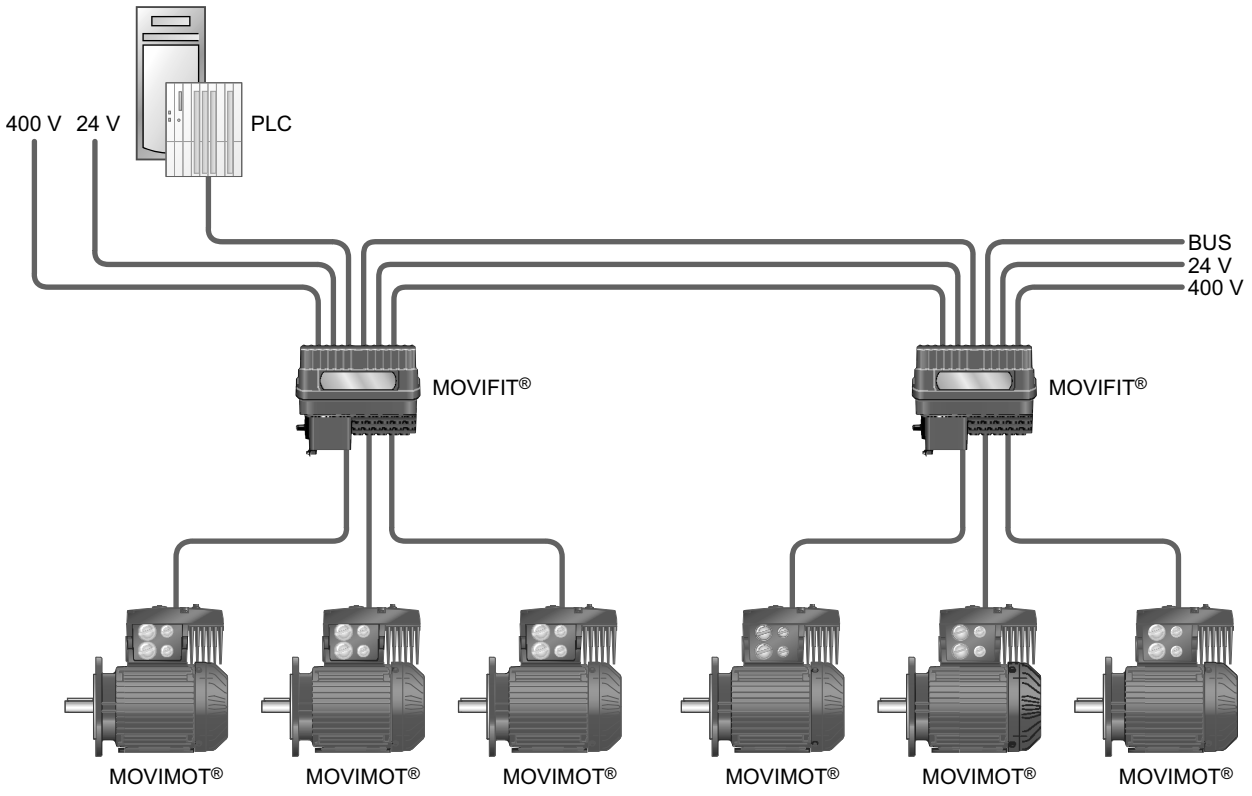
ABOX-EBOX combination

For UL-compliant installation, only the EBOX specified on the ABOX nameplate may be mounted to the ABOX. The UL certification refers only to the ABOX/EBOX combination stated on the nameplate.

The UL certification only applies for operation on voltage supply systems with voltages to ground of max. 300 V. UL approval does not apply for operation on voltage supply systems with a non-grounded star point (IT systems).

5.4 Installation topology (example)

The following figure shows the general installation topology of MOVIFIT® MC units with 3 MOVIMOT® drives each:



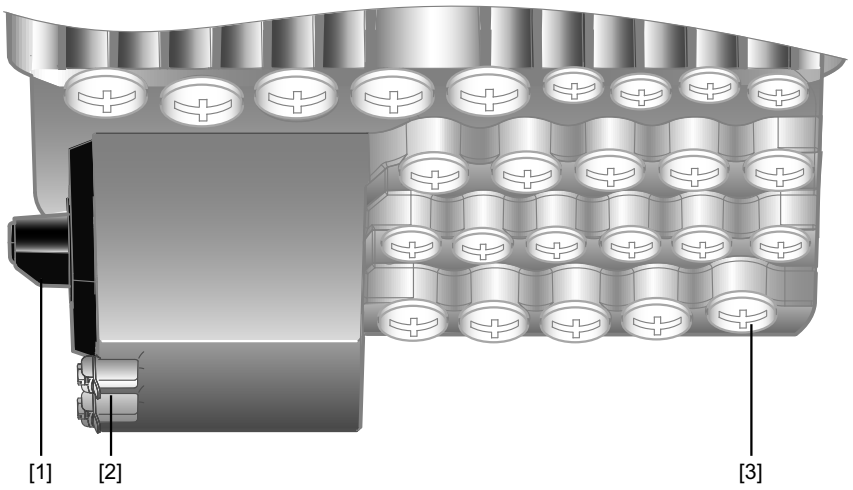
5061897483

19484828/EN – 01/2015

5.5 Standard ABOX "MTA...-S01.-...-00"

5.5.1 Description

The following figure depicts the Standard ABOX with terminals and cable bushings:



9007200067288715

[1] Maintenance switch
[2] PE connection
[3] Diagnostic socket (RJ10) under the screw fitting

19484828/EN – 01/2015

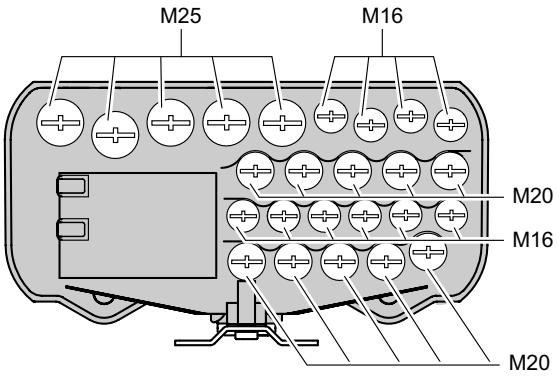
5.5.2 Variants

The following variants of the standard ABOX are available for MOVIFIT® MC (MTM):

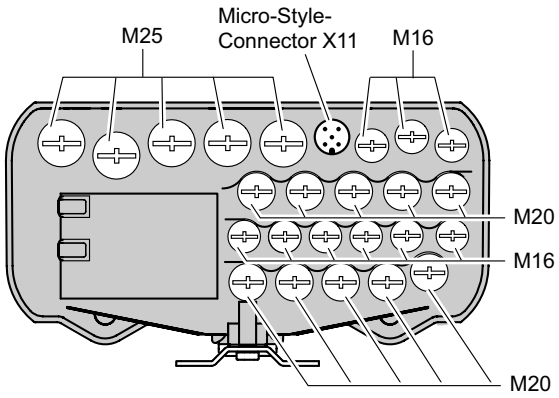
- MTA11A-503-**S01**.-...-00:
  - Load disconnector and line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the standard ABOX for the different fieldbus interfaces:

PROFIBUS MTA11A-503-S01**1**-...-00
PROFINET
Ethernet/IP™ } MTA11A-503-S01**3**-...-00
Modbus/TCP



DeviceNet™ MTA11A-503-S01**2**-...-00



5774031627

5.5.3 Additional installation instructions for "MTA...-S01.-...-00"

Permitted connection cross section and current carrying capacity of the terminals

Terminal data	X1, X20	X7, X8, X9	X25, X30, X31, X35, X45, X71, X81, X91	X29
Connection cross section	0.2 – 6 mm^2	0.08 – 4[1] mm^2	0.08 – 2.5[1] mm^2	0.2 – 1.5[1] mm^2
	AWG 24 – AWG 10	AWG 28 – AWG 12[1]	AWG 28 – AWG 14[1]	AWG 24 – AWG 16[1]
Current carrying capacity (max. continuous current)	X1: 32 A X20: 16 A	20 A	10 A	10 A
Length of conductor to be stripped	13 – 15 mm	8 – 9 mm	5 – 6 mm	9 – 10 mm

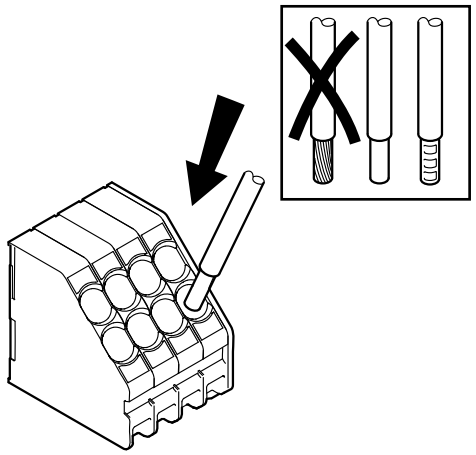
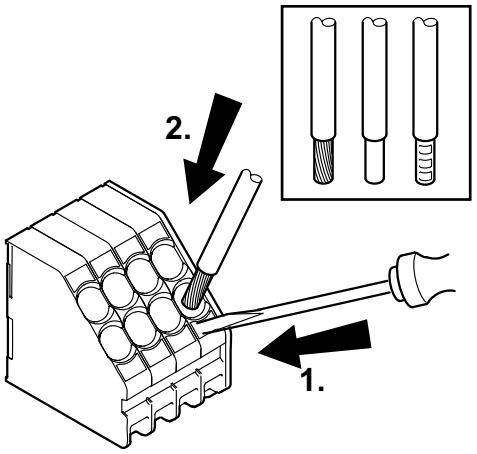
1) The maximum permitted cross section is reduced by one unit when using conductor end sleeves (e.g. 2.5 → 1.5)

Conductor end sleeves

Use conductor end sleeves without plastic collars for terminals X1, X20, X7, X8 and X9 (DIN 46228 part 1, material E-CU).

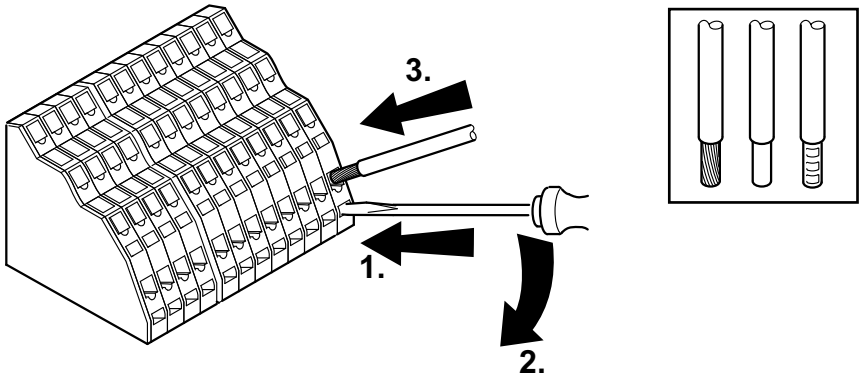
19484828/EN – 01/2015

Enabling the terminals

Terminals X1, X20	
Connecting conductors without a screwdriver[1)]	**Connecting conductors with a screwdriver[2)]**
	
812406283	*812407947*

1) Single-wire conductors and flexible conductors with conductor end sleeves can be installed directly (without using a tool) up to 2 cross section sizes below the rated cross section.

2) Untreated, flexible conductors or conductors with small cross sections cannot be directly inserted into the terminal. To open the clamping spring when you want to connect such conductors, push a screwdriver firmly into the actuation opening.

Terminals X7, X71, X8, X81, X9, X91, X29, X45, X25, X30, X31, X35[1)]

812404619

1) With these terminals, you must always connect the conductor with a screwdriver irrespective of the conductor type.

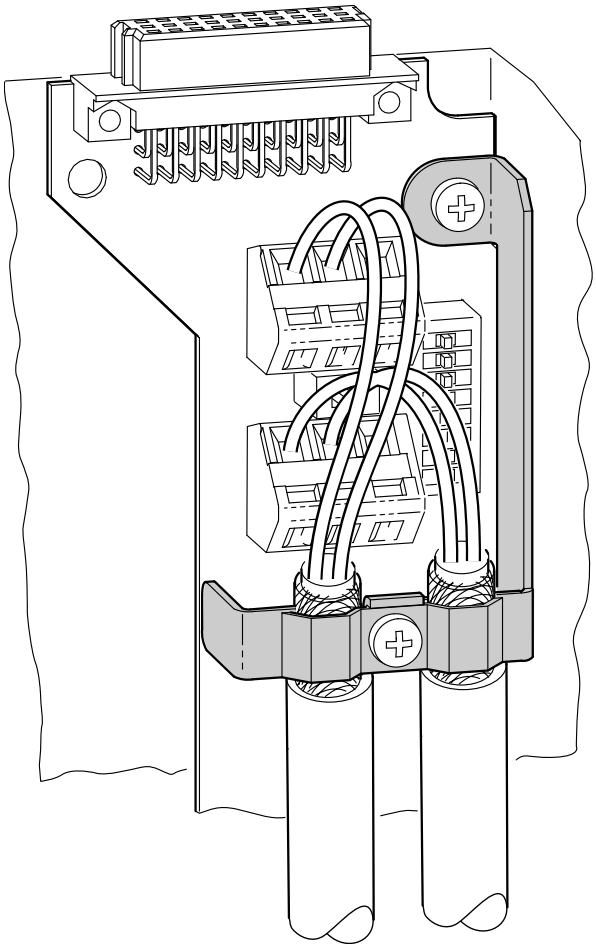
19484828/EN – 01/2015

Connection of the PROFIBUS cable in MOVIFIT®

Observe the following guidelines of the PROFIBUS user organization (Internet: www.profibus.com) for your PROFIBUS installation:

- "Installation guidelines for PROFIBUS DP/FMS", order number 2.111 (German) or 2.112 (English)
- "Installation recommendations for PROFIBUS", order number 8.021 (German) or 8.022 (English)

Apply the cable shield of the PROFIBUS cable as follows:



812446219

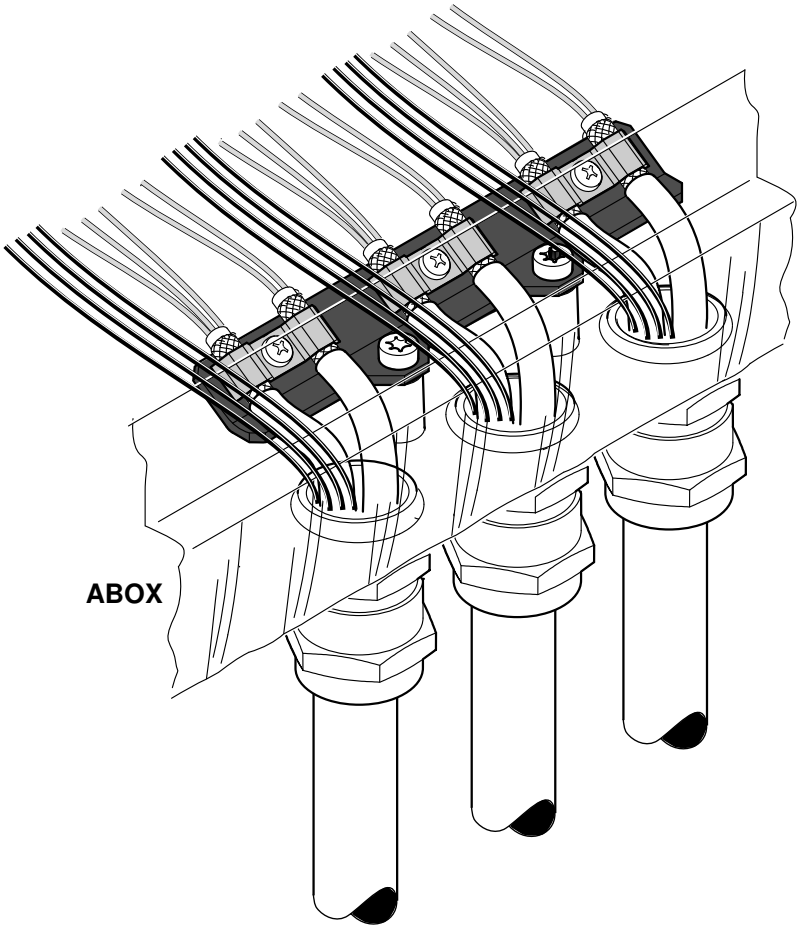
INFORMATION

- Note that the PROFIBUS connector cores inside the MOVIFIT® must be kept as short as possible and are always of equal length for the incoming and outgoing bus.
- The PROFIBUS is not interrupted when you remove the EBOX from the ABOX.

19484828/EN – 01/2015

Connecting the MOVIMOT® hybrid cables

- SEW-EURODRIVE recommends using the shielded and pre-fabricated SEW hybrid cables specifically designed for connecting MOVIFIT® and MOVIMOT® (see "Hybrid cable" chapter).
- The cable shield of the hybrid cable must be connected across shield plates in the MOVIFIT® ABOX as follows:



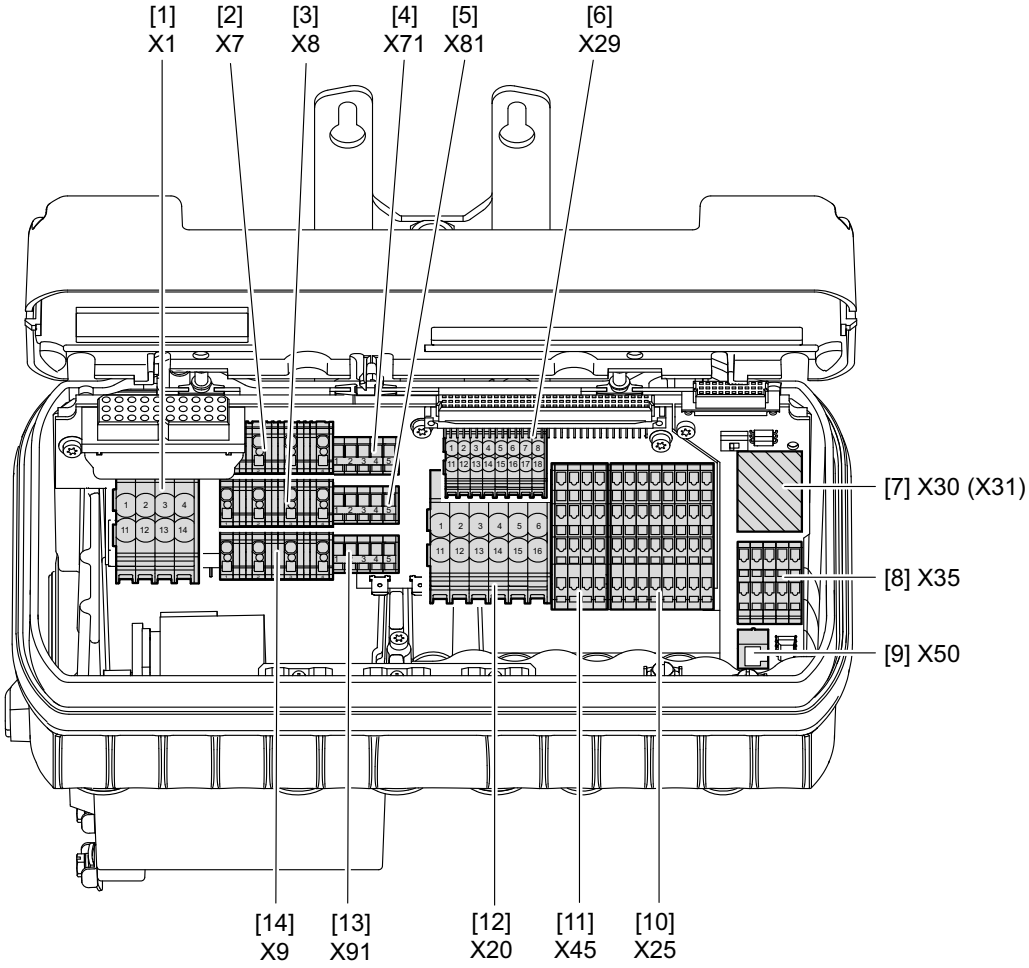
9007200274714123

INFORMATION

- In contrast to the standard ABOX, the hybrid ABOXes MTA...-I..-...-00 and MTA...-G..-...-00 have no shield plates. Here, the cable shields must be connected via EMC cable glands.

5.5.4 Terminal positions

The following figure shows the position of the terminals in the ABOX:



5774331915

[1]	X1	Supply system terminals
[2]	X7	Terminals for MOVIMOT® drive 1, phase L1 to L3
[3]	X8	Terminals for MOVIMOT® drive 2, phase L1 to L3
[4]	X71	Terminals for MOVIMOT® drive 1, 24 V + RS485
[5]	X81	Terminals for MOVIMOT® drive 2, 24 V + RS485
[6]	X29	24 V distributor terminals
[7]	X30, (X31)	Fieldbus terminals or fieldbus plug connector, depending on fieldbus. The area dependent on the fieldbus type is hatched.
[8]	X35	SBus terminals (CAN)
[9]	X50	Diagnostic interface (RJ10, female)
[10]	X25	I/O terminals for digital inputs/outputs (connection of sensors + actuators)
[11]	X45	I/O terminals for safety-related digital inputs/outputs (only with option card S11, S12A or S12B)
[12]	X20	24 V supply terminal (24 V power bus)
[13]	X91	Terminals for MOVIMOT® drive 3, 24 V + RS485
[14]	X9	Terminals for MOVIMOT® drive 3, phase L1 to L3

19484828/EN – 01/2015

5.5.5 Terminal assignment

⚠ WARNING

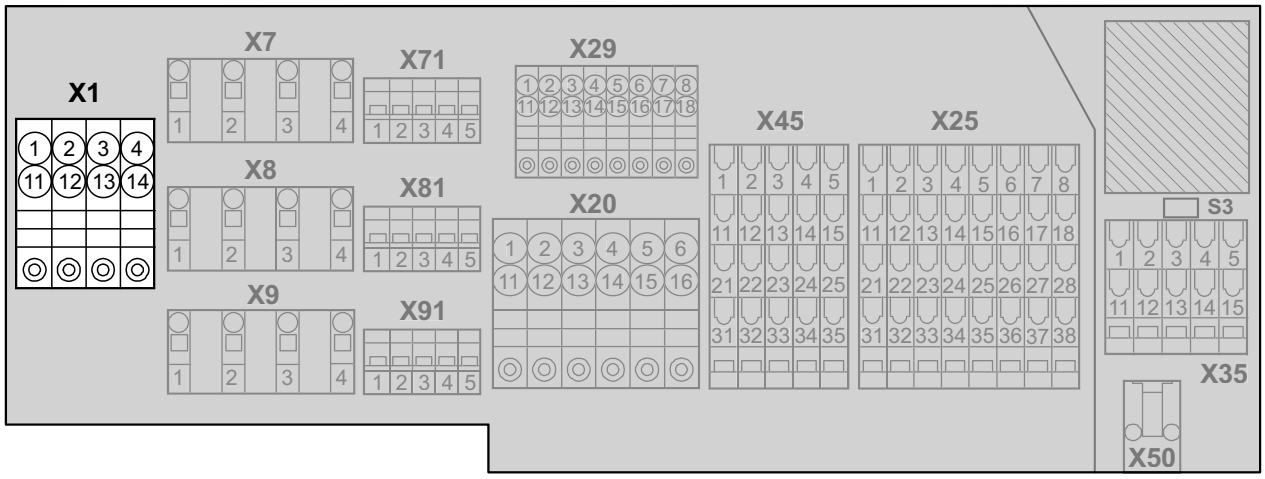
Electric shock due to dangerous voltages in the ABOX.

The maintenance switch only disconnects the connected MOVIMOT® drives from the supply system. Voltage is still present in the X1 terminals of the MOVIFIT® unit. Voltage is still present in the X7, X8, and X9 terminals for up to 1 minute after the maintenance switch is activated.

- Switch off the power to the MOVIFIT® unit using a suitable external disconnecting device, and wait at least 1 minute before opening the wiring space.

The terminal diagrams depicted in this chapter differ depending on the fieldbus system used. The area dependent on the fieldbus is therefore depicted as hatched and is described in the following chapters.

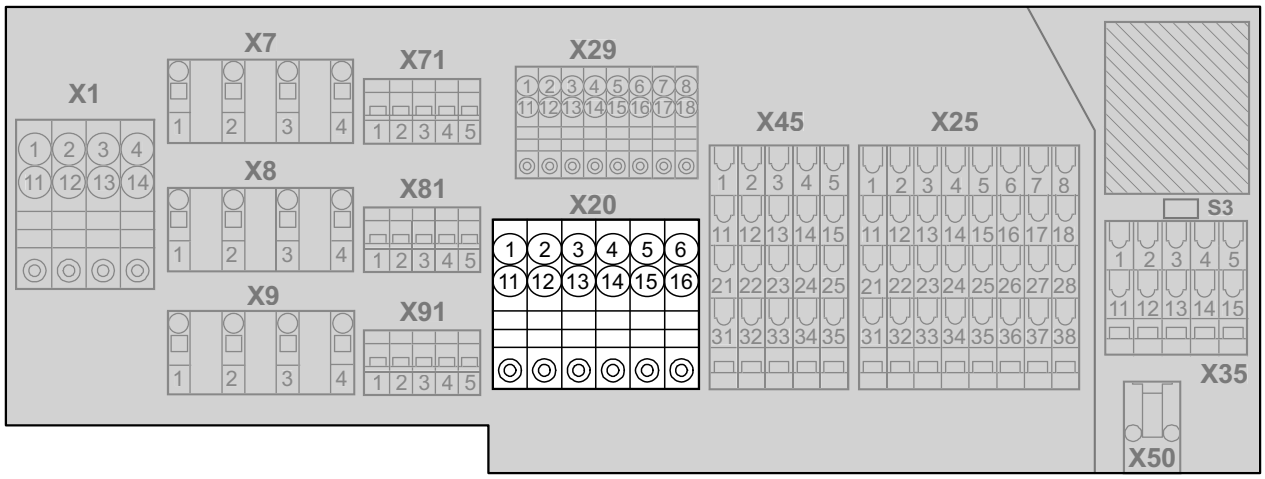
X1: Line terminals (power bus)



1019979147

Line terminal (power bus)			
No.		**Name**	**Function**
X1	1	PE	Line connection PE (IN)
	2	L1	Line connection phase L1 (IN)
	3	L2	Line connection phase L2 (IN)
	4	L3	Line connection phase L3 (IN)
	11	PE	Line connection PE (OUT)
	12	L1	Line connection phase L1 (OUT)
	13	L2	Line connection phase L2 (OUT)
	14	L3	Line connection phase L3 (OUT)

X20: 24 V supply terminal (24 V power bus)

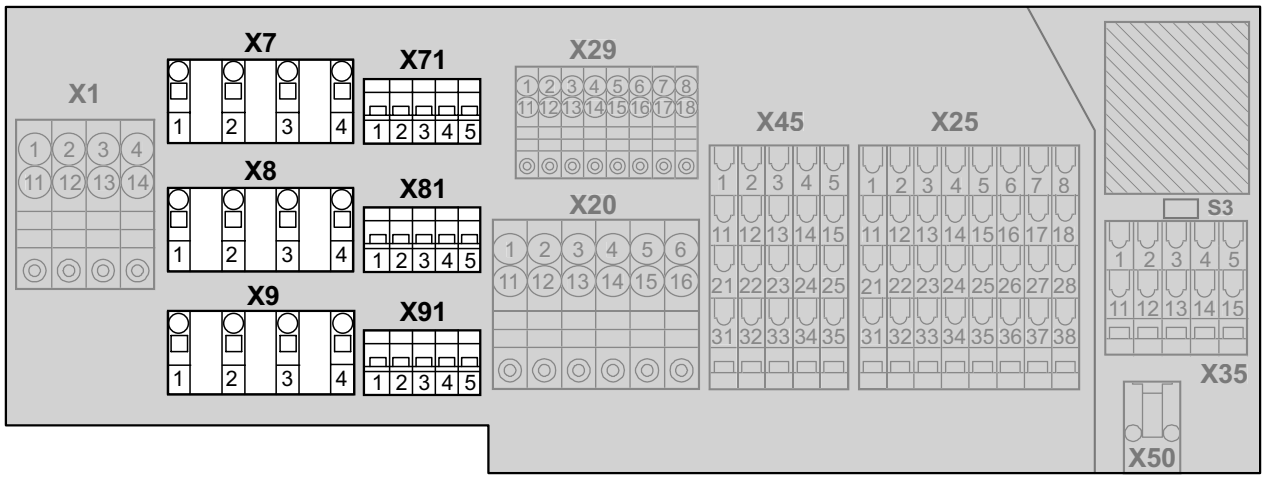


1020202123

24 V supply terminal (24 V power bus)			
No.		**Name**	**Function**
X20	1	FE	Functional earth (IN)
	2	+24V_C	+24 V supply – continuous voltage (IN)
	3	0V24_C	0V24 reference potential – continuous voltage (IN)
	4	FE	Functional earth (IN)
	5	+24V_S	+24 V supply – switched (IN)
	6	0V24_S	0V24 reference potential – switched (IN)
	11	FE	Functional earth (OUT)
	12	+24V_C	+24 V supply – continuous voltage (OUT)
	13	0V24_C	0V24 reference potential – continuous voltage (OUT)
	14	FE	Functional earth (OUT)
	15	+24V_S	+24 V supply – switched (OUT)
	16	0V24_S	0V24 reference potential – switched (OUT)

19484828/EN – 01/2015

X7, X71, X8, X81, X9, X91: MOVIMOT® terminals



1020346251

MOVIMOT® terminal (MOVIMOT® connection via hybrid cable)				
No.		**Name**	**Function**	**MOVIMOT®**
X7	1	PE	PE connection for MOVIMOT® 1	
	2	L1_MM1	Phase L1 for MOVIMOT® 1	
	3	L2_MM1	Phase L2 for MOVIMOT® 1	
	4	L3_MM1	Phase L3 for MOVIMOT® 1	
X71	1	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	1
	2	RS-_MM1	RS485 connection for MOVIMOT® 1, terminal RS -	
	3	RS+_MM1	RS485 connection for MOVIMOT® 1, terminal RS +	
	4	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	
	5	+24V_MM	+24 V supply for MOVIMOT® 1 to 3	
X8	1	PE	PE connection for MOVIMOT® 2	
	2	L1_MM2	Phase L1 for MOVIMOT® 2	
	3	L2_MM2	Phase L2 for MOVIMOT® 2	
	4	L3_MM2	Phase L3 for MOVIMOT® 2	
X81	1	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	2
	2	RS-_MM2	RS485 connection for MOVIMOT® 2, terminal RS -	
	3	RS+_MM2	RS485 connection for MOVIMOT® 2, terminal RS +	
	4	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	
	5	+24V_MM	+24 V supply for MOVIMOT® 1 to 3	
X9	1	PE	PE connection for MOVIMOT® 3	
	2	L1_MM3	Phase L1 for MOVIMOT® 3	
	3	L2_MM3	Phase L2 for MOVIMOT® 3	
	4	L3_MM3	Phase L3 for MOVIMOT® 3	
X91	1	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	3
	2	RS-_MM3	RS-485 connection for MOVIMOT® 3, terminal RS -	
	3	RS+_MM3	RS485 connection MOVIMOT® 3, terminal RS +	
	4	0V24_MM	0V24 reference potential for MOVIMOT® 1 to 3	
	5	+24V_MM	+24 V supply for MOVIMOT® 1 to 3	

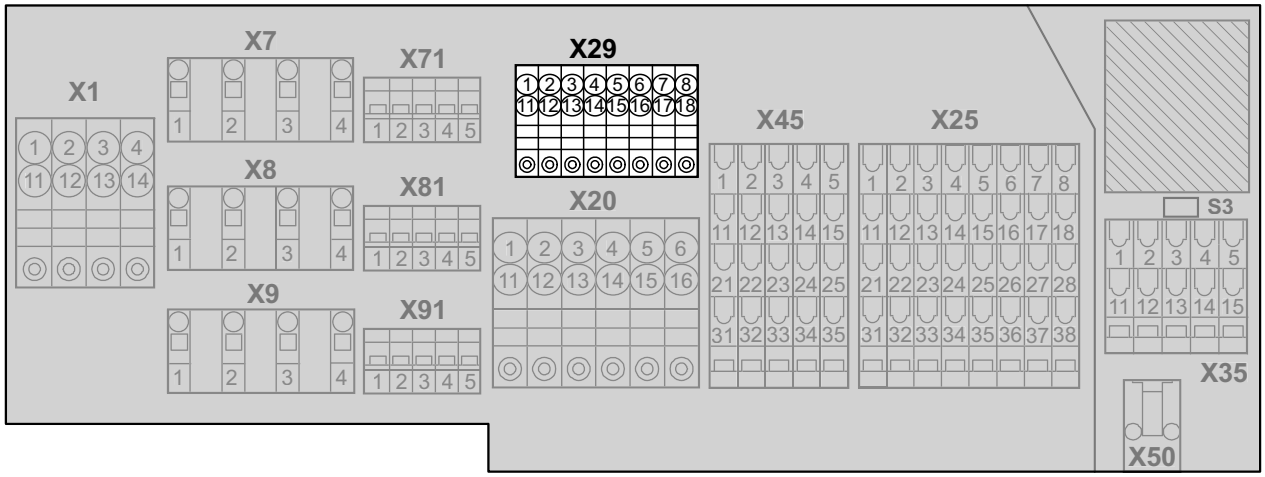
X29: 24 V distributor terminals

⚠ WARNING

Danger due to unexpected unit behavior When you use terminals X29/5 and X29/6 for the safe disconnection function, you must observe the SEW manual "MOVIFIT® MC/FC – Functional Safety".

Severe or fatal injuries may result.

- Note the permitted wiring diagrams and the safety conditions in the "MOVIFIT® MC/FC – Functional Safety" manual.



1020352011

24 V distributor terminal (for distributing the supply voltage(s) to the MOVIMOT® units and the option card)			
No.		**Name**	**Function**
X29	1	+24V_C	+24 V supply – continuous voltage (jumpered with X20/2)
	2	0V24_C	0V24 reference potential – continuous voltage (jumpered with X20/3)
	3	+24V_S	+24 V supply – switched (jumpered with X20/5)
	4	0V24_S	0V24 reference potential – switched (jumpered with X20/6)
	5	+24V_P	+24 V supply for MOVIMOT® (IN)
	6	0V24_P	0V24 reference potential for MOVIMOT® (IN)
	7	+24V_O	+24 V supply for option card, supply
	8	0V24_O	0V24 reference potential for option card, supply
	11	+24V_C	+24 V supply – continuous voltage (jumpered with X20/2)
	12	0V24_C	0V24 reference potential – continuous voltage (jumpered with X20/3)
	13	+24V_S	+24 V supply – switched (jumpered with X20/5)
	14	0V24_S	0V24 reference potential – switched (jumpered with X20/6)
	15	+24V_P	+24 V supply for MOVIMOT® (OUT)
	16	0V24_P	0V24 reference potential for MOVIMOT® (OUT)
	17	+24V_O	+24 V supply for option card, supply
	18	0V24_O	0V24 reference potential for option card, supply

INFORMATION

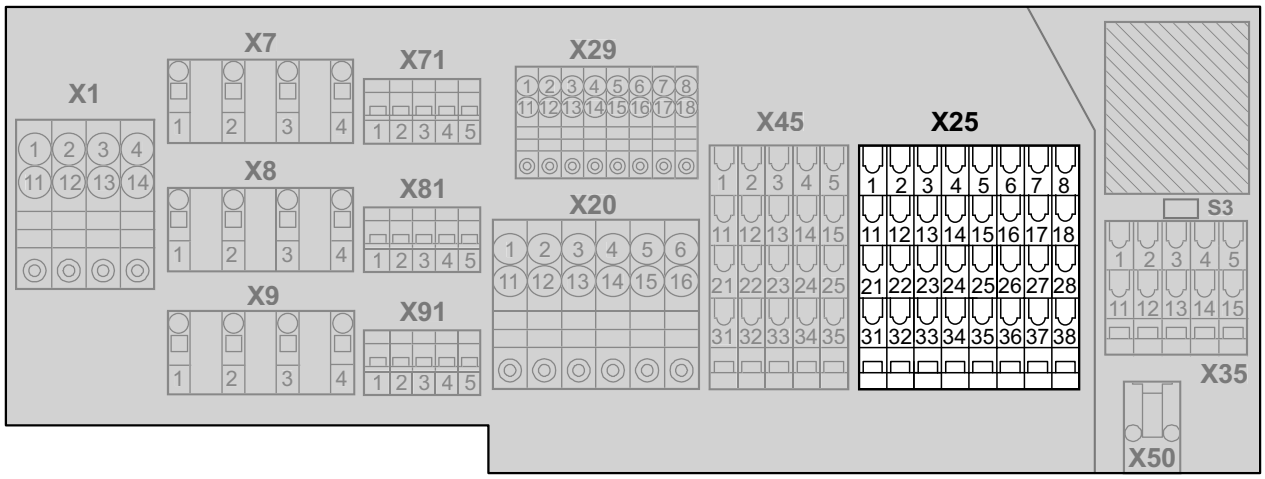
- The terminal assignment "X29" illustrated here applies as of status 11 of the wiring board. If you use a wiring board with another status, consult SEW-EURODRIVE. The status of the wiring board is indicated in the first status field of the ABOX nameplate:

Status: 11 11 -- 10 -- 10 10 -- --

Status of the wiring board

19484828/EN – 01/2015

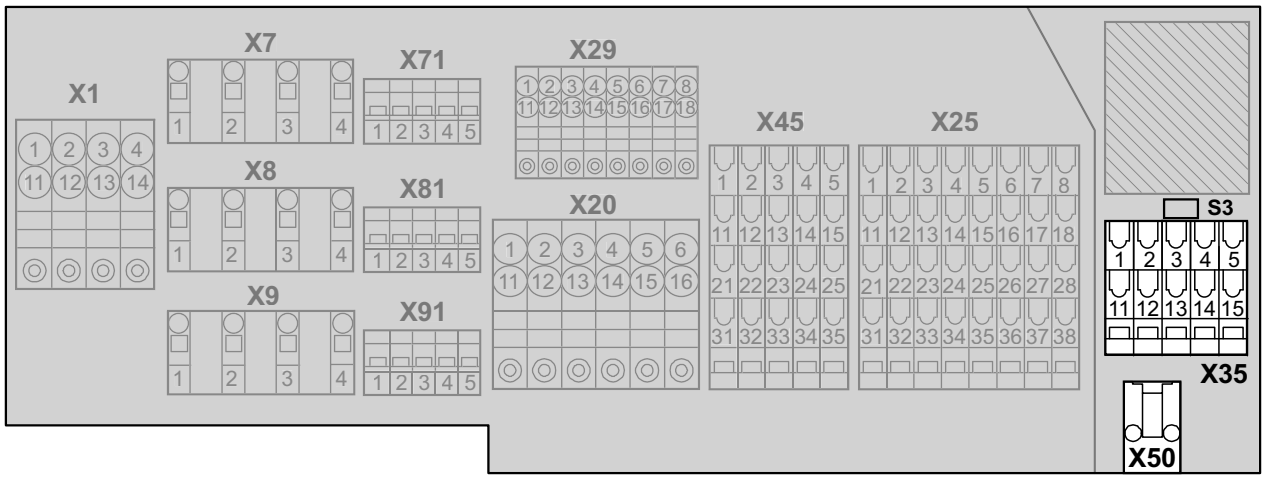
X25: I/O terminals



1020537227

I/O terminals for digital inputs/outputs (connection of sensors + actuators)				
No.		**Name**	**Function**	
X25	1	DI00	Digital input DI00 (switching signal)	
	2	DI02	Digital input DI02 (switching signal)	
	3	DI04	Digital input DI04 (switching signal)	Encoder 1 connection, track A
	4	D06	Digital input DI06 (switching signal)	Encoder 2 connection, track A
	5	DI08	Digital input DI08 (switching signal)	Encoder 3 connection, track A
	6	DI10	Digital input DI10 (switching signal)	
	7	DI12/DO00	Digital output DO00 / digital input DI12 (switching signal)	
	8	DI14/DO02	Digital output DO02 / digital input DI14 (switching signal)	
	11	DI01	Digital input DI01 (switching signal)	
	12	DI03	Digital input DI03 (switching signal)	
	13	DI05	Digital input DI05 (switching signal)	Encoder 1 connection, track B
	14	DI07	Digital input DI07 (switching signal)	Encoder 2 connection, track B
	15	DI09	Digital input DI09 (switching signal)	Encoder 3 connection, track B
	16	DI11	Digital input DI11 (switching signal)	
	17	DI13/DO01	Digital output DO01 / digital input DI13 (switching signal)	
	18	DI15/DO03	Digital output DO03 / digital input DI15 (switching signal)	
	21	VO24_I	+24 V sensor supply group I (DI00 - DI03), from +24V_C	
	22	VO24_I	+24 V sensor supply group I (DI00 - DI03), from +24V_C	
	23	VO24_II	+24 V sensor supply group II (DI04 - DI07), from +24V_C	
	24	VO24_II	+24 V sensor supply group II (DI04 - DI07), from +24V_C	
	25	VO24_III	+24 V sensor supply group III (DI08 - DI11), from +24V_C	
	26	VO24_III	+24 V sensor supply group III (DI08 - DI11), from +24V_C	
	27	VO24_IV	+24 V sensor supply group IV (DI12 - DI15), from +24V_S	
	28	VO24_IV	+24 V sensor supply group IV (DI12 - DI15), from +24V_S	
	31	0V24_C	0V24 reference potential for sensors	
	32	0V24_C	0V24 reference potential for sensors	
	33	0V24_C	0V24 reference potential for sensors	
	34	0V24_C	0V24 reference potential for sensors	
	35	0V24_C	0V24 reference potential for sensors	
	36	0V24_C	0V24 reference potential for sensors	
	37	0V24_S	0V24 reference potential for actuators/sensors, group IV	
	38	0V24_S	0V24 reference potential for actuators/sensors, group IV	

X35: SBus terminals



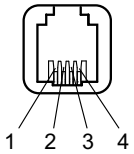
1020542987

SBus terminal (CAN)			
No.		**Name**	**Function**
X35 [1]	1	CAN_GND	0 V reference potential for SBus (CAN)
	2	CAN_H	SBus CAN_H – incoming
	3	CAN_L	SBus CAN_L – incoming
	4	+24V_C_PS	+24 V supply – continuous voltage for peripheral
	5	0V24_C	0V24 reference potential – continuous voltage for peripheral (jumpered with X20/3)
	11	CAN_GND	0 V reference potential for SBus (CAN)
	12	CAN_H	SBus CAN_H – outgoing
	13	CAN_L	SBus CAN_L – outgoing
	14	+24V_C_PS	+24 V supply – continuous voltage for peripheral
	15	0V24_C	0V24 reference potential – continuous voltage for peripheral (jumpered with X20/3)

1) The X35 terminals can only be used with the "Technology" function level.

X50: Diagnostic interface

Function
Diagnostic interface
Connection type
RJ10, female
Wiring diagram



Assignment			
No.		**Name**	**Function**
X50	1	+5V	5 V supply
	2	RS+	RS485 diagnostic interface
	3	RS-	RS485 diagnostic interface
	4	0V5	0 V reference potential for RS485

19484828/EN – 01/2015

X45: I/O terminals for safety-related inputs/outputs with PROFIsafe option S11

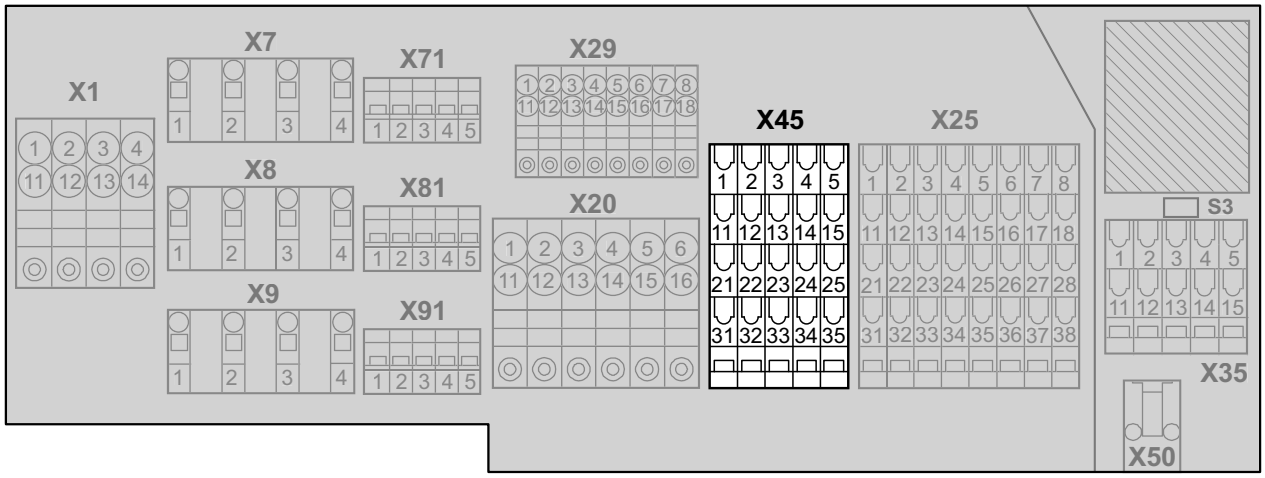
(only with PROFIsafe option card S11)

⚠ WARNING

Danger due to unexpected unit behavior When you are using terminal X45 for safe disconnection, you must observe the "MOVIFIT® MC/FC – Functional Safety" manual.

Severe or fatal injuries may result.

- When using the PROFIsafe option S11, note the permitted wiring diagrams and safety conditions in the "MOVIFIT® MC/FC – Functional Safety" manual.



1020626187

I/O terminals for safety-related inputs/outputs (only with option card S11)			
No.		**Name**	**Function**
X45	1	F-DI00	Safety-related digital input F-DI00 (switching signal)
	2	F-DI02	Safety-related digital input F-DI02 (switching signal)
	3	F-DO00_P	Safety-related digital output F-DO00 (P switching signal)
	4	F-DO01_P	Safety-related digital output F-DO01 (P switching signal)
	5	F-DO_STO_P	Safety-related digital output F-DO_STO (P switching signal) for stopping the drive safely (STO)
	11	F-DI01	Safety-related digital input F-DI01 (switching signal)
	12	F-DI03	Safety-related digital input F-DI03 (switching signal)
	13	F-DO00_M	Safety-related digital output F-DO00 (M switching signal)
	14	F-DO01_M	Safety-related digital output F-DO01 (M switching signal)
	15	F-DO_STO_M	Safety-related digital output F-DO_STO (M switching signal) for stopping the drive safely (STO)
	21	F-SS0	+24 V sensor supply for failsafe inputs F-DI00 and F-DI02
	22	F-SS0	+24 V sensor supply for failsafe inputs F-DI00 and F-DI02
	23	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	24	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	25	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	31	0V24_O	0V24 reference potential for failsafe inputs/outputs
	32	0V24_O	0V24 reference potential for failsafe inputs/outputs
	33	0V24_O	0V24 reference potential for failsafe inputs/outputs
	34	0V24_O	0V24 reference potential for failsafe inputs/outputs
	35	0V24_O	0V24 reference potential for failsafe inputs/outputs

X45: I/O terminals for safety-related inputs/outputs with S12A safety option

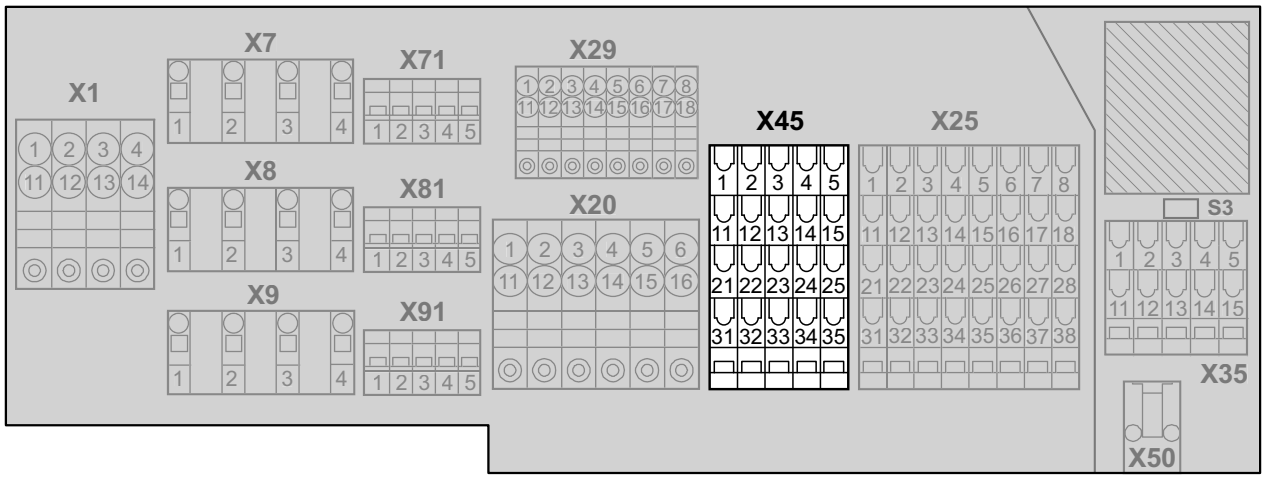
(only with S12A safety option)

⚠ WARNING

Danger due to unexpected unit behavior When you are using terminal X45 for safe disconnection, you must observe the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

Severe or fatal injuries may result.

- When using the S12A safety option, note the permitted wiring diagrams and safety conditions in the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.



1020626187

I/O terminals for safety-related inputs/outputs (only with S12A safety option)			
No.		**Name**	**Function**
X45	1	F-DI00	Safety-related digital input F-DI00 (switching signal)
	2	F-DI02	Safety-related digital input F-DI02 (switching signal)
	3	F-DO00_P	Safety-related digital output F-DO00 (P switching signal)
	4	F-DO01_P	Safety-related digital output F-DO01 (P switching signal)
	5	F-DO_STO_P	Safety-related digital output F-DO_STO (P switching signal) for stopping the drive safely (STO)
	11	F-DI01	Safety-related digital input F-DI01 (switching signal)
	12	F-DI03	Safety-related digital input F-DI03 (switching signal)
	13	F-DO00_M	Safety-related digital output F-DO00 (M switching signal)
	14	F-DO01_M	Safety-related digital output F-DO01 (M switching signal)
	15	F-DO_STO_M	Safety-related digital output F-DO_STO (M switching signal) for stopping the drive safely (STO)
	21	F-SS0	+24 V sensor supply for failsafe inputs F-DI00 and F-DI02
	22	F-SS0	+24 V sensor supply for failsafe inputs F-DI00 and F-DI02
	23	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	24	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	25	F-SS1	+24 V sensor supply for failsafe inputs F-DI01 and F-DI03
	31	0V24_O	0V24 reference potential for failsafe inputs/outputs
	32	0V24_O	0V24 reference potential for failsafe inputs/outputs
	33	0V24_O	0V24 reference potential for failsafe inputs/outputs
	34	0V24_O	0V24 reference potential for failsafe inputs/outputs
	35	0V24_O	0V24 reference potential for failsafe inputs/outputs

19484828/EN – 01/2015

X45: I/O terminals for safety-related inputs/outputs with S12B safety option

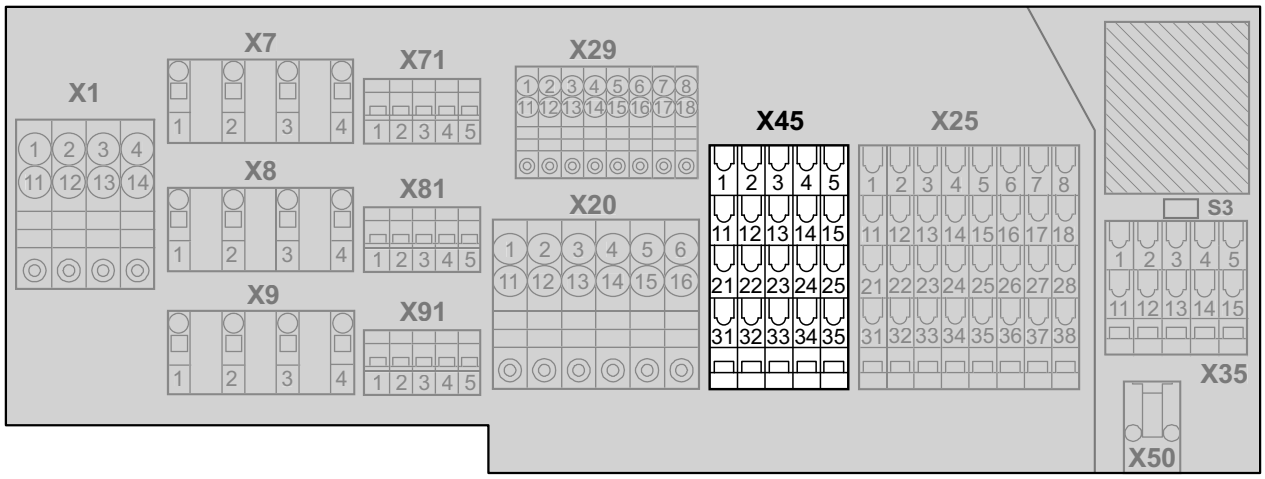
(only with S12B safety option)

⚠ WARNING

Danger due to unexpected unit behavior When you are using terminal X45 for safe disconnection, you must observe the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

Severe or fatal injuries may result.

- When using the S12B safety option, note the permitted wiring diagrams and safety conditions in the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

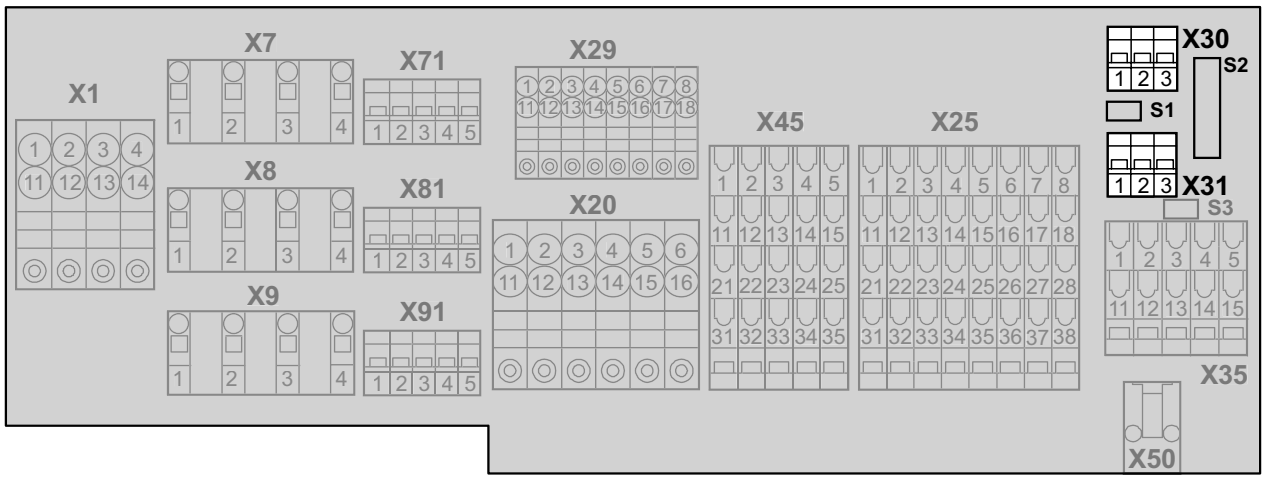


1020626187

I/O terminals for safety-related inputs/outputs (only with S12B safety option)			
No.		**Name**	**Function**
X45	1	F-DI00	Safety-related digital input F-DI00 (switching signal)
	2	F-DI02	Safety-related digital input F-DI02 (switching signal)
	3	F-DI04	Safety-related digital input F-DI04 (switching signal)
	4	F-DI06	Safety-related digital input F-DI06 (switching signal)
	5	F-DO_STO_P	Safety-related digital output F-DO_STO (P switching signal) for stopping the drive safely (STO)
	11	F-DI01	Safety-related digital input F-DI01 (switching signal)
	12	F-DI03	Safety-related digital input F-DI03 (switching signal)
	13	F-DI05	Safety-related digital input F-DI05 (switching signal)
	14	F-DI07	Safety-related digital input F-DI07 (switching input)
	15	F-DO_STO_M	Safety-related digital output F-DO_STO (M switching signal) for stopping the drive safely (STO)
	21	F-SS0	+24 V sensor supply for failsafe inputs F-DI00, F-DI02, F-DI04 and F-DI06
	22	F-SS0	
	23	F-SS1	+24 V sensor supply for failsafe inputs F-DI01, F-DI03, F-DI05 and F-DI07
	24	F-SS1	
	25	F-SS1	
	31	0V24_O	0V24 reference potential for failsafe inputs/outputs
	32	0V24_O	0V24 reference potential for failsafe inputs/outputs
	33	0V24_O	0V24 reference potential for failsafe inputs/outputs
	34	0V24_O	0V24 reference potential for failsafe inputs/outputs
	35	0V24_O	0V24 reference potential for failsafe inputs/outputs

X30 and X31: PROFIBUS interfaces

(only for PROFIBUS designs)



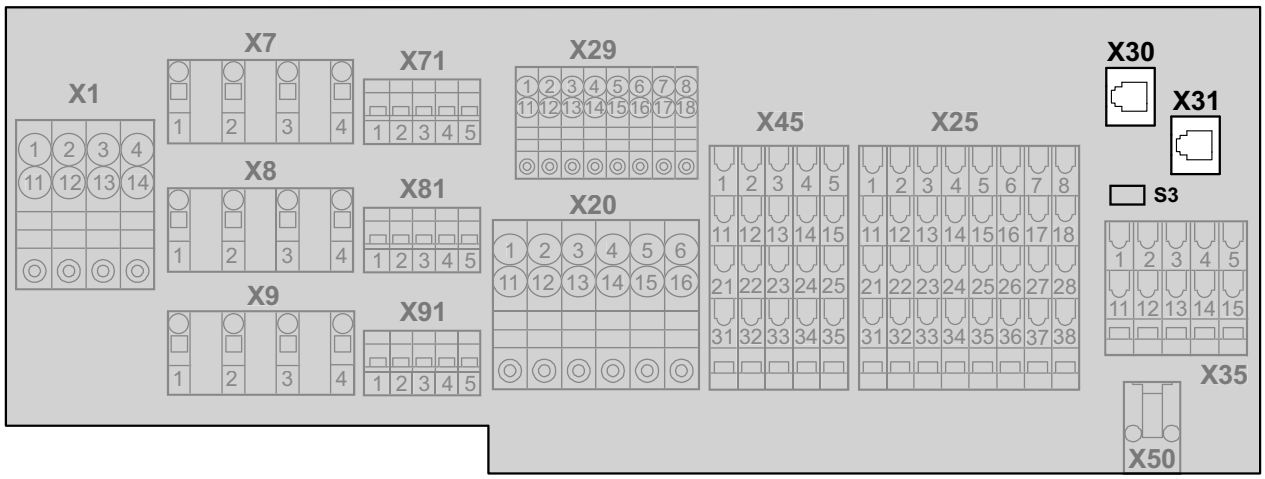
1020631947

PROFIBUS terminal			
No.		**Name**	**Function**
X30	1	A_IN	PROFIBUS cable A – incoming
	2	B_IN	PROFIBUS cable B – incoming
	3	0V5_PB	0V5 reference potential for PROFIBUS (for measuring purposes only)
X31	1	A_OUT	PROFIBUS cable A – outgoing
	2	B_OUT	PROFIBUS cable B – outgoing
	3	+5V_PB	+5 V PROFIBUS output (for measuring purposes only)

19484828/EN – 01/2015

X30 and X31: Ethernet interfaces

(only for PROFINET-IO, EtherNet/IP™, or Modbus/TCP designs)



1020662539

Function
Ethernet connection • PROFINET IO • EtherNet/IP™ • Modbus/TCP
Connection type
RJ45
Wiring diagram

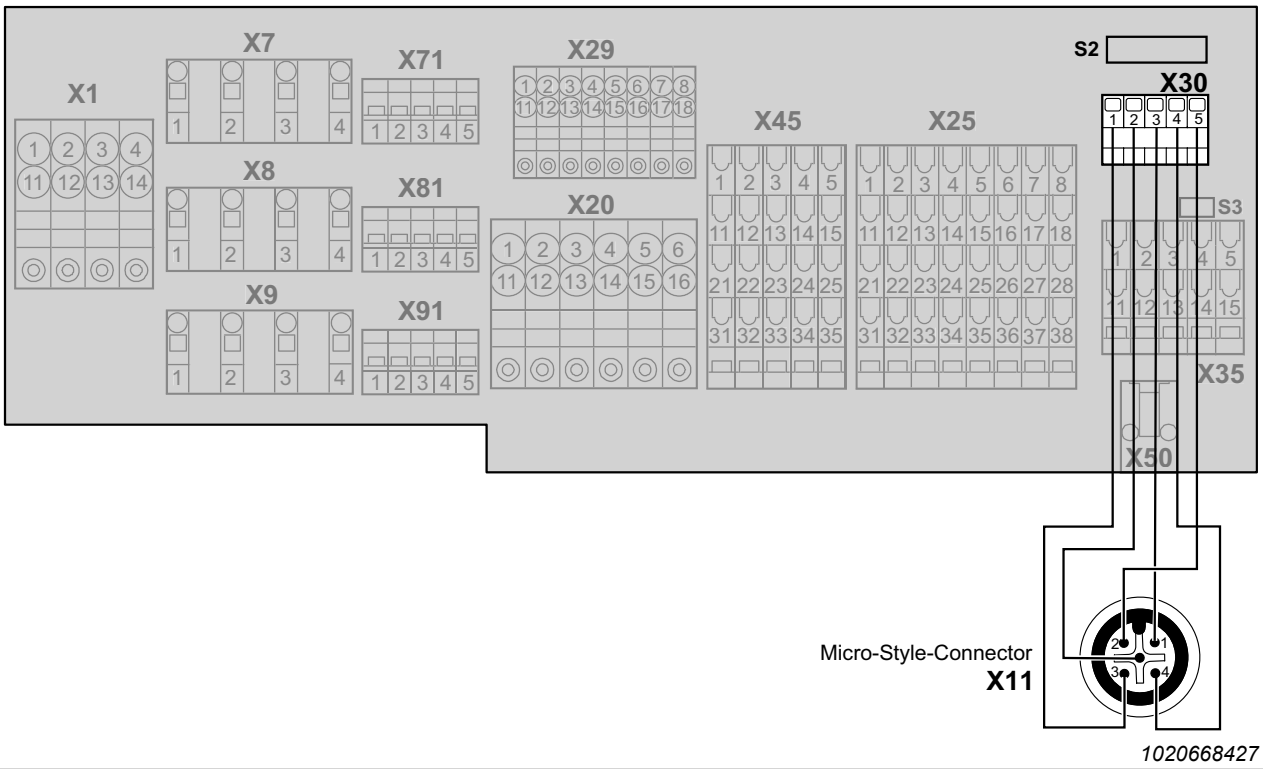
9007201609174667

2354433675

Assignment

No.		Name	Function	
X30	1	TX+	Transmit line (+)	Ethernet, port 1
	2	TX-	Transmit line (-)	
	3	RX+	Receive line (+)	
	4	res.	To 75 ohm terminal lead	
	5	res.	To 75 ohm terminal lead	
	6	RX-	Receive line (-)	
	7	res.	To 75 ohm terminal lead	
	8	res.	To 75 ohm terminal lead	
X31	1	TX+	Transmit line (+)	Ethernet port 2
	2	TX-	Transmit line (-)	
	3	RX+	Receive line (+)	
	4	res.	To 75 ohm terminal lead	
	5	res.	To 75 ohm terminal lead	
	6	RX-	Receive line (-)	
	7	res.	To 75 ohm terminal lead	
	8	res.	To 75 ohm terminal lead	

X11/X30: DeviceNet™ plug connector / terminals



Function						
DeviceNet™ connection						
Connection type						
X30 terminals or X11 micro-style connector (A-coded)						
Assignment						
No.				**Name**	**Function**	**Wire color**
X11	1	X30	3	DRAIN	Equipotential bonding	Brown
	2		5	V+	DeviceNet™ voltage supply +24 V	White
	3		1	V-	DeviceNet™ reference potential 0V24	Blue
	4		4	CAND_H	CAN_H data line	Black
	5		2	CAND_L	CAN_L data line	Green/yellow

19484828/EN – 01/2015

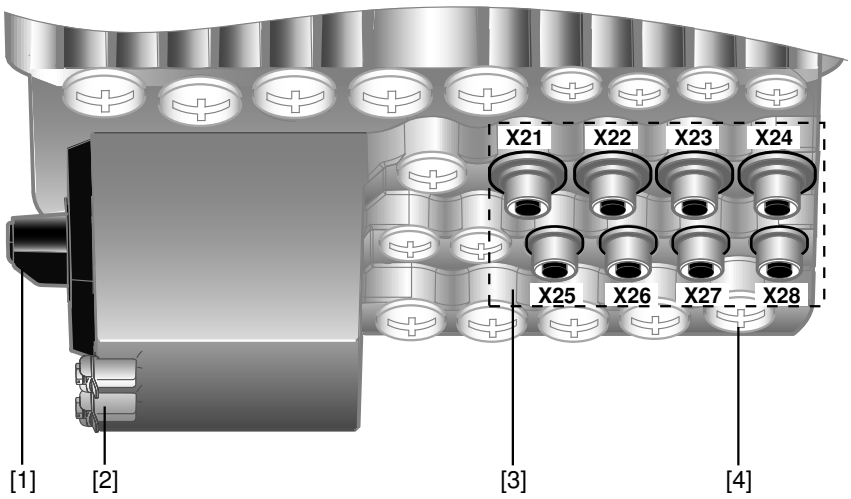
5.6 Hybrid ABOX "MTA...-S41.-...-00"

INFORMATION

- The hybrid ABOX is based on the standard ABOX "MTA...-S01.-...-00". Therefore, the following describes only the additional plug connectors in comparison with the standard ABOX.
- For a description of the terminals, refer to chapter "Standard ABOX MTA...-S01.-...-00" (→ 🗎 48).
- Customers cannot use terminal strip X25 in the ABOX because the described plug connectors are assigned to it.

5.6.1 Description

The following figure shows the hybrid ABOX with M12 plug connectors for connecting digital inputs/outputs:



9007200170028939

[1] Maintenance switch
[2] PE connection
[3] M12 plug connector for digital inputs/outputs
[4] Diagnostic socket (RJ10) under the screw plug

19484828/EN – 01/2015

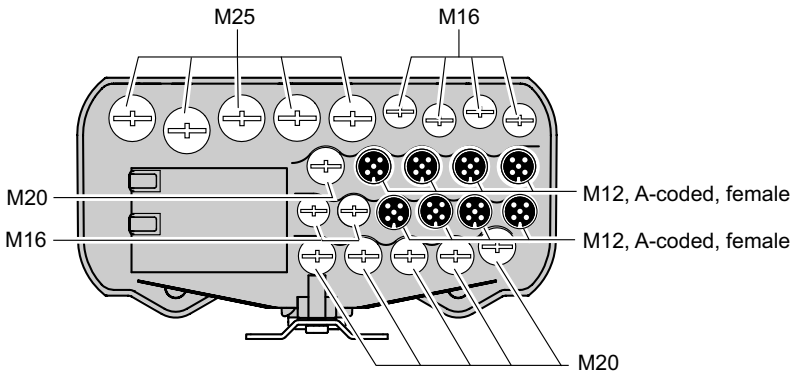
5.6.2 Variants

The following variants of the hybrid ABOX are available for MOVIFIT® MC (MTM):

- MTA11A-503-**S41**.-...-00:
  - Load disconnector and line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the hybrid ABOX:

PROFIBUS MTA11A-503-S41**1**-...-00
PROFINET
EtherNet/IP™ } MTA11A-503-S41**3**-...-00
Modbus/TCP

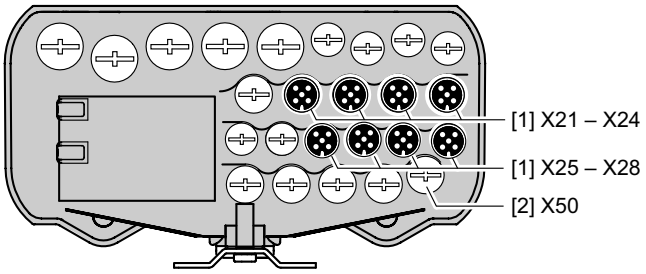


5789564427

19484828/EN – 01/2015

5.6.3 Plug connector positions

The following figure shows the plug connectors of the hybrid ABOX:



3570049547

[1]	X21 – X28	Digital inputs/outputs	(M12, 5-pole, female, A-coded)
[2]	X50	Diagnostic interface	(RJ10, female, under the screw plug)

INFORMATION

- The built-in M12 plug connectors have no specific alignment. This is why you should only use straight M12 mating connectors.
- You find the pin assignment of the plug connectors in the "Electrical Connections" chapter.
- To connect 2 sensors/actuators with an M12 plug connector, use the Y adapter with extension cable, see chapter "Y adapter" (→ 🗎 86).

19484828/EN – 01/2015

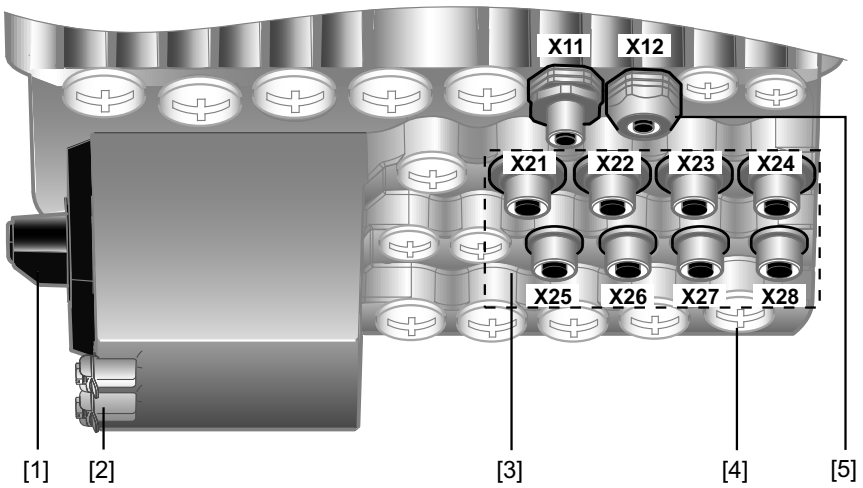
5.7 Hybrid ABOX "MTA...-S51.-...-00"

INFORMATION

- The hybrid ABOX is based on the standard ABOX "MTA...-S01.-...-00". Therefore, the following describes only the additional plug connectors in comparison with the standard ABOX.
- For a description of the terminals, refer to chapter "Standard ABOX MTA...-S01.-...-00" (→ 🗎 48).
- Customers cannot use terminal strips X25, X30, and X31 in the ABOX because the described plug connectors are assigned to them.

5.7.1 Description

The following figure shows the hybrid ABOX with M12 plug connectors for connecting digital inputs/outputs and the fieldbus:



9007200189509131

[1] Maintenance switch
[2] PE connection
[3] M12 plug connector for digital inputs/outputs
[4] Diagnostic socket (RJ10) under the screw plug
[5] M12 plug connector for the fieldbus connection

19484828/EN – 01/2015

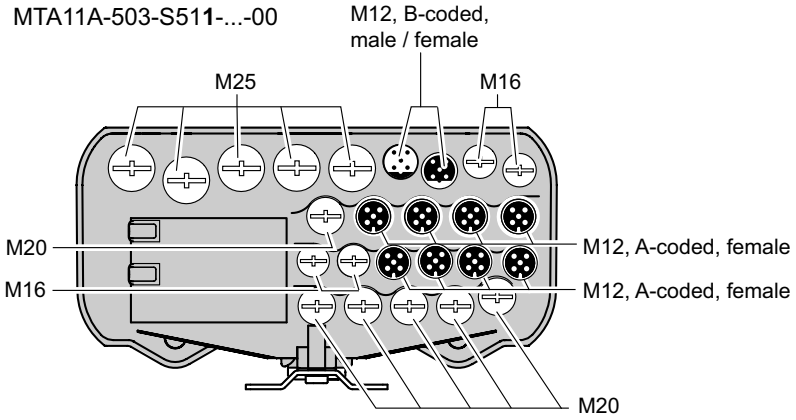
5.7.2 Variants

The following variants of the hybrid ABOX are available for MOVIFIT® MC (MTM):

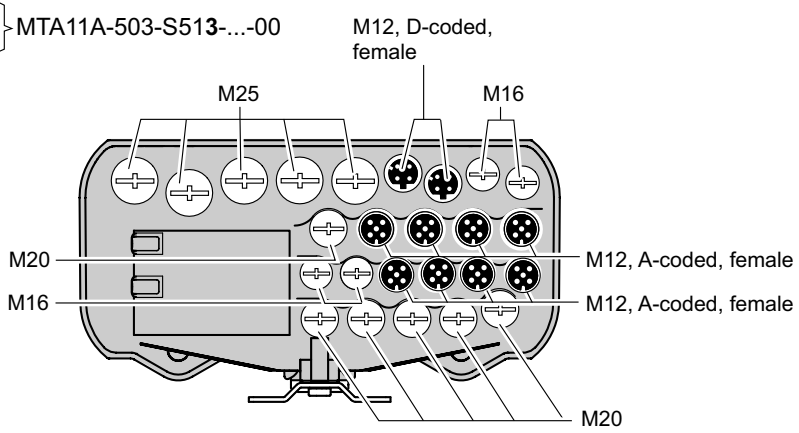
- MTA11A-503-**S51**.-...-00:
  - Load disconnector and line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the hybrid ABOX for the different fieldbus interfaces:

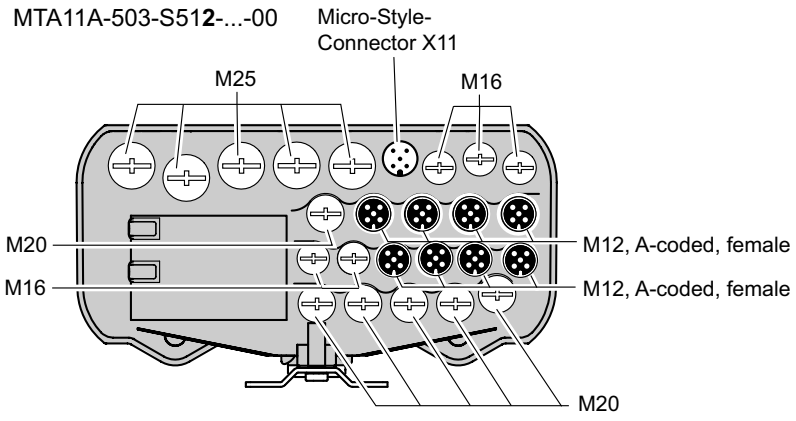
PROFIBUS MTA11A-503-S51**1**-...-00



PROFINET
EtherNet/IP™
Modbus/TCP
MTA11A-503-S51**3**-...-00



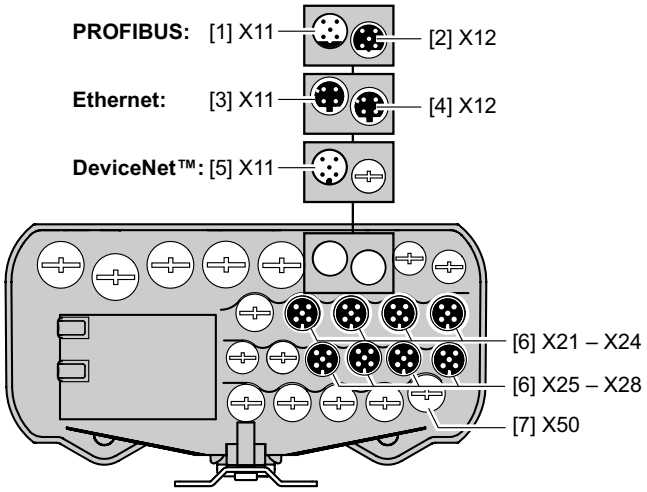
DeviceNet™ MTA11A-503-S51**2**-...-00



5789988107

5.7.3 Plug connector positions

The following figure shows the plug connectors of the hybrid ABOX:



9007202824943627

[1]	X11	PROFIBUS input	(M12, 5-pole, male, B-coded)
[2]	X12	PROFIBUS output	(M12, 5-pole, female, B-coded)
[3]	X11	Ethernet interface, port 1 (PROFINET IO, EtherNet/IP™, Modbus/TCP)	(M12, 4-pole, female, D-coded)
[4]	X12	Ethernet interface, port 2 (PROFINET IO, EtherNet/IP™, Modbus/TCP)	(M12, 4-pole, female, D-coded)
[5]	X11	DeviceNet™ interface	(Micro-style connector, male, A-coded)
[6]	X21 – X28	Digital inputs/outputs	(M12, 5-pole, female, A-coded)
[7]	X50	Diagnostic interface	(RJ10, female, under the screw plug)

INFORMATION

- The built-in M12 plug connectors have no specific alignment. This is why you should only use straight M12 mating connectors.
- You find the pin assignment of the plug connectors in the "Electrical Connections" chapter.
- To connect 2 sensors/actuators with an M12 plug connector, use the Y adapter with extension cable, see chapter "Y adapter" (→ 🗎 86).

19484828/EN – 01/2015

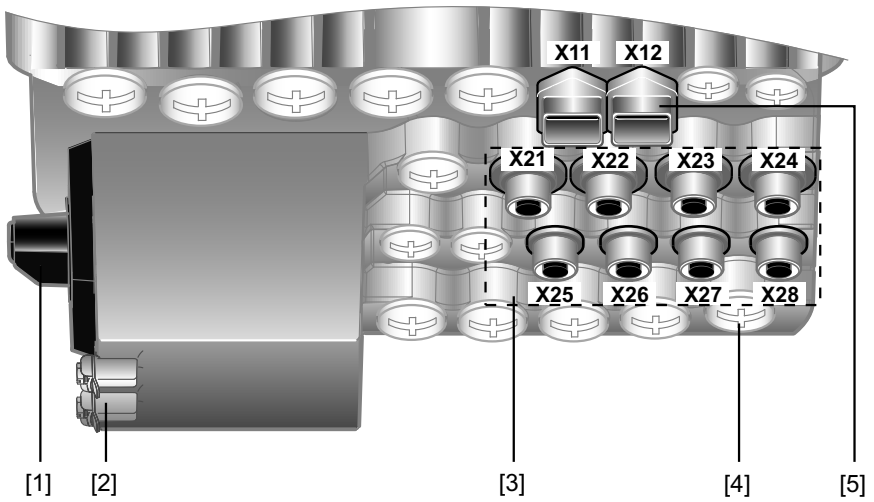
5.8 Hybrid ABOX "MTA...-S61.-...-00"

INFORMATION

- The hybrid ABOX is based on the standard ABOX "MTA...-S01.-...-00". Therefore, the following describes only the additional plug connectors in comparison with the standard ABOX.
- For a description of the terminals, refer to chapter "Standard ABOX MTA...-S01.-...-00" (→ 🗎 48).
- Customers cannot use terminal strips X25, X30, and X31 in the ABOX because the described plug connectors are assigned to them.

5.8.1 Description

The following figure shows the hybrid ABOX with M12 plug connectors for connecting digital inputs/outputs and push-pull RJ45 plug connectors for Ethernet:



9007200170414987

[1] Maintenance switch
[2] PE connection
[3] M12 plug connector for digital inputs/outputs
[4] Diagnostic socket (RJ10) under the screw plug
[5] Push-pull RJ45 plug connector for Ethernet interfaces

19484828/EN – 01/2015

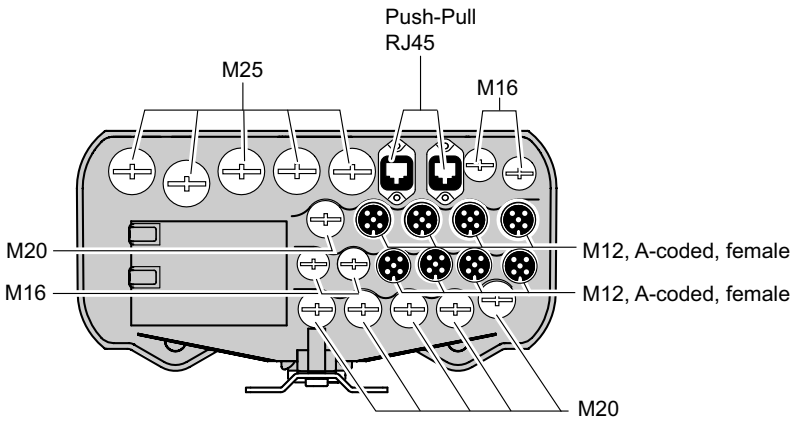
5.8.2 Variants

The following variants of the hybrid ABOX are available for MOVIFIT® MC (MTM):

- MTA11A-503-**S61**.-...-00:
  - Load disconnector for line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the hybrid ABOX:

PROFINET
EtherNet/IP™ } MTA11A-503-S61**3**-...-00
Modbus/TCP



5790168587

19484828/EN – 01/2015

5.8.3 Plug connector positions

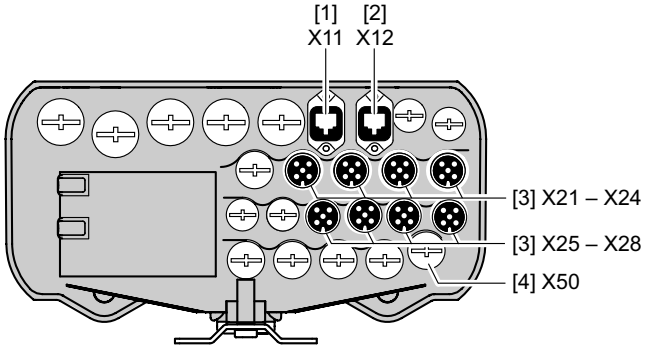
NOTICE

The RJ45 socket can be damaged by inserting commercially available RJ45 patch cables without push-pull connector housing.

Damage to the RJ45 socket.

- Only plug suitable push-pull RJ45 mating connectors according to IEC PAS 61076-3-117 into push-pull RJ45 sockets.
- Never use commercially available RJ45 patch cables without push-pull connector housing. These plug connectors do not snap in place when they are plugged. They may damage the socket and are therefore not suited.

The following figure shows the plug connectors of the hybrid ABOX:



9007202824956043

[1]	X11	Ethernet interface, port 1(PROFINET IO, EtherNet/IP™, Modbus/TCP)	(Push-pull RJ45, female)
[2]	X12	Ethernet interface, port 2(PROFINET IO, EtherNet/IP™, Modbus/TCP)	(Push-pull RJ45, female)
[3]	X21 – X28	Digital inputs/outputs	(M12, 5-pole, female, A-coded)
[4]	X50	Diagnostic interface	(RJ10, female, under the screw plug)

INFORMATION

- The built-in M12 plug connectors have no specific alignment. This is why you should only use straight M12 mating connectors.
- You find the pin assignment of the plug connectors in the "Electrical Connections" chapter.
- To connect 2 sensors/actuators with an M12 plug connector, use the Y adapter with extension cable, see chapter "Y adapter" (→ 🗎 86).

5.9 Hybrid ABOX "MTA...-I51.-...-00", "MTA...-G51.-...-00"

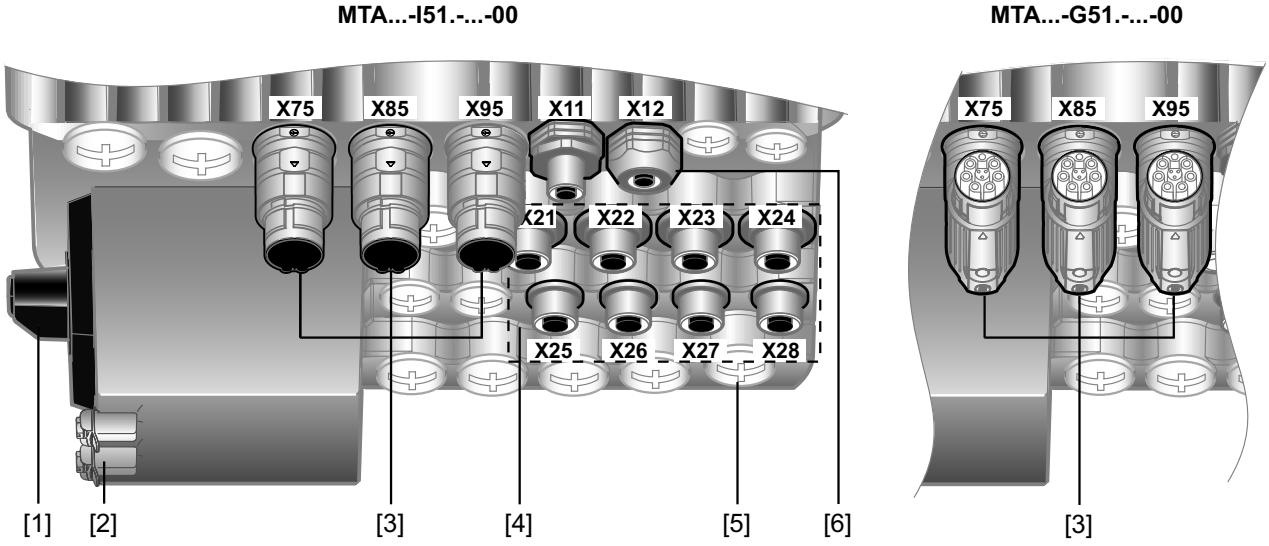
INFORMATION

- The hybrid ABOX is based on the standard ABOX "MTA...-S01.-...-00". Therefore, the following describes only the additional plug connectors in comparison with the standard ABOX.
- For a description of the terminals, refer to chapter "Standard ABOX MTA...-S01.-...-00" (→ 🗎 48).
- In contrast to the standard ABOX, the hybrid ABOXes MTA...-I51.-...-00 and MTA...-G51.-...-00 have no shield plates. Here, the cable shields must be connected via EMC cable glands.
- Customers cannot use terminal strips X7, X71, X8, X81, X9, X91, X25, X30, and X31 in the ABOX because the described plug connectors are assigned to them.

5.9.1 Description

The following figure shows the hybrid ABOX with:

- 3 circular connectors (Intercontec) for connecting the MOVIMOT® drives
  - MOVIMOT® downward output (only for MTA...-I51.-...-00)
  - MOVIMOT® forward output (only for MTA...-G51.-...-00)
- M12 plug connectors for digital inputs/outputs
- M12 plug connectors for the fieldbus



[1] Maintenance switch
[2] PE connection
[3] Plug connector for MOVIMOT® drives
[4] M12 plug connector for digital inputs/outputs
[5] Diagnostic socket (RJ10) under the screw plug
[6] M12 plug connector for the fieldbus connection

19484828/EN – 01/2015

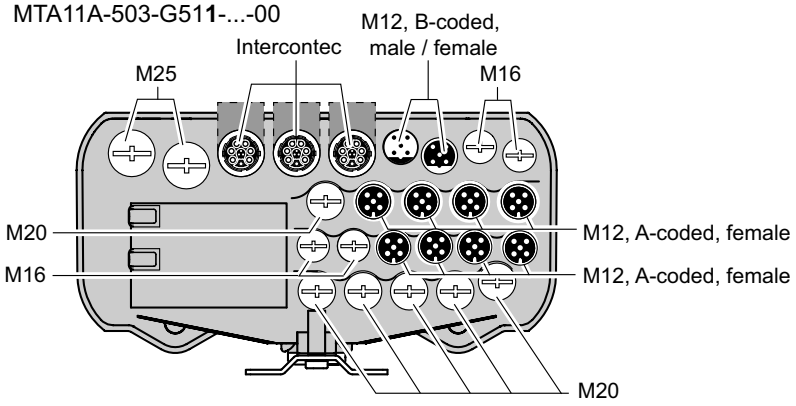
5.9.2 Variants

The following variants of the hybrid ABOX are available for MOVIFIT® MC (MTM):

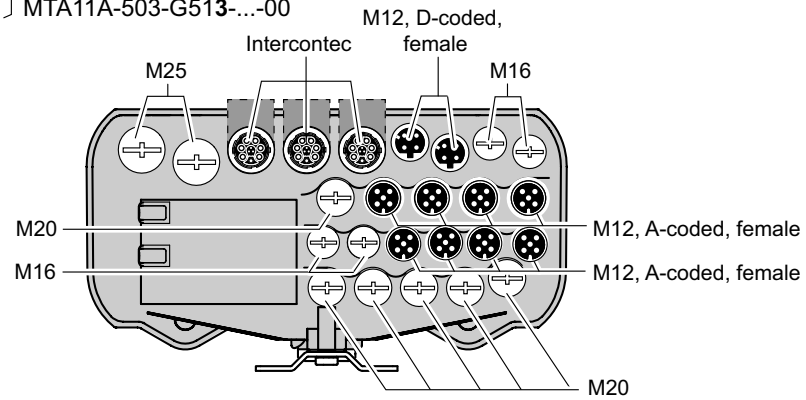
- MTA11A-503-**I51**.-...-00 / MTA11A-503-**G51**.-...-00:
  - Load disconnector and line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the hybrid ABOX for the different fieldbus interfaces:

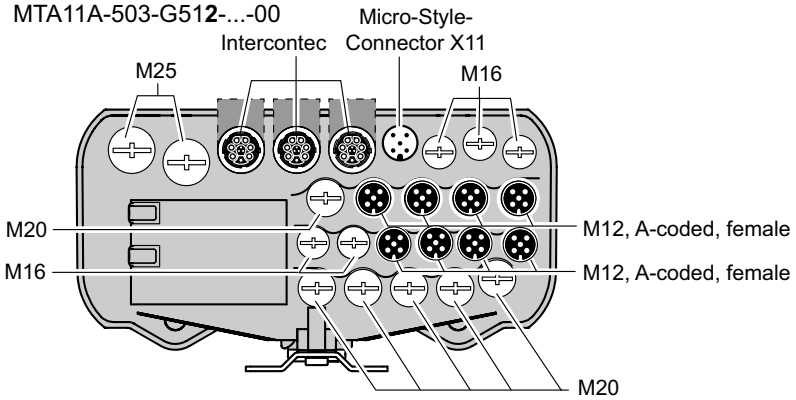
PROFIBUS MTA11A-503-I51**1**-...-00
MTA11A-503-G51**1**-...-00



PROFINET
EtherNet/IP™
Modbus/TCP
MTA11A-503-I51**3**-...-00
MTA11A-503-G51**3**-...-00



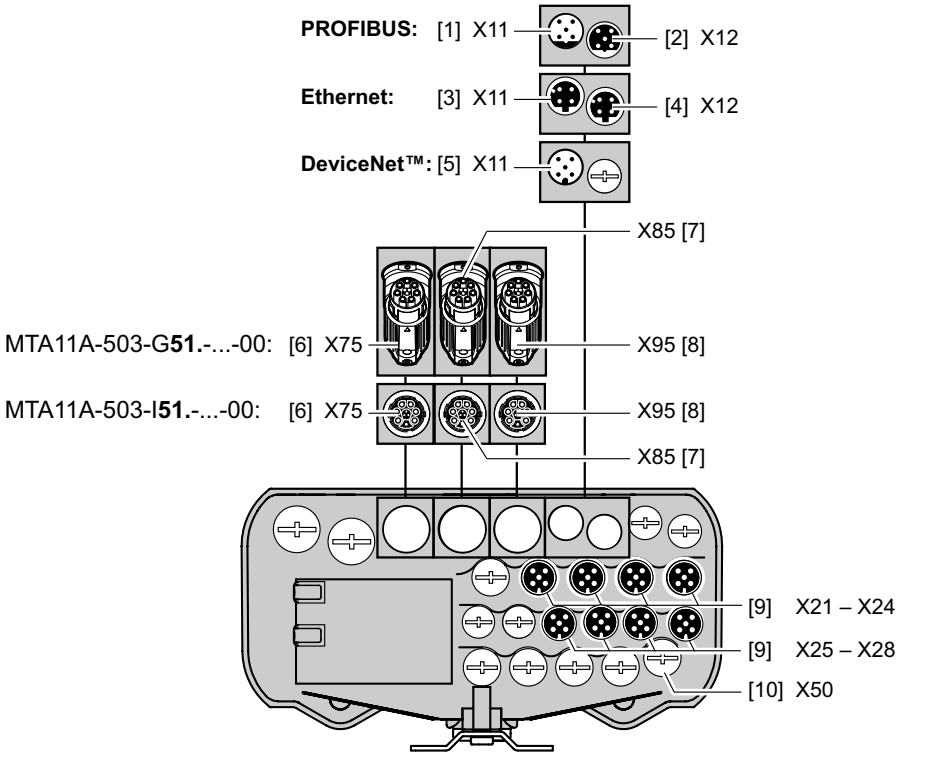
DeviceNet™ MTA11A-503-I51**2**-...-00
MTA11A-503-G51**2**-...-00



5797829899

5.9.3 Plug connector positions

The following figure shows the plug connectors of the hybrid ABOX:



5798129803

[1]	X11	PROFIBUS input	(M12, 5-pole, male, B-coded)
[2]	X12	PROFIBUS output	(M12, 5-pole, female, B-coded)
[3]	X11	Ethernet interface, port 1 (PROFINET, EtherNet/IP™, Modbus/TCP)	(M12, 4-pole, female, D-coded)
[4]	X12	Ethernet interface, port 2 (PROFINET, EtherNet/IP™, Modbus/TCP)	(M12, 4-pole, female, D-coded)
[5]	X11	DeviceNet™ interface	(micro-style connector, male, A-coded)
[6]	X75	Connection for MOVIMOT® drive 1	(Intercontec 723 H-Tec, 7 + 3-pole, female, code 3)
[7]	X85	Connection for MOVIMOT® drive 2	
[8]	X95	Connection for MOVIMOT® drive 3	
[9]	X21 – X28	Digital inputs/outputs	(M12, 5-pole, female, A-coded)
[10]	X50	Diagnostic interface	(RJ10, female, under the screw plug)

INFORMATION

- The built-in M12 plug connectors have no specific alignment. This is why you should only use straight M12 mating connectors.
- You find the pin assignment of the plug connectors in the "Electrical Connections" chapter.
- To connect 2 sensors/actuators to an M12 plug connector, use the Y adapter with an extension cable; see the chapter "Y adapter" (→ 🗎 86).

19484828/EN – 01/2015

5.10 Hybrid ABOX "MTA...-I61.-...-00", "MTA...-G61.-...-00"

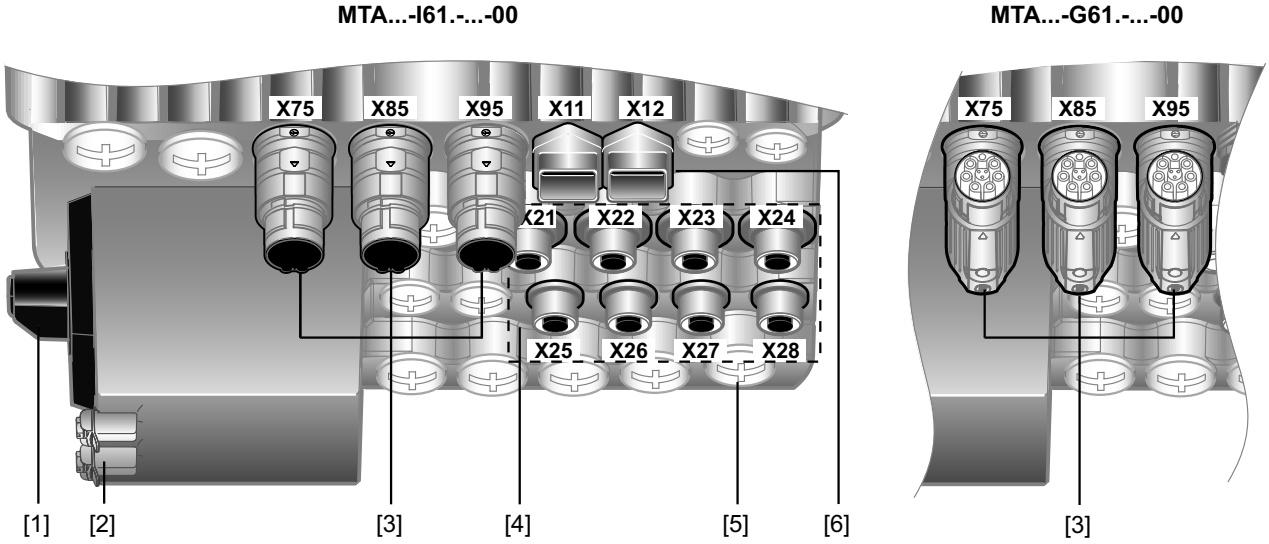
INFORMATION

- The hybrid ABOX is based on the standard ABOX "MTA...-S01.-...-00". Therefore, the following describes only the additional plug connectors in comparison with the standard ABOX.
- For a description of the terminals, refer to chapter "Standard ABOX MTA...-S01.-...-00" (→ 🗎 48).
- In contrast to the standard ABOX, the hybrid ABOXes MTA...-I61.-...-00 and MTA...-G61.-...-00 have no shield plates. Here, the cable shields must be connected via EMC cable glands.
- Customers cannot use terminal strips X7, X75, X8, X85, X9, X95, X25, X30, and X31 in the ABOX because the described plug connectors are assigned to them.

5.10.1 Description

The following figure shows the hybrid ABOX with:

- 3 circular connectors (Intercontec) for connecting the MOVIMOT® drives
  - MOVIMOT® downward output (only for MTA...-I61.-...-00)
  - MOVIMOT® forward output (only for MTA...-G61.-...-00)
- M12 plug connectors for digital inputs/outputs
- Push-pull RJ45 plug connectors for Ethernet connection



9007204194785163

[1] Maintenance switch
[2] PE connection
[3] Plug connector for MOVIMOT® drives
[4] M12 plug connector for digital inputs/outputs
[5] Diagnostic socket (RJ10) under the screw plug
[6] Push-pull RJ45 plug connector for Ethernet interfaces

19484828/EN – 01/2015

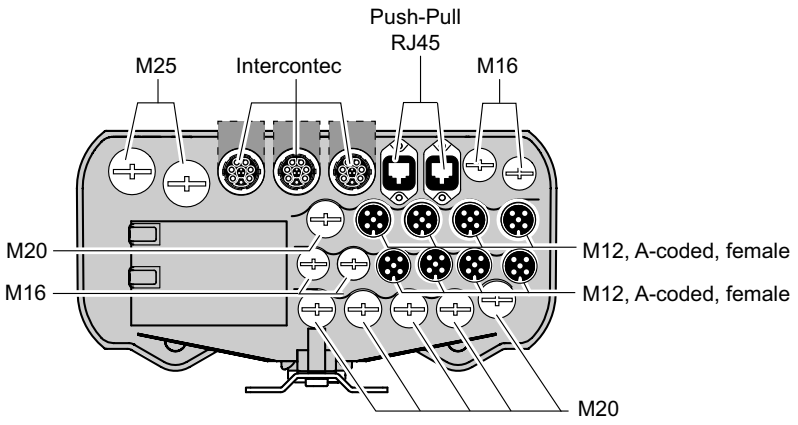
5.10.2 Variants

The following variants of the hybrid ABOX are available for MOVIFIT® MC (MTM):

- MTA11A-503-**I61**.-...-00 / MTA11A-503-**G61**.-...-00
  - Load disconnector for line protection integrated as standard

The following figure shows the screw fittings and plug connectors of the hybrid ABOX:

PROFINET
EtherNet/IP™ } MTA11A-503-I61**3**-...-00
Modbus/TCP } MTA11A-503-G61**3**-...-00



5798616587

19484828/EN – 01/2015

5.10.3 Plug connector positions

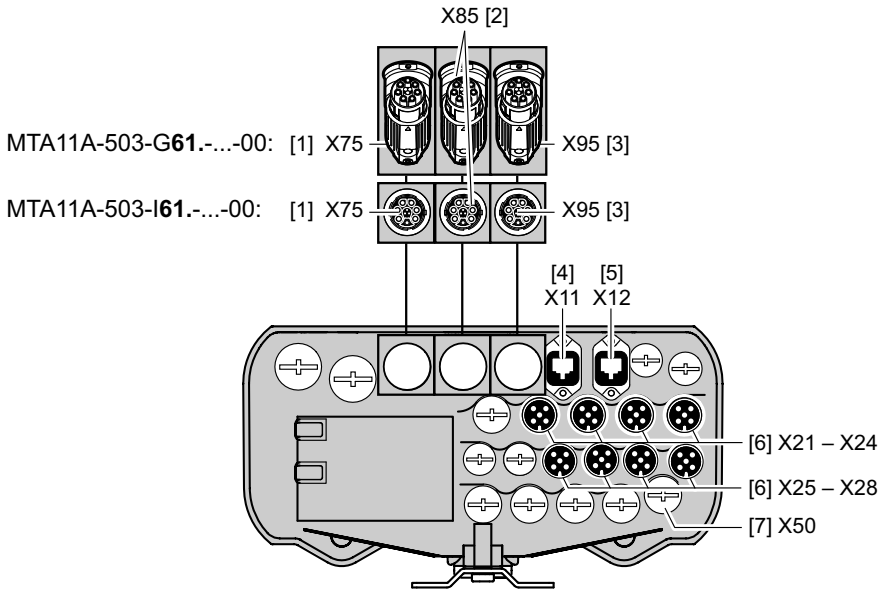
NOTICE

The RJ45 socket can be damaged by inserting commercially available RJ45 patch cables without a push-pull connector housing.

This will destroy the RJ45 socket.

- Only plug suitable push-pull RJ45 mating connectors according to IEC PAS 61076-3-117 into push-pull RJ45 sockets.
- Never use commercially available RJ45 patch cables without push-pull connector housing. These plug connectors do not snap in place when they are plugged. Such cables can damage the sockets and are, therefore, not suitable.

The following figure shows the plug connectors of the hybrid ABOX:



5798647691

[1]	X75	MOVIMOT® drive 1	(Intercontec 723 H-Tec, 7 + 3-pole, female, code 3)
[2]	X85	MOVIMOT® drive 2	
[3]	X95	MOVIMOT® drive 3	
[4]	X11	Ethernet fieldbus, port 1 (PROFINET, EtherNet/IP™, Modbus/TCP)	(push-pull RJ45, female)
[5]	X12	Ethernet fieldbus, port 2 (PROFINET, EtherNet/IP™, Modbus/TCP)	(push-pull RJ45, female)
[6]	X21 – X28	Digital inputs/outputs	(M12, 5-pole, female, A-coded)
[7]	X50	Diagnostic interface	(RJ10, female, under the screw fitting)

INFORMATION

- The built-in M12 plug connectors have no specific alignment. This is why you should only use straight M12 mating connectors.
- You find the pin assignment of the plug connectors in the "Electrical Connections" chapter.
- To connect 2 sensors/actuators to an M12 plug connector, use the Y adapter with an extension cable; see the chapter "Y adapter" (→ 🗎 86).

5.11 Electrical connections

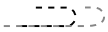
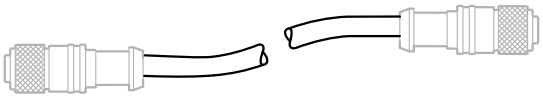
5.11.1 Connection cables

Connection cables are not included in the delivery.

Prefabricated cables for connection between SEW components can be ordered from SEW-EURODRIVE at any time. These cables are described in the following sections. Specify the part number and length of the required cable in your order.

The number and type of required connection cables depend on the design of the units and the components to be connected. This is why not all listed cables are required.

The following figure shows the various cable types:

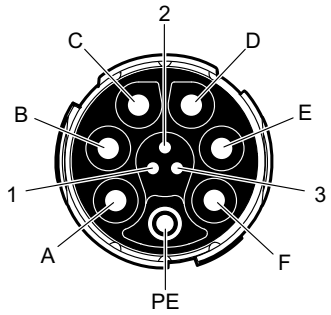
Cable	Length	Installation type
	Fixed length	Suitable for cable carrier installation 
	Variable length	Not suitable for cable carrier installation 

19484828/EN – 01/2015

5.11.2 X75, X85, X95: Connection for MOVIMOT® drive

The following table displays information about this connection:

Function
Connection for MOVIMOT® drive
Connection type
Intercontec 723 H-Tec, 7 + 3-pole, female code 3 (downward or to the front)
Wiring diagram



6366545803

Assignment

No.	Name	Function
PE	PE	PE connection
A	L1	Output phase L1 for MOVIMOT® drive
B	L2	Output phase L2 for MOVIMOT® drive
C	L3	Output phase L3 for MOVIMOT® drive
D	n.c.	Not connected
E	+24V_MM	+24 V supply for MOVIMOT® drive
F	0V24_MM	0V24 reference potential for MOVIMOT® drive
1	RS+MM	RS485 connection for MOVIMOT® drive, RS + terminal
2	RS-MM	RS485 connection for MOVIMOT® drive, RS - terminal
3	0V_RS	0V_RS reference potential for MOVIMOT® drive

19484828/EN – 01/2015

5.11.3 X21 – X28: Digital inputs/outputs

Variants

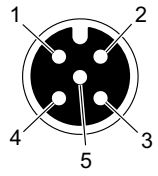
The number and assignment of digital inputs/outputs depends on the following:

- The function level
- The fieldbus interface of the MOVIFIT® unit

I/O variants	MOVIFIT® design	
	Function level	Fieldbus
6 DI + 2 DI/O	Classic	• PROFIBUS • DeviceNet™
12 DI + 4 DI/O	Technology	• PROFIBUS • PROFINET IO • EtherNet/IP™ • Modbus/TCP
	Classic	• PROFINET IO

Assignment

The following table provides information about these connections:

Function
Digital inputs/outputs of the hybrid ABOX
Connection type
M12, 5-pin, female, A-coded
Wiring diagram
 *9007201519557259*

19484828/EN – 01/2015

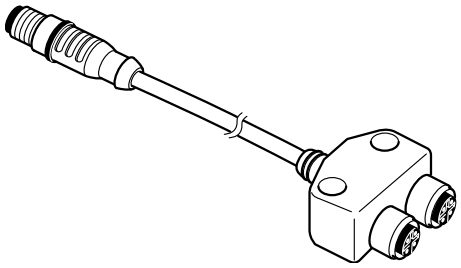
I/O variants	Assignment				
	No.	**X21**	**X22**	**X23**	**X24**
6 DI + 2 DI/O	1	VO24-I	VO24-I	VO24-II	VO24-II
	2	res.	res.	res.	res.
	3	0V24_C	0V24_C	0V24_C	0V24_C
	4	DI00	DI01	DI02	DI03
	5	n.c.	n.c.	n.c.	n.c.
	No.	**X25**	**X26**	**X27**	**X28**
	1	VO24-III	VO24-III	VO24-IV	VO24-IV
	2	res.	res.	res.	res.
	3	0V24_C	0V24_C	0V24_S	0V24_S
	4	DI04	DI05	DI06/DO00	DI07/DO01
	5	n.c.	n.c.	n.c.	n.c.
12 DI + 4 DI/O	**No.**	**X21**	**X22**	**X23** (Encoder 1 connection)	**X24** (Encoder 2 connection)
	1	VO24-I	VO24-I	VO24-II	VO24-II
	2	DI01	DI03	DI05 Encoder track B	DI07 Encoder track B
	3	0V24_C	0V24_C	0V24_C	0V24_C
	4	DI00	DI02	DI04 Encoder track A	DI06 Encoder track A
	5	n.c.	n.c.	n.c.	n.c.
	No.	**X25** (Encoder 3 connection)	**X26**	**X27**	**X28**
	1	VO24-III	VO24-III	VO24-IV	VO24-IV
	2	DI09 Encoder track B	DI11	DI13/DO01	DI15/DO03
	3	0V24_C	0V24_C	0V24_S	0V24_S
	4	DI08 Encoder track A	DI10	DI12/DO00	DI14/DO02
	5	n.c.	n.c.	n.c.	n.c.

19484828/EN – 01/2015

Y adapter

For connecting 2 sensors/actuators to an M12 plug connector, use a Y adapter with extension.

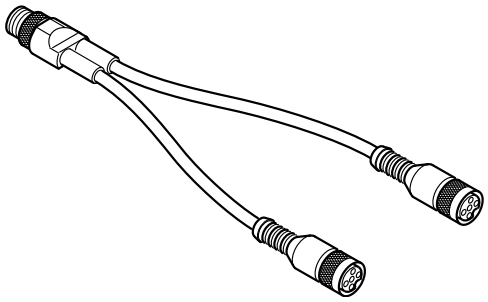
The Y adapter is available from different manufacturers:



915294347

Manufacturer: Escha

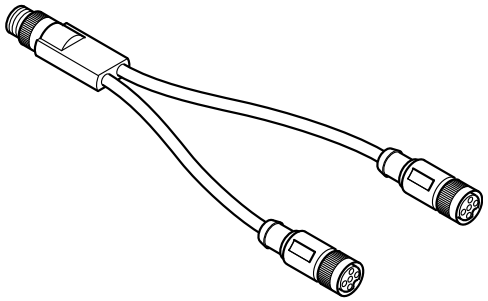
Type: WAS4-0,3-2FKM3/..



1180380683

Manufacturer: Binder

Type: 79 5200 ..

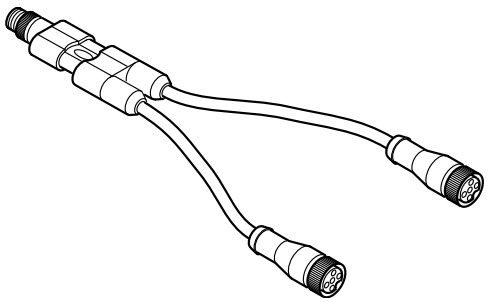


1180375179

Manufacturer: Phoenix Contact

Type: SAC-3P-Y-2XFS SCO/.../...

The sheath of the cables is made of PVC. Provide suitable UV protection.



1180386571

Manufacturer: Murrelektronik

Type: 7000-40721-..

19484828/EN – 01/2015

5.11.4 X70F: STO (optional)

⚠ WARNING

No safety-related disconnection of the MOVIFIT® drive.

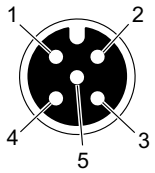
Severe or fatal injuries.

- Do not use the 24 V output (pins 1 and 2) for safety-related applications with MOVIFIT® drives.
- You may only jumper the STO connection with 24 V when the MOVIFIT® drive is not used to fulfill any safety functions.

The STO plug connector is only available as an option.

The STO plug connector is left to the X50 diagnostic interface.

The following table shows information about this connection:

Function		
Safety-related digital output F-DO_STO for safe torque off in the drive (STO)		
Connection type		
M12, 5-pole, female, A-coded		
Wiring diagram		
 *9007201519557259*		
Assignment		
No.	**Name**	**Function**
1	+24V_C	+24 V supply for digital inputs – continuous voltage
2	0V24_C	0V24 reference potential for digital inputs – continuous voltage
3	F-DO_STO_M	Safety-related digital output F-DO_STO (sinking signal) for safe torque off in the drive (STO)
4	F-DO_STO_P	Safety-related digital output F-DO_STO (sourcing signal) for safe torque off in the drive (STO)
5	n.c.	Not connected

19484828/EN – 01/2015

STO jumper plug

⚠ WARNING

Safety-related disconnection of the MOVIFIT® drive is not possible when the STO jumper plug is used.

Severe or fatal injuries.

- You may only use the STO jumper plug when the MOVIFIT® drive does not fulfill any safety function.

⚠ WARNING

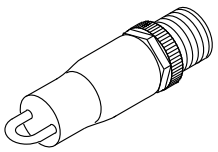
Disablement of safety-related disconnection of other drive units due to parasitic voltages when using an STO jumper.

Severe or fatal injuries.

- You may only use the STO jumper plug when all incoming and outgoing STO connections have been removed from the drive unit.

The STO jumper plug can be connected to the X70F STO plug connector of the MOVIFIT® unit. The STO jumper plug deactivates the safety functions of the MOVIFIT® unit.

The following figure shows the STO jumper plug, part number 11747099:

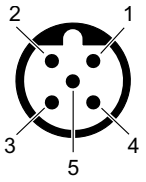


63050395932099851

19484828/EN – 01/2015

5.11.5 X11: PROFIBUS input

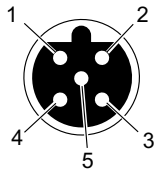
The following table shows information about this connection:

Function		
PROFIBUS input		
Connection type		
(M12, 5-pole, male, B-coded)		
Wiring diagram		
		
Assignment		
No.	**Name**	**Function**
1	res.	Reserved
2	A_IN	PROFIBUS data line A
3	res.	Reserved
4	B_IN	PROFIBUS data line B
5	res.	Reserved

19484828/EN – 01/2015

5.11.6 X12: PROFIBUS output

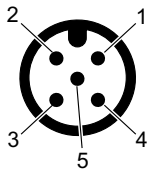
The following table shows information about this connection:

Function		
PROFIBUS output		
Connection type		
(M12, 5-pole, female, B-coded)		
Wiring diagram		
 *9007201609172107*		
Assignment		
No.	**Name**	**Function**
1	+5 V	DC 5 V output
2	A_OUT	PROFIBUS data line A
3	0V5	0V5 reference potential
4	B_OUT	PROFIBUS data line B
5	res.	Reserved

19484828/EN – 01/2015

5.11.7 X11: DeviceNet™ interface

The following table shows information about this connection:

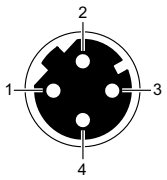
Function		
DeviceNet™ interface		
Connection type		
(Micro-style connector, male, A-coded)		
Wiring diagram		
 *9007201519559179*		
Assignment		
No.	**Name**	**Function**
1	Drain	Shield/equipotential bonding
2	V+	DC 24 V input
3	V-	Reference potential
4	CAN_H	CAN data line (high)
5	CAN_L	CAN data line (low)

19484828/EN – 01/2015

5.11.8 X11, X12: Ethernet interface

The following table shows information about this connection:

Function
• PROFINET IO interface • EtherNet/IP™ interface • Modbus/TCP interface
Connection type
M12, 4-pole, female, D-coded
Wiring diagram



9007201719341963

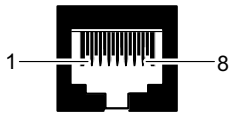
Assignment

No.	Name	Function
1	TX+	Transmit line (+)
2	RX+	Receive line (+)
3	TX-	Transmit line (-)
4	RX-	Receive line (-)

19484828/EN – 01/2015

5.11.9 X11, X12: Ethernet interface

The following table shows information about this connection:

Function
• PROFINET IO interface • EtherNet/IP™ interface • Modbus/TCP interface
Connection type
Push-pull RJ45
Wiring diagram
 *9007201609174667*

Assignment		
No.	**Name**	**Function**
1	TX+	Transmit line (+)
2	TX-	Transmit line (-)
3	RX+	Receive line (+)
4	res.	Reserved
5	res.	Reserved
6	RX-	Receive line (-)
7	res.	Reserved
8	res.	Reserved

Connection cable

NOTICE

The RJ45 socket can be damaged by inserting commercially available RJ45 patch cables without push-pull connector housing.

Damage to the RJ45 socket.

- Only plug suitable push-pull RJ45 mating connectors according to IEC 61076-3-117 into push-pull RJ45 sockets.
- Never use commercially available RJ45 patch cables without push-pull connector housing. These plug connectors do not snap in place when they are plugged. They may damage the socket and are therefore not suited.

Use only shielded cables for this connection.

19484828/EN – 01/2015

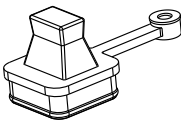
Closing plug, optional

NOTICE

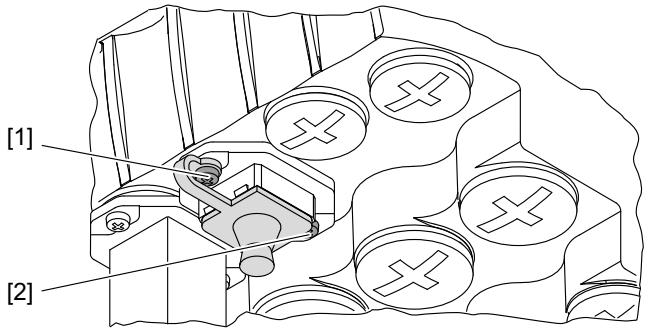
Loss of warranted degree of protection if the closing plugs are installed incorrectly or not at all.

Damage to the MOVIFIT® unit.

- If an RJ45 socket is not occupied by a connector, you must seal it with the following closing plug.

Type	Image	Contents	Part number
Ethernet closing plug for Push pull RJ45 socket		10 pieces	18223702
		30 pieces	18223710

To avoid losing the closing plug, you can secure it with the front retaining screw [1] of the socket, see following figure.



9007202932076683

Do **not** use the back screw [2] to secure the closing plug.

19484828/EN – 01/2015

5.12 Encoder connection

5.12.1 EI7. incremental encoder

Properties

The EI7. incremental encoder offers the following features:

- HTL or sin/cos interface (MOVIFIT® does **not** evaluate sin/cos signals)

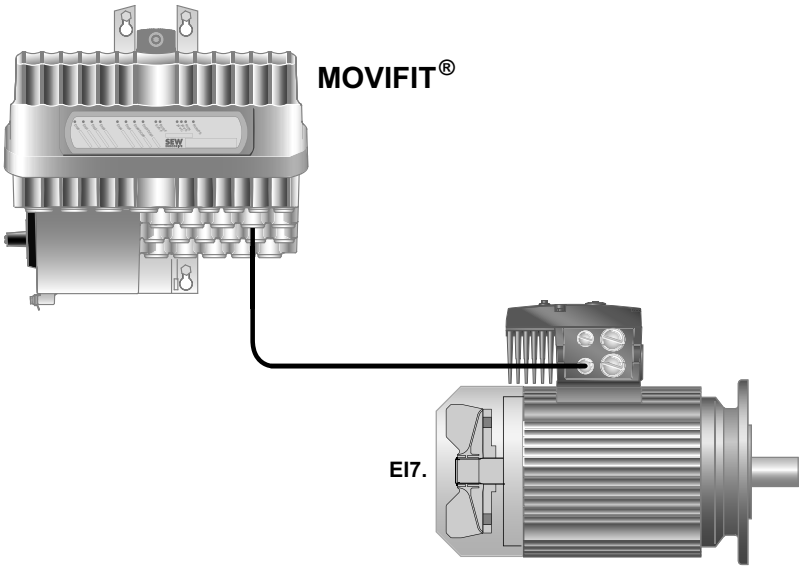
EI71:	1 pulse/revolution	=> 4 increments/revolution [1]
EI72:	2 pulses/revolution	=> 8 increments/revolution[1]
EI76:	6 pulses/revolution	=> 24 increments/revolution[1]
EI7C:	24 pulses/revolution	=> 96 increments/revolution[1]

1) with 4-fold evaluation

- Encoder monitoring and evaluation is possible with MOVIFIT® function level "Technology".

Installation

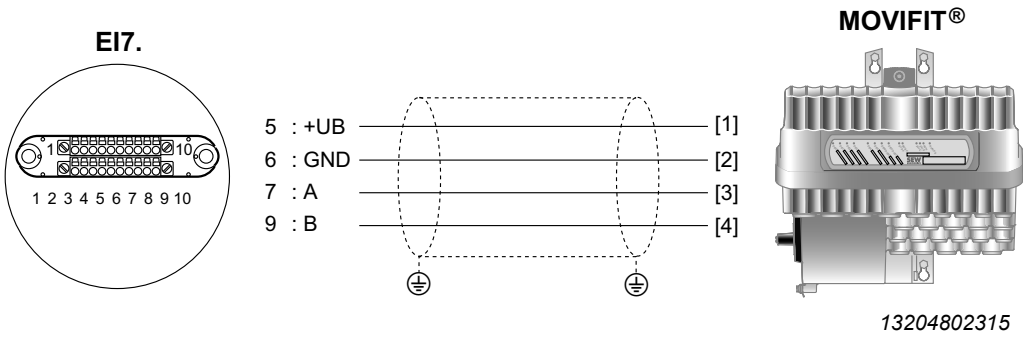
- Use a shielded cable to connect the EI7. incremental encoder to the matching encoder inputs of the MOVIFIT® unit.
  - For a standard ABOX, see chapters "Terminal assignment" > "X25: I/O terminals".
  - For a hybrid ABOX, see chapters "Electrical Connections" > "X21 to X28: Digital inputs/outputs".



6537008011

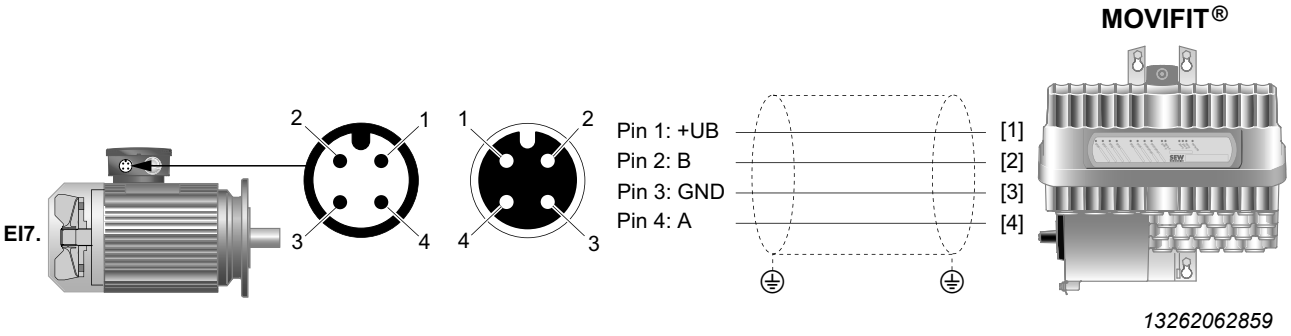
19484828/EN – 01/2015

Connection via terminals



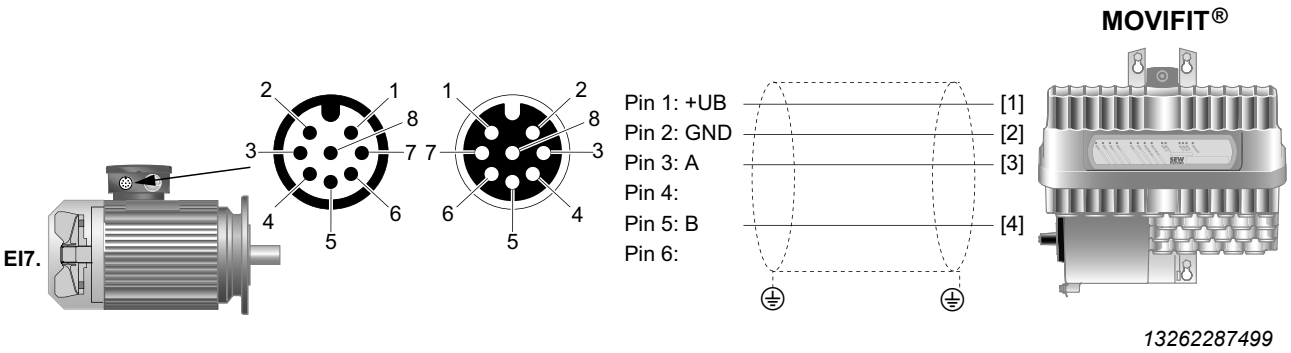
[1] +24 V supply voltage
[2] 0V24 reference potential
[3] Encoder input MOVIFIT® track A
[4] Encoder input MOVIFIT® track B

Wiring diagram with the AVSE plug connector



[1] +24 V sensor supply VO24
[2] Encoder input MOVIFIT® track B
[3] 0V24 reference potential for sensors 0V24_C
[4] Encoder input MOVIFIT® track A

Wiring diagram with the AVRE plug connector



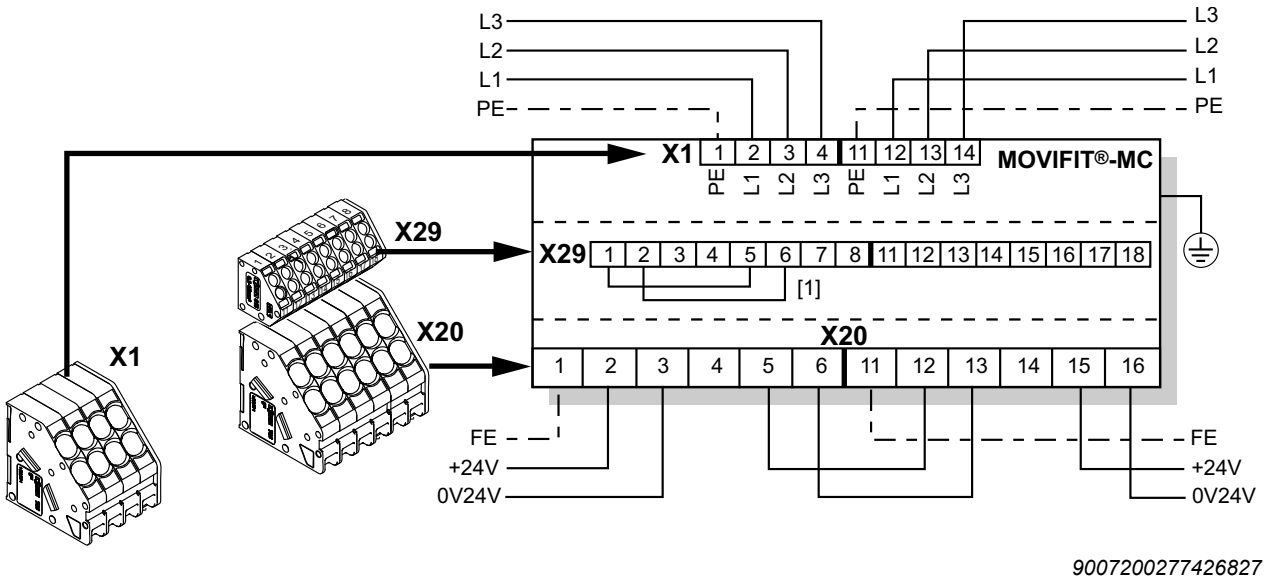
[1] +24 V sensor supply VO24
[2] 0V24 reference potential for sensors 0V24_C
[3] Encoder input MOVIFIT® track A
[4] Encoder input MOVIFIT® track B

19484828/EN – 01/2015

5.13 Power bus connection examples

5.13.1 Connection example with a common 24 V voltage circuit

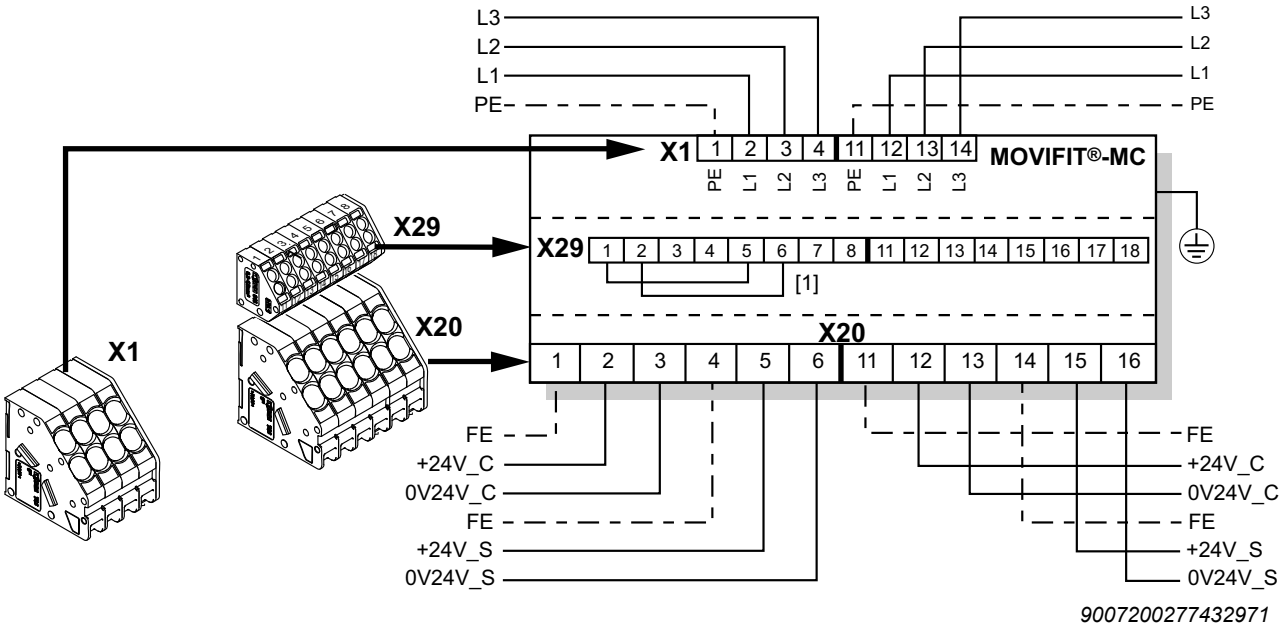
The following figure shows a connection example for the power bus with a common 24 V voltage circuit for the sensor/actuator supply. In the example, the MOVIMOT® inverters are supplied by the 24V_C voltage:



[1] Example for MOVIMOT® inverters supplied by 24V_C

5.13.2 Connection example with two separate 24 V voltage circuits

The following figure depicts a basic connection example for the power bus with two separate 24 V voltage circuits for sensor/actuator supply. In the example, the MOVIMOT® inverters are supplied by the 24V_C voltage:



[1] Example for MOVIMOT® inverters supplied by 24V_C

5.14 Fieldbus systems connection examples

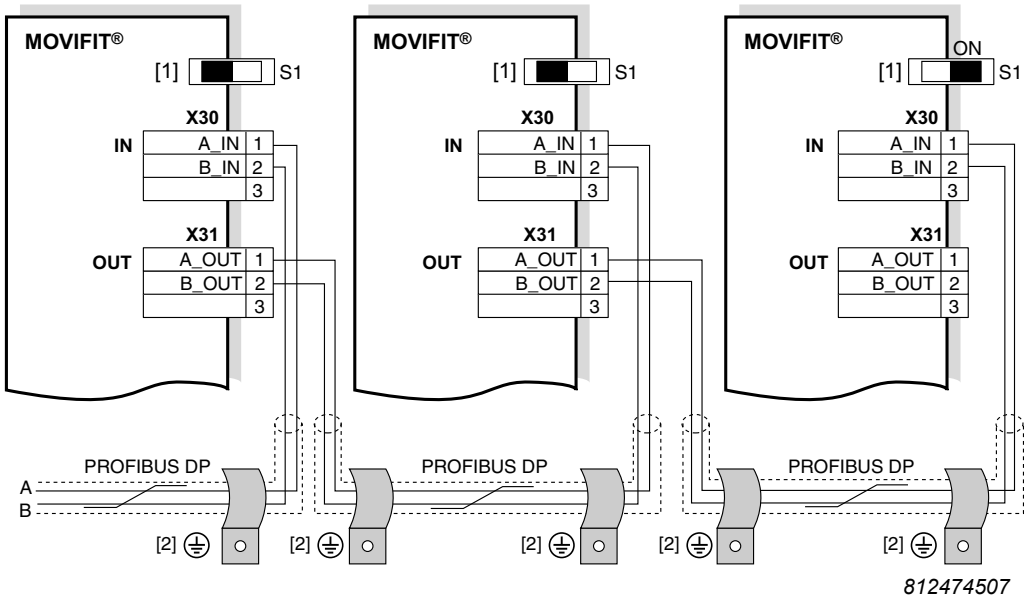
5.14.1 PROFIBUS via terminals

INFORMATION

This example is valid for ABOXes with PROFIBUS terminals.

The following illustration shows the PROFIBUS connection via terminals:

- If the MOVIFIT® unit is located at the end of a PROFIBUS segment, the unit can only be connected to the PROFIBUS network via the incoming PROFIBUS line.
- To prevent malfunctions in the bus system due to reflections, etc., the PROFIBUS segment must be terminated using bus terminating resistors at the first and last stations.
- The bus terminating resistors are already installed in the MOVIFIT® ABOX and they can be activated using the S1 switch.



[1] S1 DIP switch = "ON" for bus termination
[2] Shield plate, see chapter "Connecting the PROFIBUS line" (→ 🗎 52)

19484828/EN – 01/2015

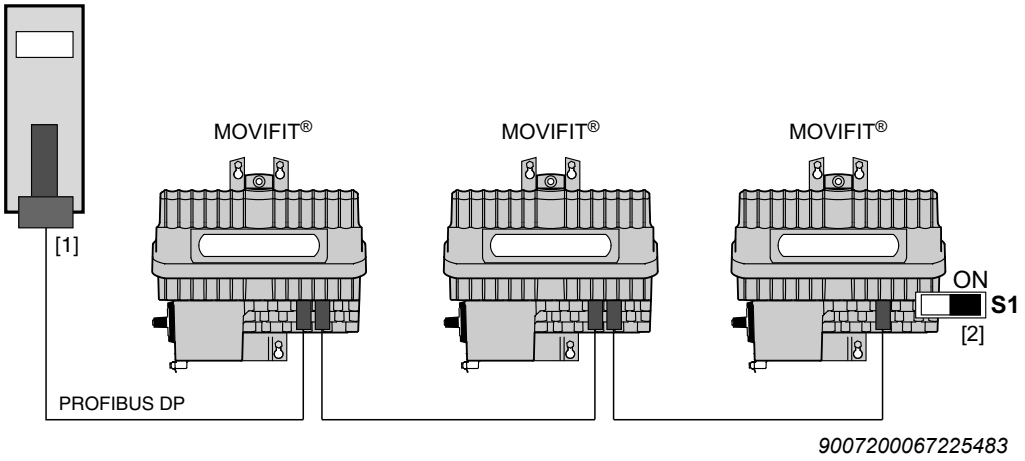
5.14.2 PROFIBUS via M12 plug connectors

INFORMATION

This example is valid for ABOXes with PROFIBUS plug connectors.

The following figure shows the basic connection topology for PROFIBUS via M12 plug connectors:

- For the PROFIBUS connection, the ABOXes have M12 plug connectors. They comply with the recommendations of PROFIBUS directive no. 2.141 "Connection technology for PROFIBUS".
- To prevent malfunctions in the bus system due to reflections, etc., the PROFIBUS segment must be terminated using bus terminating resistors at the first and last stations.
- The bus terminating resistors are already installed in the MOVIFIT® ABOX and they can be activated using the S1 switch.



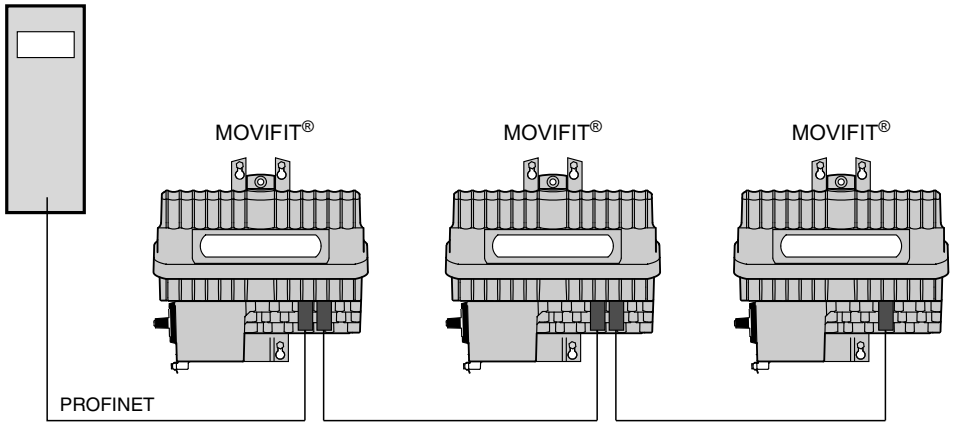
[1] Bus terminating resistor on the controller
[2] S1 DIP switch = "ON" for bus termination

5.14.3 Ethernet (PROFINET IO, EtherNet/IP™, Modbus/TCP)

INFORMATION

This example is valid for ABOXes with PROFINET IO, EtherNet/IP™ or Modbus/TCP interface.

The following figure shows the basic connection topology for Ethernet (PROFINET IO, EtherNet/IP™, Modbus/TCP) via RJ45 plug connectors:



9007200067227147

19484828/EN – 01/2015

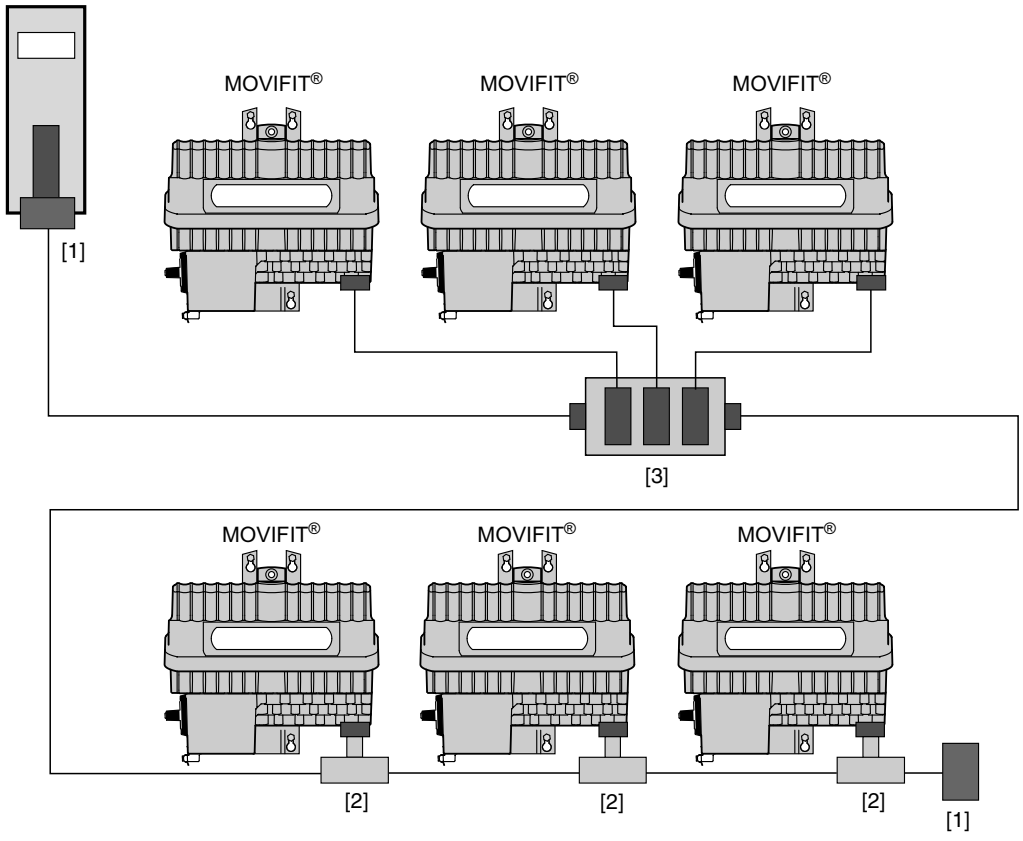
5.14.4 DeviceNet™

INFORMATION

This example is valid for ABOXes with DeviceNet™ interface.

The following figure shows the basic connection topology for DeviceNet™ using a micro-style connector (the example shows a standard ABOX):

- The connection can be made via a multiport or T connector. Observe wiring instructions compliant with DeviceNet™ specification 2.0.
- To prevent malfunctions in the bus system due to reflections, etc., the DeviceNet™ segment must be terminated using bus terminating resistors at the first and last stations.
- Use external bus terminating resistors.

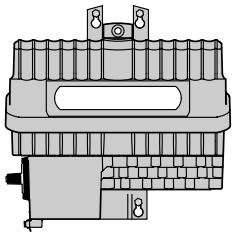
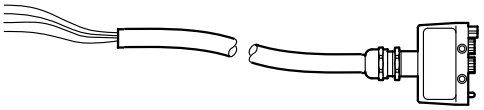
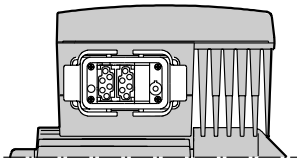
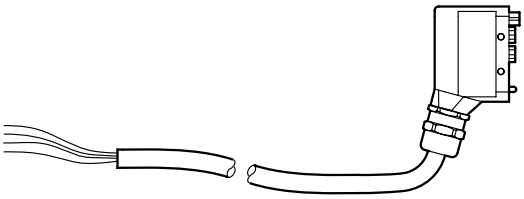
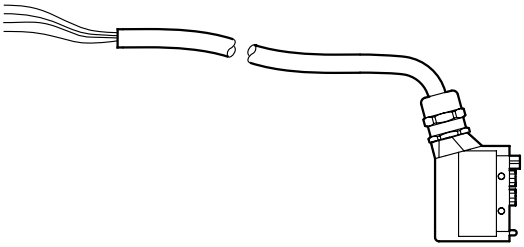
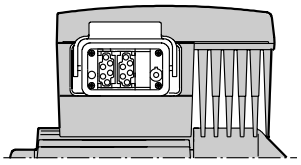
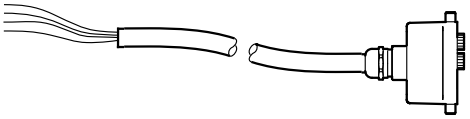


[1] Bus terminating resistor 120 Ω
[2] T Connector
[3] Multiport

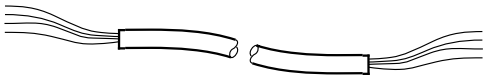
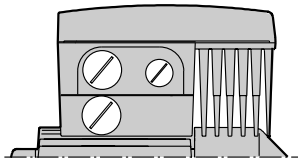
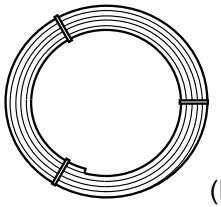
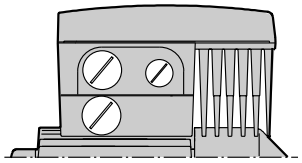
5.15 Hybrid cables

5.15.1 Overview

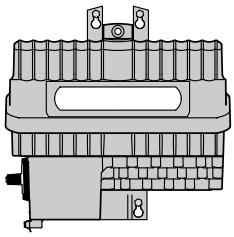
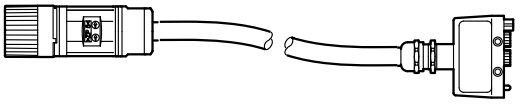
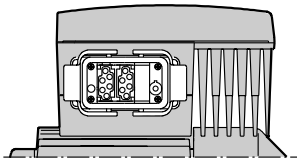
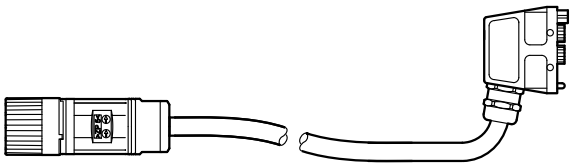
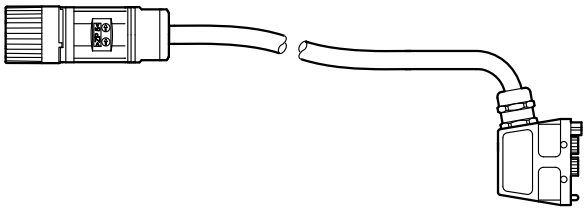
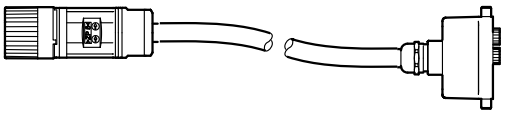
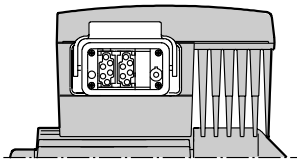
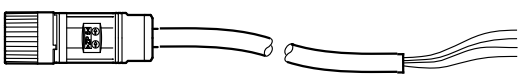
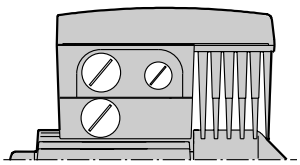
Hybrid cables are available for connecting MOVIFIT® MC and MOVIMOT®. The following table lists the available hybrid cables for total currents of up to 12 A (with UL approval only up to 9 A):

<table>
<tr><th>MOVIFIT® MC</th><th>Connection cable</th><th>Length
Type</th><th>Drive</th></tr>
<tr><td rowspan="3">Standard ABOX:
MTA...-S01.-...-00
Hybrid ABOX:
MTA...-S41.-...-00
MTA...-S51.-...-00
MTA...-S61.-...-00
 
9007200067198859</td><td>Part number: 08199655
  </td><td rowspan="2">Variable
Type B</td><td rowspan="2">MOVIMOT® with
AMA6 plug connector
(HD01AA04CA)
  </td></tr>
<tr><td>Part number: 18100554
 
9007200340340363</td></tr>
<tr><td>Part number: 18100562
 
9007200339769739</td><td>Variable
Type B</td><td>MOVIMOT® with
AMD6 plug connector
(HD01AA01CA)
  </td></tr>
<tr><td></td><td>Part number: 08198713
  </td><td></td><td></td></tr>
</table>

19484828/EN – 01/2015

MOVIFIT® MC	Connection cable	Length Type	Drive
	Part number: 08199744 	Variable Type B	MOVIMOT® with cable glands 
	Part number: 08145172/30 m Part number: 08145172/100 m  (Hybrid cable reel)	30 m 100 m Type B	MOVIMOT® with cable glands 

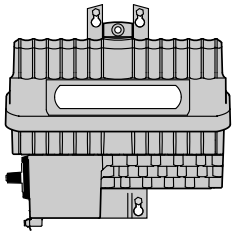
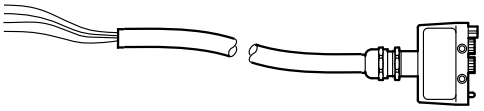
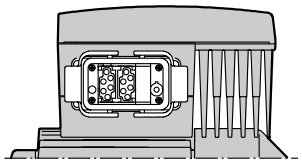
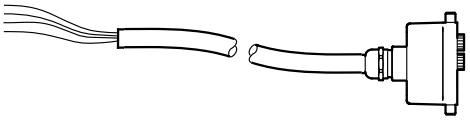
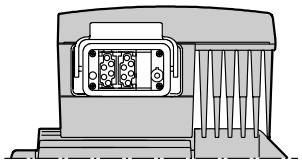
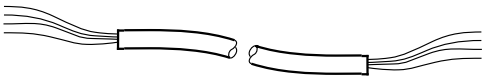
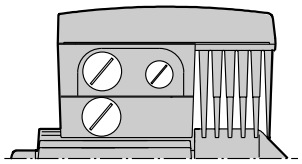
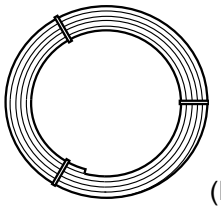
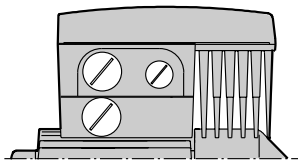
19484828/EN – 01/2015

MOVIFIT® MC	Connection cable	Length Type	Drive
Hybrid ABOX: MTA...-I51.-...-00 MTA...-G51-...-00 MTA...-I61.-...-00 MTA...-G61-...-00  *9007200067198859*	Part number: 18146155 	Variable Type B	MOVIMOT® with AMA6 plug connector (HD01AA04CA) 
	Part number: 18147348  *9007205621179531*		
	Part number: 18147321  *9007205621164427*		
	Part number: 18146171 	Variable Type B	MOVIMOT® with AMD6 plug connector (HD01AA01CA) 
	Part number: 18145213 	Variable Type B	MOVIMOT® with cable glands 

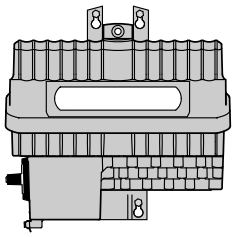
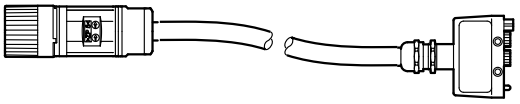
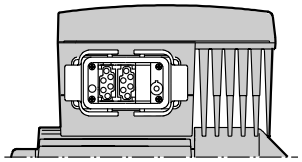
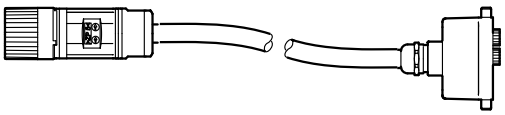
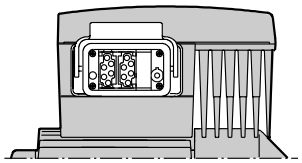
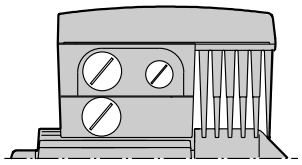
19484828/EN – 01/2015

Hybrid cables for UL-compliant installation up to 12 A

The hybrid cables listed in the following table are the only cables permitted for connecting MOVIFIT® MC and MOVIMOT® for use in UL-compliant installation with a total current of up to 12 A:

MOVIFIT® MC	Connection cable	Length Type	Drive
Standard ABOX: MTA...-S01.-...-00 **Hybrid ABOX:** MTA...-S41.-...-00 MTA...-S51.-...-00 MTA...-S61.-...-00  *9007200067198859*	Part number: 18112994 	Variable Type B/2,5	MOVIMOT® with AMA6 plug connector (HD01AA04CA) 
	Part number: 18113001 	Variable Type B/2,5	MOVIMOT® with AMD6 plug connector (HD01AA01CA) 
	Part number: 18113036 	Variable Type B/2,5	MOVIMOT® with cable glands 
	Part number: 13284363/30 m Part number: 13284363/100 m  (Hybrid cable reel)	30 m 100 m Type B/2,5	MOVIMOT® with cable glands 

19484828/EN – 01/2015

MOVIFIT® MC	Connection cable	Length Type	Drive
Hybrid ABOX: MTA...-I51.-...-00 MTA...-G51-...-00 MTA...-I61.-...-00 MTA...-G61-...-00  *9007200067198859*	Part number: 18146147 	Variable Type B/2,5	MOVIMOT® with AMA6 plug connector (HD01AA04CA) 
	Part number: 18146163 	Variable Type B/2,5	MOVIMOT® with AMD6 plug connector (HD01AA01CA) 
	Part number: 18145892 	Variable Type B/2,5	MOVIMOT® with cable glands 

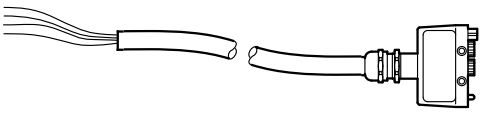
19484828/EN – 01/2015

5.15.2 Hybrid cable connection

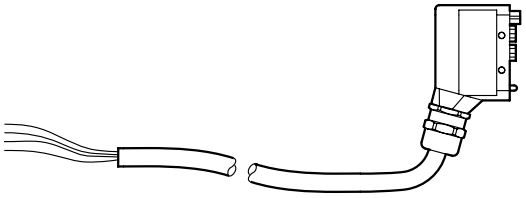
With open cable end (MOVIFIT® side) and plug connector (MOVIMOT® side)

The table shows the assignment of the following hybrid cables:

Part number: 08199655

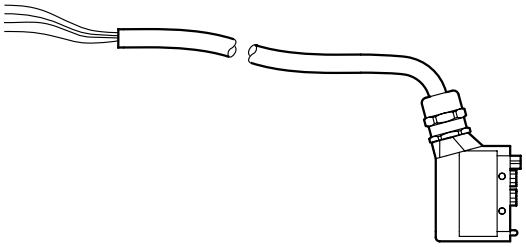


Part number: 18100554



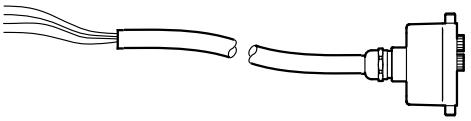
9007200340340363

Part number: 18100562

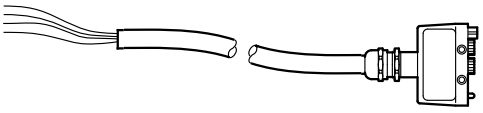


9007200339769739

Part number: 08198713



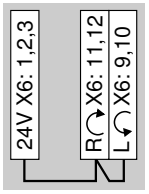
Part number: 18112994
18113001



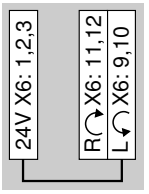
MOVIFIT® MC terminal			Hybrid cable
MOVIMOT® 1	MOVIMOT® 2	MOVIMOT® 3	Wire color/label
X7/1	X8/1	X9/1	Green-yellow
X7/2	X8/2	X9/2	Black/L1
X7/3	X8/3	X9/3	Black/L2
X7/4	X8/4	X9/4	Black/L3
X71/1	X81/1	X91/1	White / 0 V
X71/2	X81/2	X91/2	Green/RS-
X71/3	X81/3	X91/3	Orange/RS+
X71/4	X81/4	X91/4	White / 0 V
X71/5	X81/5	X91/5	Red / 24 V
The inner shields (2x) are connected via shield plates in the MOVIFIT® ABOX; see the chapter "Connecting MOVIMOT® hybrid cables" (→ 🗎 53).			Shield end

Note the enabled direction of rotation

Check to see if the required direction of rotation has been enabled on MOVIMOT®.

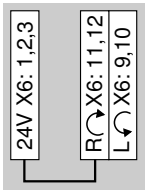


Both directions of rotation are enabled.



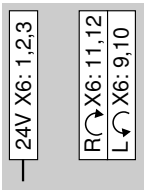
Only CCW direction of rotation is enabled.

Setpoint selections for CW direction of rotation cause the drive to stop.



Only CW direction of rotation is enabled.

Setpoint selections for CCW direction of rotation cause the drive to stop.



Drive is blocked or brought to a stop.

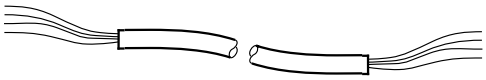
19484828/EN – 01/2015

With open cable end (MOVIFIT® and MOVIMOT® end)

The table shows the assignment of the following hybrid cables:

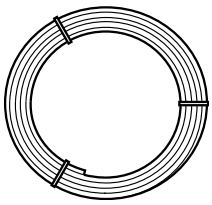
Part number: 08199744

18113036



Part number: 08145172/30 m
08145172/100 m

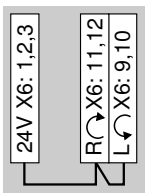
13284363/30 m
13284363/100 m
(Cable reel)



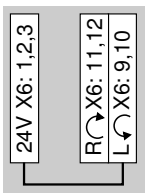
MOVIFIT® MC terminal			Hybrid cable	MOVIMOT® terminal
MOVIMOT® 1	MOVIMOT® 2	MOVIMOT® 3	Wire color/ label	
X7/1	X8/1	X9/1	Green-yellow	PE terminal
X7/2	X8/2	X9/2	Black/L1	L1
X7/3	X8/3	X9/3	Black/L2	L2
X7/4	X8/4	X9/4	Black/L3	L3
X71/1	X81/1	X91/1	White / 0 V	⊥
X71/2	X81/2	X91/2	Green/RS-	RS-
X71/3	X81/3	X91/3	Orange/RS+	RS+
X71/4	X81/4	X91/4	White / 0 V	⊥
X71/5	X81/5	X91/5	Red / 24 V	24 V
The inner shields (2x) are connected via shield plates in the ABOX; see the chapter "Connecting MOVIMOT® hybrid cables" (→ 🗎 53).			Shield end	PE terminal

Note the enabled direction of rotation

Check to see if the required direction of rotation has been enabled on MOVIMOT®.

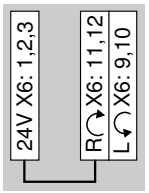


Both directions of rotation are enabled.



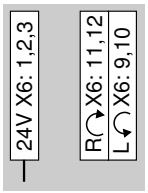
Only CCW direction of rotation is enabled.

Setpoint selections for CW direction of rotation cause the drive to stop.



Only CW direction of rotation is enabled.

Setpoint selections for CCW direction of rotation cause the drive to stop.



Drive is blocked or brought to a stop.

With plug connector (MOVIFIT® side) and open cable end (MOVIMOT® side)

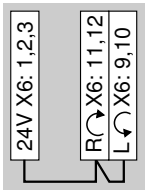
The table shows the assignment of the following hybrid cables:

Part number: 18145213
18145892

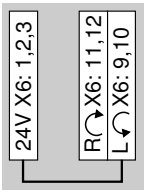
Hybrid cable	Terminal
Wire color/label	**MOVIMOT®**
Green-yellow	PE terminal
Black/1	L1
Black/2	L2
Black/3	L3
Red/24V	24 V
White/0V	⊥
Orange/RS+	RS+
Green/RS-	RS-
White/0V	⊥
Shield end	The inner shield is connected to the housing of the MOVIMOT® inverter via the PE terminal and the overall shield is connected via an EMC cable gland.

Note the enabled direction of rotation

Check to see if the required direction of rotation has been enabled on MOVIMOT®.

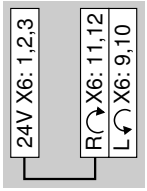


Both directions of rotation are enabled.



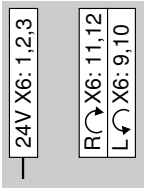
Only CCW direction of rotation is enabled.

Setpoint selections for CW direction of rotation cause the drive to stop.



Only CW direction of rotation is enabled.

Setpoint selections for CCW direction of rotation cause the drive to stop.



Drive is blocked or brought to a stop.

19484828/EN – 01/2015

5.16 Wiring check

Before connecting the system to the power source for the first time, you must perform a wiring check to prevent damage to persons, systems, and equipment caused by incorrect wiring:

- Remove the EBOX from the ABOX.
- Check the insulation of the wiring in accordance with applicable national standards.
- Check the grounding.
- Check the insulation between the supply system cable and the DC 24 V cable.
- Check the insulation between the supply system cable and the communication cable.
- Check the polarity of the DC 24 V cable.
- Check the polarity of the communication line.
- Ensure equipotential bonding between the MOVIFIT® units.

5.16.1 After the wiring check

- Push the EBOX onto the ABOX and screw it on.
- Seal all cable openings and plug connections that are not in use.

19484828/EN – 01/2015

6 Startup

6.1 General information

INFORMATION

You must comply with the general safety notes in the chapter "Safety notes" during startup.

⚠ WARNING

Electric shock due to dangerous voltages in the ABOX.

Severe or fatal injuries.

- De-energize the new MOVIFIT® unit. Observe the minimum switch-off time after disconnection from the supply system:
  - **1 minute**

⚠ WARNING

Uncontrolled unit behavior due to ineffective emergency switching off circuit.

Severe or fatal injuries.

- Comply with the installation notes.
- Installation may only be carried out by qualified personnel.

⚠ WARNING

Unit malfunction due to incorrect unit setting.

Severe or fatal injuries.

- Observe the startup notes.
- Installation may only be carried out by qualified personnel.
- Check the parameters and data sets.
- Use only settings that are appropriate for the function.

⚠ WARNING

Danger of burns due to hot surfaces of the unit (e.g. the heat sink).

Serious injuries.

- Do not touch the unit until it has cooled down sufficiently.

NOTICE

Danger due to arcing.

Damage to electrical components.

- Do not unplug the power connectors during operation. Do not plug in the power connectors during operation.
- Never remove the EBOX during operation.

19484828/EN – 01/2015

INFORMATION

To ensure fault-free operation, do not disconnect or connect the signal cables during operation.

6.2 Requirements

The following conditions apply to startup:

- MOVIFIT® and the drive units must be installed correctly both mechanically and electrically.
- Appropriate safety measures prevent the drives from starting up unintentionally.
- Appropriate safety measures must be taken to prevent risk of injury or damage to the machine.

The following hardware is required for startup:

- PC or laptop
- Interface adapter
- Connection cable between PC and MOVIFIT®

The following software is required on the PC or laptop for startup:

- MOVITOOLS® MotionStudio, version 5.60 or later

19484828/EN – 01/2015

6.2.1 Connecting a PC/laptop

The following figure shows the connection of a PC/laptop to the diagnostic interface X50 of MOVIFIT®:

The diagnostic interface is located under the screw plug shown in the following figure.

You must remove the screw plug before plugging in the connector into the diagnostic interface.

⚠ **WARNING!** Risk of burns due to hot surfaces of the MOVIFIT® or external options, e.g. braking resistor.

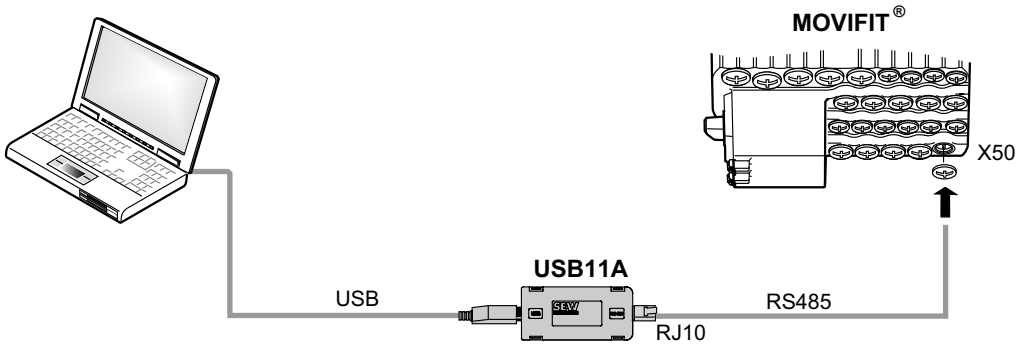
Serious injuries.

- Do not touch the MOVIFIT® unit and external options until they have cooled down sufficiently.

The diagnostic interface can be connected to a commercially available PC/laptop via the USB11A interface adapter (part number: 08.248.311).

Scope of delivery:

- USB11A interface adapter
- Cable with RJ10 plug connector
- USB interface cable



45035997086149515

19484828/EN – 01/2015

6.3 Description of the DIP switches

6.3.1 Information

NOTICE

Hazard caused by unsuitable tools.

Damage to the DIP switches.

- To set the DIP switches use only suitable tools, such as a slotted screwdriver with a blade width smaller than 3 mm.
- The force used for setting the DIP switches must not exceed 5 N.

INFORMATION

For information about the position of DIP switch S10, refer to the "EBOX" chapter.

For information about the position of DIP switches S1, S2, and S3, refer to the "ABOX" chapter.

6.3.2 DIP switch S1

Bus terminating resistor for PROFIBUS

- DIP switch S1 = OFF: Bus terminating resistor is **not** active.
- DIP switch S1 = ON: Bus terminating resistor is active.

19484828/EN – 01/2015

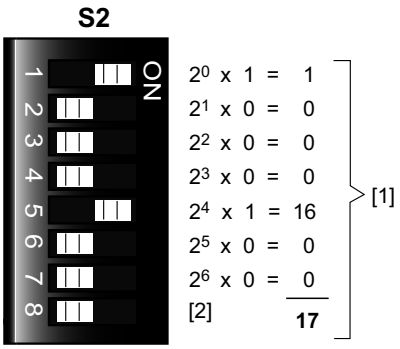
6.3.3 DIP switch S2

The function of DIP switch S2 depends on the type of fieldbus.

Function of DIP switch S2 for PROFIBUS

PROFIBUS address

You can set the PROFIBUS address at the DIP switches S2/1 to S2/7.



9007200092252555

[1] Example: Address 17
[2] Switch 8 = Reserved

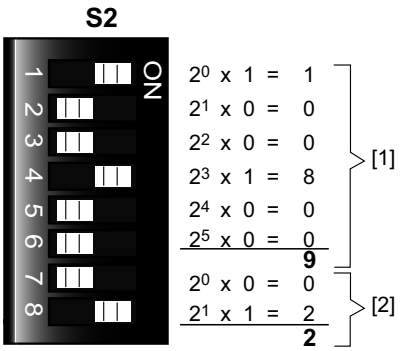
Addresses 1 to 125:	valid addresses
Addresses 0, 126, 127:	are not supported

Function of S2 DIP switch for DeviceNet™

DeviceNet™ address (MAC ID) and baud rate

You can set the DeviceNet™ address (MAC ID) at the DIP switches S2/1 to S2/6.

You can set the DeviceNet™ baud rate at the DIP switches S2/7 to S2/8.



9007200092311435

[1] Setting the DeviceNet™ address
[2] Setting the baud rate

19484828/EN – 01/2015

6.3.4 DIP switch S3

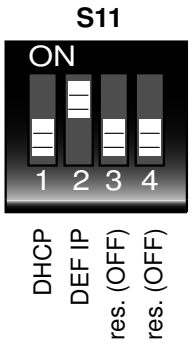
Bus terminating resistor for SBus

- DIP switch S3 = OFF: Bus terminating resistor is **not** active.
- DIP switch S3 = ON: Bus terminating resistor is active.

6.3.5 DIP switch S11

IP parameters for PROFINET IO, EtherNet/IP™ and Modbus/TCP

You can set the IP parameters for PROFINET IO, EtherNet/IP™ and Modbus/TCP at DIP switches S11/1 – S11/2.



9007200422438795

S11/1 "DHCP"	S11/2 "DEF IP"	Status
ON	**ON**	This combination of settings is not permitted.
ON	**OFF**	The MOVIFIT® unit awaits the IP parameter being assigned by a DHCP server.
OFF	**ON**	The IP parameters are set to the following default values when the DC 24 V voltage is switched on: IP address: 192.168.10.4 Subnet mask: 255.255.255.0 Default gateway: 1.0.0.0 with EtherNet/IP™ DHCP / Startup Configuration: Saved IP parameters (DHCP is deactivated)
OFF	**OFF**	The IP parameters set in the parameter tree are used. On delivery, the above-mentioned default values are set.

19484828/EN – 01/2015

6.4 Startup procedure

⚠ WARNING

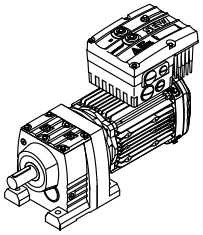
Danger due to improper safety shutdown in applications with safe disconnection.

Severe or fatal injuries may result.

- If you are using a MOVIFIT® with the S11 PROFIsafe option, observe the permitted wiring diagrams and the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety" manual.
- If you are using a MOVIFIT® with the S12 safety option, observe the diagrams of permitted connections and the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

The following provides an overview of the MOVIFIT® MC startup procedure and lists other applicable documentation:

[1]



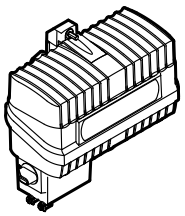
5835322507

Starting up the MOVIMOT® drive

→ For information, refer to:

- The chapter "MOVIMOT® startup"
- The "MOVIMOT® MM..D" operating instructions

[2]



Starting up the MOVIFIT®

→ For information, refer to:

- The chapter "Startup" > "General information"
- The chapter "MOVIFIT® on the fieldbus"

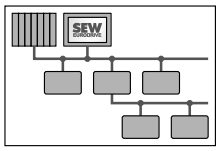
[3]

Parameterization[1)] Programming with MOVITOOLS® MotionStudio

→ For information, refer to:

- The chapter "First steps with MOVITOOLS® MotionStudio"
- The "MOVIFIT® Function Level Classic .." manual [2)]
- The "MOVIFIT® Function Level Technology .." manual [2)]
- The "MOVI-PLC® Programming in the PLC Editor" manual

[4]



Fieldbus configuration

→ For information, refer to:

- The chapter "MOVIFIT® on the fieldbus"
- The "MOVIFIT® Function Level Classic .." manual [2)]
- The "MOVIFIT® Function Level Technology .." manual [2)]

1) Parameterization is only necessary in "expert mode."

2) The "MOVIFIT® Function Level Classic" and "MOVIFIT® Function Level Technology" manuals are available in several fieldbus-specific versions.

19484828/EN – 01/2015

6.5 MOVIMOT® startup

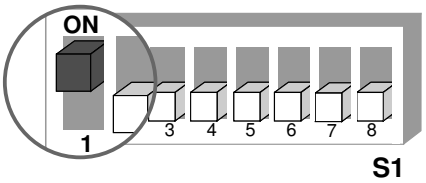
⚠ WARNING

Electric shock from capacitors that have not been fully discharged.

Severe or fatal injuries.

- Disconnect the inverter from the power. Observe the minimum switch-off time after disconnection from the supply system:
  - **1 minute**

1. Remove the MOVIMOT® inverter from the connection box.
2. Check that all connected MOVIMOT® drives are installed correctly both mechanically and electrically.
3. Set DIP switch S1/1 to "ON" for **all** connected MOVIMOT® inverters (= address 1)



1027745547

4. Set the maximum speed using setpoint potentiometer f1 of the MOVIMOT® inverter. Always set setpoint potentiometer f1 to "10" for operation using MOVIFIT® MC; any other setting will result in incorrect scaling of the setpoint entries.

1027808267

5. Reinsert the screw plug in the MOVIMOT® cover (with gasket).

   NOTICE! Loss of guaranteed degree of protection if the screw plugs of the f1 setpoint potentiometer or the X50 diagnostic interface are installed incorrectly or not at all.

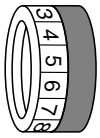
   Damage to the MOVIMOT® inverter.

   - Make sure the screw plug of the setpoint potentiometer has a seal and screw it in.

6. Set minimum frequency f_{min} using switch f2 on the MOVIMOT® inverter.

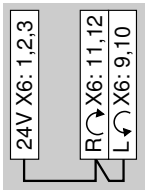
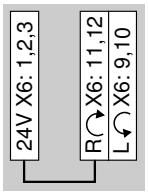
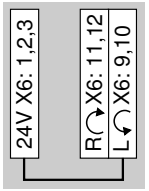
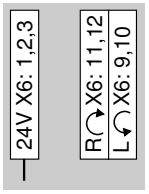
Function	Setting										
Detent position	0	1	2	3	4	5	6	7	8	9	10
Minimum frequency f_{min} [Hz]	2	5	7	10	12	15	20	25	30	35	40

7. If the ramp is not set using MOVIFIT® (2 PD), use switch t1 on the MOVIMOT® inverter to set the ramp time. The ramp time is based on a setpoint step change of 1500 rpm (50 Hz).



Function	Setting										
Detent position	0	1	2	3	4	5	6	7	8	9	10
Ramp time t1 [s]	0.1	0.2	0.3	0.5	0.7	1	2	3	5	7	10

8. Check to see if the requested direction of rotation has been enabled.

CW/Stop	CCW/Stop	Meaning
Activated	Activated	• Both directions of rotation are enabled.
		
Activated	Not activated	• Only CW rotation is enabled. • Setpoint selections for CCW direction of rotation cause the drive to stop.
		
Not activated	Activated	• Only CCW rotation is enabled • Setpoint selections for CW direction of rotation cause the drive to stop.
		
Not activated	Not activated	• Unit is blocked or drive is brought to a stop
		

9. Place the MOVIMOT® inverter onto the connection box and screw it on tightly.

19484828/EN – 01/2015

6.6 Startup of MOVIFIT® on the fieldbus

INFORMATION

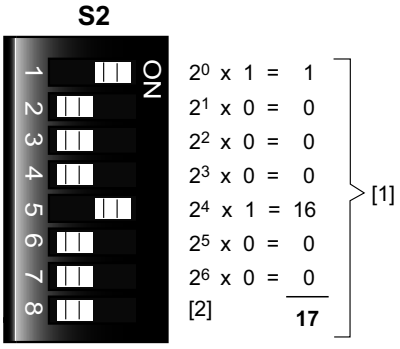
The entire fieldbus startup is carried out via software tools and is described in the respective manuals:

The "MOVIFIT® Function Level Classic" and "MOVIFIT® Function Level Technology" manuals are available in several fieldbus-specific designs.

- "MOVIFIT® Function Level Classic..." manual
- "MOVIFIT® Function Level "Technology..." manual

6.6.1 Startup in conjunction with PROFIBUS

1. Check the MOVIFIT® connection.
2. Set the PROFIBUS address at DIP switch S2 of the MOVIFIT® ABOX.



9007200092252555

[1] Example: Address 17
[2] Switch 8 = Reserved

Addresses 1 to 125: valid addresses

Addresses 0, 126, 127: are not supported

The following table uses address 17 as an example to show how to set the DIP switches for any bus address:

DIP switch position	Significance
DIP 1 = ON	1
DIP 2 = OFF	2
DIP 3 = OFF	4
DIP 4 = OFF	8
DIP 5 = ON	16
DIP 6 = OFF	32
DIP 7 = OFF	64

3. Connect the bus termination on MOVIFIT® at the last bus station.
   - If the MOVIFIT® unit is located at the end of a PROFIBUS segment, the unit can only be connected to the PROFIBUS network via the incoming PROFIBUS line.
   - To prevent malfunctions in the bus system due to reflections, etc., the PROFIBUS segment must be terminated at the first and last stations.

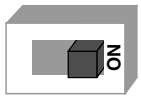
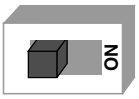
INFORMATION

The PROFIBUS is not interrupted when you remove the EBOX (electronics unit) from the ABOX (connection unit).

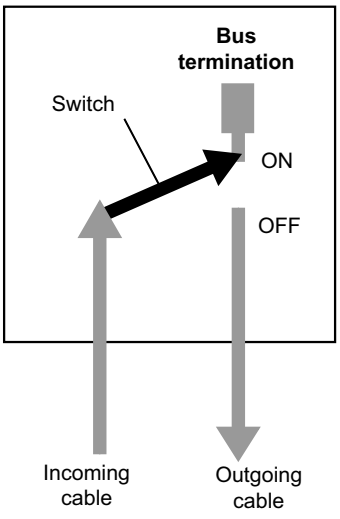
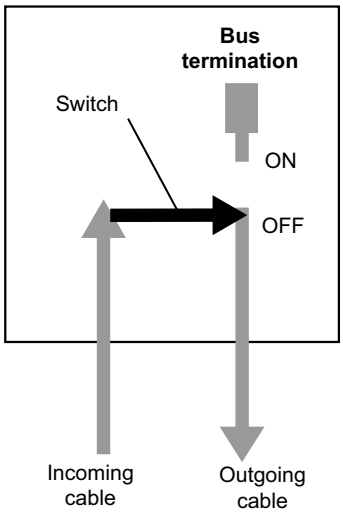
4. Start up the MOVIFIT® frequency inverter, see chapter "Startup of the MOVIFIT® inverter".
5. Place the EBOX onto the ABOX and close it.
6. Switch on the 24V_C and 24V_S supply voltage(s). The associated control LEDs should now light up green.

Bus termination

The bus terminating resistors are already installed in the ABOX and can be activated using switch S1:

Bus termination ON = on	Bus termination OFF = off (factory setting)
	

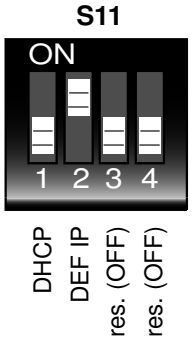
The following table shows the functional principle of the bus termination switch:

Bus termination switch S1	
Bus termination ON = on	Bus termination OFF = off
	

19484828/EN – 01/2015

6.6.2 Startup with PROFINET IO, EtherNet/IP™, or Modbus/TCP

1. Check the MOVIFIT® connection.
2. Start up the MOVIFIT® inverter, see chapter "Startup of the MOVIFIT® frequency inverter".
3. Set DIP switch S11/2 "DEF IP" to "ON".



9007200422438795

This sets the address parameters to the following default values:

IP address:	192.168.10.4
Subnet mask:	255.255.255.0
Gateway:	1.0.0.0

4. Place the EBOX onto the ABOX and close it.
5. Switch on the 24V_C and 24V_S supply voltage(s). The corresponding control LEDs should now light up green.

19484828/EN – 01/2015

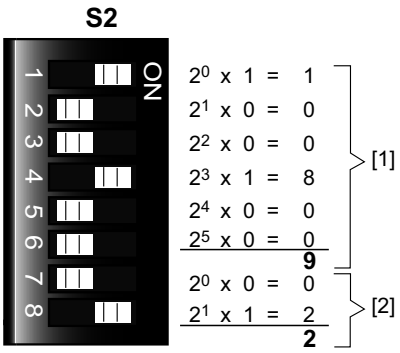
6.6.3 Startup with DeviceNet™

1. Check the MOVIFIT® connection.
2. Set the DeviceNet™ address at DIP switch S2 of the ABOX.
3. Set the baud rate at DIP switch S2 of the ABOX.
4. Start up the MOVIFIT® inverter, see chapter "Startup of the MOVIFIT® frequency inverter".
5. Place the EBOX onto the ABOX and close it.
6. Switch on the 24V_C and 24V_S supply voltage(s). The corresponding control LEDs should now light up green.

Setting DeviceNet™ address (MAC ID) and baud rate

The DeviceNet™ address is set with DIP switches S2/1 to S2/6.

The Baud rate is set with DIP switches S2/7 to S2/8:



9007200092311435

[1] Setting the DeviceNet™ address
[2] Setting the baud rate

In the following table, address 9 is used as an example to show how to set any bus address at the DIP switches:

DIP switch	Switch position	Significance
S2/1	ON	1
S2/2	OFF	2
S2/3	OFF	4
S2/4	ON	8
S2/5	OFF	16
S2/6	OFF	32

The following table shows how to set the baud rate at the DIP switches:

Baud rate	Value	S2/7	S2/8
125 kBd	0	OFF	OFF
250 kBd	1	ON	OFF
500 kBd	**2**	**OFF**	**ON**
(reserved)	3	ON	ON

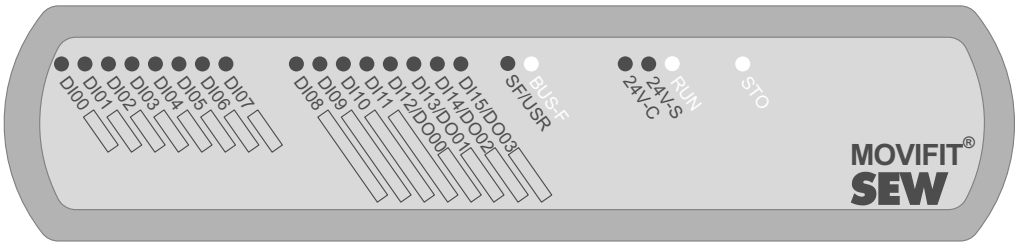
19484828/EN – 01/2015

7 Operation

7.1 MOVIFIT® MC status LEDs

7.1.1 General LEDs

This chapter describes the fieldbus-independent and option-independent LEDs. These LEDs are shown as dark in the figures. The LEDs that are shown in white differ depending on which fieldbus version is used. They are described in the following chapters. The following figure depicts examples of the PROFIBUS variants:



9007200284574091

"DI.." LEDs

The following table shows the statuses of the "DI00 – DI15" LEDs:

LED	Meaning
Yellow Illuminated	Input signal present at digital input DI..
Off	Input signal at digital input DI.. open or "0".

"DO.." LEDs

The following table shows the statuses of the "DO00 – DO03" LEDs.

LED	Meaning
Yellow Illuminated	DO.. output switched.
Off	DO.. output logical "0".

19484828/EN – 01/2015

LED "SF/USR"

The "SF/USR" LED indicates various statuses depending on the function level.

Classic function level

The following table shows the statuses of the "SF/USR" LED:

LED	Meaning	Measure
Off	Standard operating state MOVIFIT® is currently exchanging data with the connected drive system (MOVIMOT® inverter).	-
Red Illuminated	MOVIFIT® cannot exchange data with lower-level MOVIMOT® (1 to 3).	Check the wiring of the RS845 between the MOVIFIT® MC and the connected MOVIMOT® units. Check the voltage supply of the MOVIMOT®.
Red Flashing (2 s cycle)	MOVIFIT® initialization error or serious unit fault	Incorrect card ID Switch on MOVIFIT® again. If the error is still present, replace the EBOX or contact SEW Service.
Red Flashing	Other unit fault	Use MOVITOOLS® MotionStudio to read out the error status. Eliminate the cause of error and acknowledge this error.

Technology function level

The following table shows the states of the "SF/USR" LED:

LED	Meaning	Measure
Off	IEC program is running.	-
Green Illuminated	IEC program is running. The green lit LED is controlled by the IEC program.	Refer to the IEC program documentation for more information
Red Illuminated	Boot project has not been started or has been cancelled due to an error.	Use MOVITOOL® > PLC Editor > Remote Tool to log on; start the boot project.
	MOVIFIT® initialization fault Wrong EBOX/ABOX combination	Incorrect card ID. Check the MOVIFIT® EBOX type. Use the correct EBOX on the ABOX and perform a complete startup procedure.
Red Flashing	No IEC application program loaded.	Load an IEC application program and, if necessary, restart the integrated PLC.
Yellow Flashing	The IEC application program has been loaded but is not executed (PLC = stop).	Check the IEC application program using MOVITOOLS® MotionStudio and start the integrated PLC.

19484828/EN – 01/2015

LED	Meaning	Measure
1 x red + n x green Flashing	Fault status reported by the IEC program.	Refer to the IEC program documentation for more information on the statuses and the corresponding remedy

"24V-C" LED

The following table shows the states of the "24V-C" LED:

LED	Meaning	Measure
Green Illuminated	24V_C continuous voltage is present.	-
Off	24V_C continuous voltage is not present.	Check the 24V-C voltage supply.

LED "24V-S"

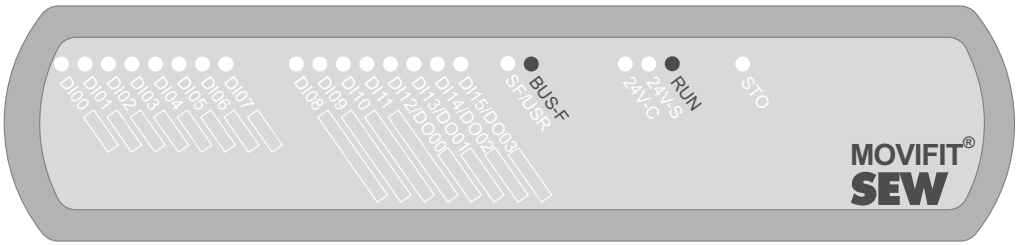
The following table shows the states of the "24V-S" LED:

LED	Meaning	Measure
Green Illuminated	24V_S actuator voltage is present.	-
Off	24V_S actuator voltage is not present.	Check the 24V-S voltage supply.

19484828/EN – 01/2015

7.1.2 Bus-specific LEDs for PROFIBUS

This chapter describes the bus-specific LEDs for PROFIBUS. In the following figure, the LEDs are shown as dark:



9007200284645259

"BUS-F" LED

The following table shows the statuses of the "BUS-F" LED:

LED	Meaning	Measure
Off	MOVIFIT® is exchanging data with the DP master (data exchange).	-
Red Flashing	The baud rate is detected. However, MOVIFIT® is not being addressed by the DP master. MOVIFIT® was configured incorrectly or not configured in DP master.	• Check the project planning of the DP master. • Check whether all the modules configured during project planning are permitted for the MOVIFIT® variant used (MC, FC, SC).
Red Illuminated	Connection to the DP master has failed. MOVIFIT® does not detect baud rate. Bus interruption DP master not in operation.	• Check the PROFIBUS DP connection of MOVIFIT®. • Check the DP master. • Check all cables in your PROFIBUS DP network.

19484828/EN – 01/2015

"RUN" LED

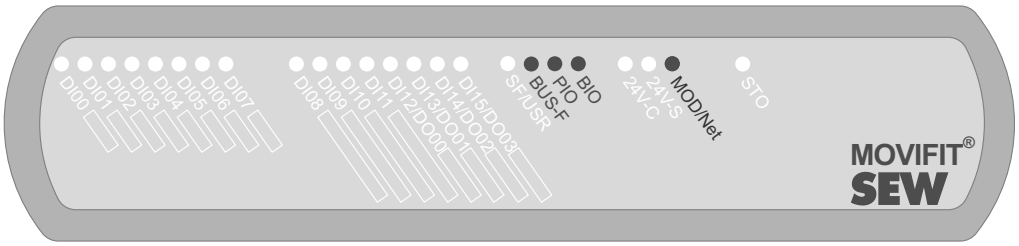
The following table shows the statuses of the "RUN" LED:

LED	Meaning	Measure
Off	MOVIFIT® not ready for operation. No 24 V power supply.	• Check DC 24 V supply. • Switch on MOVIFIT® again. Exchange EBOX if problem occurs repeatedly.
Green Illuminated	MOVIFIT® assembly hardware OK.	-
Green Illuminated	If "BUS-F" LED is off: MOVIFIT® operating correctly. MOVIFIT® is currently exchanging data with the DP master and all subordinate drive systems.	-
Green Flashing	PROFIBUS address is set equal to 0 or higher than 125.	Check the PROFIBUS address that is set in the MOVIFIT® ABOX.
Yellow Illuminated	MOVIFIT® is in the initialization phase.	-
Red Illuminated	Internal unit fault	Switch on MOVIFIT® again. Exchange EBOX if problem occurs repeatedly.

19484828/EN – 01/2015

7.1.3 Bus-specific LEDs for DeviceNet™

This chapter describes the bus-specific LEDs for DeviceNet™. In the following figure, the LEDs are shown as dark:



9007200284656779

"BUS-F" LED

The "BUS-F" LED indicates the physical state of the bus node. The functionality is described in the following table:

LED	Possible cause	Meaning	Measure
Off	No error	The number of bus errors is within the normal range (error active state).	-
Red Flashing (1 s cycle)	Bus warning	The unit is performing a DUP-MAC check and cannot send any messages because no other stations are connected to the bus (error passive state).	• Integrate another DeviceNet™ station into the network. • Check the wiring and terminating resistors.
Red Illuminated	Bus error	Bus off status. The number of physical bus errors has increased despite switchover to error-passive state. Access to the bus is switched off.	• Check the setting for the address baud rate, wiring, and terminating resistors.
Yellow Illuminated	Power off	External voltage supply has been turned off or is not connected.	• Check the external voltage supply and wiring of the unit.

19484828/EN – 01/2015

"MOD/NET" LED

The function of the "Mod/Net" LED described in the following table is defined in the DeviceNet™ specification.

LED	Possible cause	Meaning	Measure
Off	Not switched on / Off-line	Unit is offline. Unit is performing a DUP-MAC check. Unit is switched off.	• Apply supply voltage via DeviceNet™ connector.
Green Flashing (1 s cycle)	Online and in operational mode	The unit is online and no connection has been established. DUP-MAC check performed successfully. A connection has not yet been established with a master. Missing (incorrect) or incomplete configuration.	• Include the station in the master's scan list and start communication in the master.
Green Illuminated	Online, operational mode and connected	Unit is online. Connection is active (established state).	-
Red Flashing (1 s cycle)	Minor fault or connection timeout	A correctable fault has occurred. 24V_S actuator voltage missing. Polled I/O and/or bit-strobe I/O connections are in the timeout status. A correctable error has occurred in the unit.	• Check DeviceNet™ cable. • Check the 24V_S voltage supply. • Check timeout response (*P836*). If a response with error is set, reset the unit once the error has been corrected.
Red Illuminated	Critical error or critical link failure	An error that cannot be corrected has occurred. BusOff status. DUP-MAC check has detected an error.	• Check DeviceNet™ cable. • Check the address (MAC ID). Is another unit already using the same address?

19484828/EN – 01/2015

"PIO" LED

The "PIO" LED checks the polled I/O connection (process data channel). The functionality is described in the following table.

LED	Possible cause	Meaning	Measure
Green Flashing (500 ms cycle)	DUP-MAC check	Unit is performing DUP-MAC check. If the station does not leave this state after approx. 2 s, no other station has been found.	• Integrate at least on additional DeviceNet™ station into the network.
Off	Not switched on/ offline but not DUP-MAC check	Unit is switched off. Unit is in offline status.	• Switch on the unit. • Check whether the PIO connection type was activated in the master.
Green Flashing (1 s cycle)	Online and in operational mode	Unit is online. DUP-MAC check performed successfully. A PIO connection is being established with a master (configuring state). Missing, incorrect or incomplete configuration.	• Check the unit configuration in the master.
Green Illuminated	Online, operational mode and connected	Unit is online. A PIO connection has been established (established state).	-
Red Flashing (1 s cycle)	Minor fault or connection timeout	A correctable fault has occurred. Invalid baud rate set at the DIP switches. Polled I/O connection is in timeout status.	• Check DeviceNet™ cable. • Check the positions of the DIP switches for the baud rate. • Check timeout response (*P836*). If a response with error is set, reset the unit once the error has been corrected.
Red Illuminated	Critical error or Critical link failure	An error that cannot be corrected has occurred. BusOff status. DUP-MAC check has detected an error.	• Check DeviceNet™ cable. • Check the address (MAC ID). Is another unit already using the same address?

19484828/EN – 01/2015

"BIO" LED

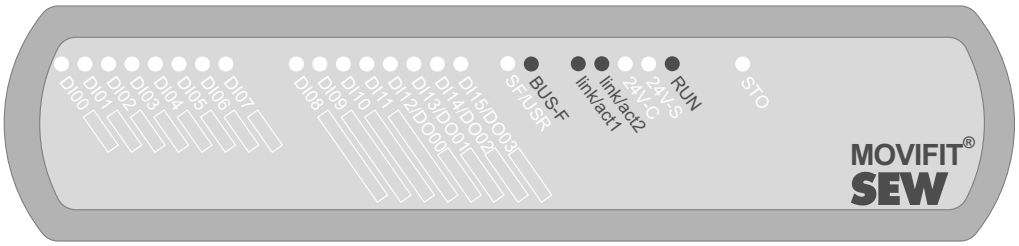
The "BIO" LED checks the bit-strobe I/O connection. The functionality is described in the following table.

LED	Possible cause	Meaning	Measure
Green Flashing (500 ms cycle)	DUP-MAC check	Unit is performing DUP-MAC check. If the station does not leave this state after approx. 2 s, no other stations have been found.	• Integrate at least on additional DeviceNet™ station into the network.
Off	Not switched on/ Offline, but no DUP-MAC check	Unit is switched off. Unit is in offline status.	• Switch on the unit. • Check whether the BIO connection type was activated in the master.
Green Flashing (1 s cycle)	Online and in operational mode	Unit is online. DUP-MAC check performed successfully. A BIO connection is being established with a master (configuring state). Missing, incorrect or incomplete configuration.	• Check the unit configuration in the master.
Green Illuminated	Online, operational mode and connected	Unit is online. A BIO connection has been established (established state).	-
Red Flashing (1 s cycle)	Minor error or connection timeout	A correctable fault has occurred. Bit-strobe I/O connection is in timeout status.	• Check DeviceNet™ cable. • Check timeout response (*P836*). If a response with error is set, reset the unit once the error has been corrected.
Red Illuminated	Critical error or Critical link failure	An error that cannot be corrected has occurred. BusOff status. DUP-MAC check has detected an error.	• Check DeviceNet™ cable. • Check the address (MAC ID). Is another unit already using the same address?

19484828/EN – 01/2015

7.1.4 Bus-specific LEDs for PROFINET

This chapter describes the bus-specific LEDs for PROFINET. In the following figure, the LEDs are shown as dark:



9007200284650635

"BUS-F" LED

The following table shows the statuses of the "BUS-F" LED:

LED	Meaning	Measure
Off	MOVIFIT® is exchanging data with the PROFINET master (data exchange).	-
Yellow Illuminated, flashing	The STEP 7 hardware configuration contains a module that is not permitted.	Switch the STEP 7 hardware configuration to ONLINE and analyze the component status of the slots in the MOVIFIT® unit.
Green, Green/Red Flashing	The flashing function in the PROFINET master configuration is activated to visually localize the station.	-
Red Illuminated	Connection to the PROFINET master has failed. MOVIFIT® does not detect a link. Bus interruption. PROFINET master not in operation.	• Check the PROFINET connection of MOVIFIT®. • Check the PROFINET master. • Check all cables in your PROFINET network.

19484828/EN – 01/2015

"RUN" LED

The following table shows the statuses of the "RUN" LED:

LED	Meaning	Measure
Off	MOVIFIT® not ready for operation. No 24 V power supply.	Check DC 24 V supply. Switch on MOVIFIT® again. Replace EBOX if problem occurs several times.
Green Illuminated	MOVIFIT® component hardware OK.	-
	If "BUS-F" LED is off: MOVIFIT® operating correctly. MOVIFIT® is currently exchanging data with the PROFINET master (data exchange) and all lower-level drive systems.	-
Red Illuminated	Fault in MOVIFIT® components hardware.	Switch on MOVIFIT® again. Replace EBOX if problem occurs several times.
Green Flashing **Yellow** Illuminated, flashing	MOVIFIT® components hardware does not start.	Switch on MOVIFIT® again. Replace EBOX if problem occurs several times.

"link/act 1" LED

The "link/act 1" LED indicates the states of Ethernet port 1 according to the following table:

LED	Meaning
Green Illuminated	link = Ethernet cable connects device with other Ethernet stations.
Yellow Illuminated	act = active, Ethernet communication active.

"link/act 2" LED

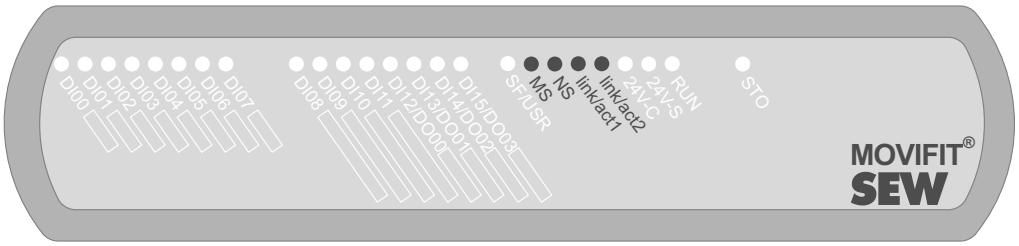
The "link/act 2" LED indicates the states of Ethernet port 2 according to the following table:

LED	Meaning
Green Illuminated	link = Ethernet cable connects device with other Ethernet stations.
Yellow Illuminated	act = active, Ethernet communication active.

19484828/EN – 01/2015

7.1.5 Bus-specific LEDs for Modbus/TCP and EtherNet/IP™

This chapter describes the bus-specific LEDs for Modbus/TCP and EtherNet/IP™. In the following figure, the LEDs are shown as dark:



1033706507

LEDs "MS" and "NS"

The following table shows the statuses of LEDs "MS" (module status) and "NS" (network status):

LED MS	LED NS	Meaning	Measure
Off	**Off**	MOVIFIT® not ready for operation. No DC 24 V supply.	• Check DC 24 V supply. • Switch on MOVIFIT® again. • Exchange EBOX if problem occurs repeatedly.
Red/ green Flashing	**Red/ green** Flashing	MOVIFIT® performs an LED test. This status should only be activated briefly during the run-up.	-
Red Flashing	**Red** Illuminated	Conflict detected while assigning the IP address. Another station in the network is using the same IP address.	• Check whether there is a unit in the network with the same IP address. • Change the MOVIFIT® IP address. • Check DHCP settings for IP address assignment of the DHCP server (only if a DHCP server is used).
Red Illuminated	**X**	Fault in MOVIFIT® assembly hardware.	• Switch on MOVIFIT® again. • Reset MOVIFIT® to the factory settings. • Exchange EBOX if problem occurs repeatedly.
Green Flashing	**Green** Flashing	Starting application.	-

19484828/EN – 01/2015

LED MS	LED NS	Meaning	Measure
Green Flashing	**Off**	MOVIFIT® does not yet have any IP parameters. Starting TCP/IP stack. If the status continues and the DHCP DIP switch is activated, MOVIFIT® is waiting for data from the DCHP server.	• Set DIP switch S11/1 of the DHCP server to "OFF". • Check the DHCP server connection (only if DHCP is activated and the status persists).
Green Illuminated	**X**	MOVIFIT® assembly hardware OK.	-
X	**Red** Flashing	Timeout delay of the controlling connection has expired. The status is reset by restarting communication.	• Check the bus connection of MOVIFIT®. • Check the master/scanner. • Check all the cables in the Ethernet.
X	**Green** Flashing	No controlling connection.	-
X	**Green** Illuminated	There is no controlling connection to a master/scanner.	-

X Any status

"link/act 1" LED

The "link/act 1" LED indicates the states of Ethernet port 1 according to the following table:

LED	Meaning
Green Illuminated	link = Ethernet cable connects device with other Ethernet stations.
Yellow Illuminated	act = active, Ethernet communication active.

"link/act 2" LED

The "link/act 2" LED indicates the states of Ethernet port 2 according to the following table:

LED	Meaning
Green Illuminated	link = Ethernet cable connects device with other Ethernet stations.
Yellow Illuminated	act = active, Ethernet communication active.

19484828/EN – 01/2015

7.1.6 Option-specific LEDs

PROFIsafe option S11

⚠ WARNING

Observe the "MOVIFIT® MC/FC – Functional Safety" manual when using the PROFIsafe option S11.

Severe or fatal injuries may result.

- If you use the PROFIsafe option S11, observe the additional notes on diagnostics and operation as well as the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety" manual.

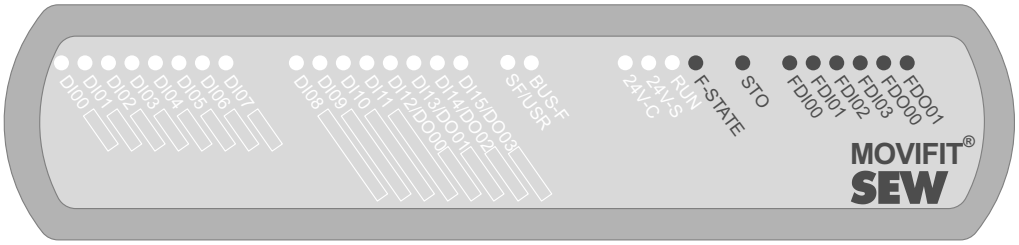
⚠ WARNING

Danger due to incorrect interpretation of the "FDI.", "FDO.", "STO" and "F-STATE" LEDs.

Severe or fatal injuries.

- The LEDs are not safety-related and may not be used as a safety device.

This chapter describes the option-specific LEDs for PROFIsafe option S11. In the following figure, these LEDs are shown as dark. In the sample figure, the PROFIBUS version is shown with "Technology" function level:



9007200284854539

"FDI.." LEDs

The following tables show the statuses of the "FDI00" – "FDI03" LEDs.

LED	Meaning
Yellow Illuminated	HIGH level at input F-DI..
Off	LOW level at input F-DI.. or open

"FDO.." LEDs

The following tables show the statuses of the "FDO00" – "FDO01" LEDs:

LED	Meaning
Yellow Illuminated	F-DO.. output is active.
Off	F-DO.. output is inactive (switched off).

19484828/EN – 01/2015

"STO" LED

The following table shows the statuses of the "STO" LED:

LED	Meaning
Yellow Illuminated	Drive is in Safe Torque Off ("STO active").
Off	Drive is not in Safe Torque Off ("STO inactive").

"F-STATE" LED

The following table shows the statuses of the "F-STATE" LED:

LED	Meaning	Measure
Green Illuminated	Option S11 is currently performing a cyclical data exchange with the F-Host. Standard operating state	-
Red Illuminated	Error status in the safety part. 24V_O supply voltage not available.	• Read diagnostics in F-Host. • Eliminate the cause of error and acknowledge in the F-Host.
Off	S11 option is currently in the initialization phase. S11 option is not available or is not configured in the bus master (slot 1 is empty).	• Check voltage supply. • Check configuration of the bus master.
Red/green Flashing	An error occurred in the safety part; cause of error already remedied – acknowledgment required.	• Acknowledge fault in the F-Host (reintegration).

19484828/EN – 01/2015

S12 safety option

⚠ WARNING

Observe the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual when using the S12A safety option.

Severe or fatal injuries may result.

- If you use the S12 safety option, observe the additional notes on diagnostics and operation as well as the safety conditions specified in the "MOVIFIT® MC/FC – Functional Safety with S12 Safety Option" manual.

⚠ WARNING

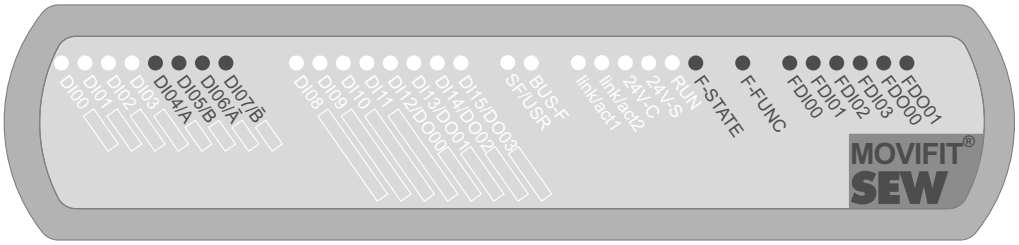
Danger due to incorrect interpretation of the "FDI.", "FDO.", "F-FUNC", and "F-STATE" LEDs.

Severe or fatal injuries.

- The LEDs are not safety-related and may not be used as a safety device.

This chapter describes the option-specific LEDs for the S12 safety option. In the following figure, these LEDs are shown as dark. In the sample figure, the PROFIBUS version is shown with "Technology" function level:

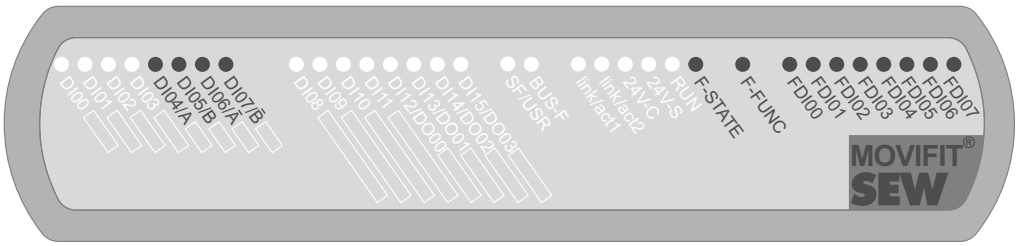
The figure shows an example of the LEDs for MOVIFIT® with S12A safety option:



13587012619

MOVIFIT® with **S12A**:
Logo is highlighted in **green**.

The figure shows an example of the LEDs for MOVIFIT® with S12B safety option:



13587021195

MOVIFIT® with **S12B**:
Logo is highlighted in **blue**.

19484828/EN – 01/2015

"FDI.." LEDs

The following table shows the statuses of the "FDI.." LEDs:

LED	Meaning
Off	LOW level at input F-DI.. or open
	Parameterization is active.
Yellow	HIGH level at input F-DI..
Illuminated	Display test, 2 s after reset
Red Illuminated	Error at input F-DI.. (except discrepancy errors)

"FDO.." LEDs

The following table shows the statuses of the "FDO.." LEDs:

LED	Meaning
Off	F-DO.. output is inactive (switched off).
Yellow	F-DO.. output is active.
Illuminated	Display test, 2 s after reset
Red Illuminated	Error at output F-DO..

INFORMATION

The "FDO.." LEDs are only relevant for the S12A safety option.

"F-FUNC" LED

The following table shows the statuses of the "F-FUNC" LED:

LED	Meaning
Off	Safety function is not active or error at output F-DO_STO.
Yellow Illuminated	Drive is in safe torque off mode, F-DO_STO without voltage.
Yellow Flashing 250 ms cycle	Brake ramp is active (SLS, SS1a).
Yellow Flashing 1 s cycle	Speed monitoring is active (SLS).

19484828/EN – 01/2015

"F-STATE" LED

The following table shows the statuses of the "F-STATE" LED:

LED	Meaning	Measure
Off	The S12 safety option is currently in the initialization phase. S12 safety option is not available. Verification is not completed (by switch-off/on or by bus startup)	• Check configuration of bus master. • Switch the unit off/on.
Yellow Illuminated	S12 safety option is in RUN mode, but safety parameters not verified yet.	• Perform verification of safety parameters.
Yellow Flashing	Flash code for identification of the device during authentication (entering the serial number in "Assist S12")	
Green Illuminated	S12 safety option is in RUN mode, verification of safety parameters completed.	-
Yellow/ green Flashing	Test mode for drive safety functions is active.	-
Red Flashing	Error occurred (error can be acknowledged).	• Error diagnostics. • Correct the error and acknowledge via F host or programmed F-DI input.
Red Illuminated	An error has occurred. (Error cannot be acknowledged) No 24 V_0 supply voltage	• Error diagnostics • Check voltage supply.

19484828/EN – 01/2015

8 Service

8.1 Unit diagnostics

INFORMATION

Depending on the function level in use, further diagnostic tools are available via MOVITOOLS® MotionStudio. These are described in the respective manuals:

These manuals are available in several, fieldbus-specific variants.

- "MOVIFIT® Function Level Classic..." manual
- "MOVIFIT® Function Level "Technology..." manual

8.2 Inspection/maintenance

8.2.1 MOVIFIT® unit

The MOVIFIT® unit is maintenance-free. SEW-EURODRIVE does not prescribe any inspection or maintenance work for the MOVIFIT® unit.

8.2.2 Motor

The controlled motor requires regular inspection and maintenance work. Observe the notes and instructions in chapter "Inspection/Maintenance" of the motor operating instructions.

8.2.3 Gear unit (only for gearmotors)

The gear unit of the controlled motor requires regular inspection and maintenance work. Observe the notes and instructions in chapter "Inspection/Maintenance" of the gear unit operating instructions.

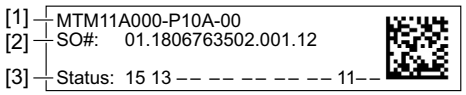
19484828/EN – 01/2015

8.3 SEW electronics service

If a fault cannot be rectified, please contact SEW-EURODRIVE Service (see the "Address List" chapter).

When contacting SEW Service, always provide the following information:

- Type designation [1]
- Serial number [2]
- Digits in the status field [3]
- Brief description of the application
- Type of error
- Accompanying circumstances (e.g. initial startup)
- Your own presumption of what has happened
- Any unusual events preceding the problem, etc.



5836399115

[1] EBOX type designation
[2] Serial number
[3] Status field

8.4 Shutdown

To shut down the MOVIFIT® unit, de-energize the unit using appropriate measures.

⚠ WARNING

Electric shock due to charged capacitors.

Severe or fatal injuries.

- Observe a minimum switch-off time of 1 minute after disconnecting the power supply.

19484828/EN – 01/2015

8.5 Storage

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

- If you shut down and store the MOVIFIT® unit for a longer period, you must close open cable bushings and cover ports with protective caps.
- Make sure that the unit is not subject to mechanical impact during storage.

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

8.6 Disposal

This product consists of:

- Iron
- Aluminum
- Copper
- Plastics
- Electronic components

Dispose of all components in accordance with applicable regulations!

19484828/EN – 01/2015

9 Technical data

9.1 Conformity

9.1.1 CE marking

- Low voltage directive:

  The MOVIFIT® drive system complies with the regulations of the low voltage directive 2006/95/EC.

- Electromagnetic compatibility (EMC):

  MOVIFIT® and MOVIMOT® units are designed for use as components for installation in machinery and systems. They comply with the EMC product standard EN 61800-3 “Adjustable speed electrical power drive systems.” Provided that you comply with the installation instructions, the CE marking requirements for the entire machine/system in which they are installed are satisfied on the basis of the EMC directive 2004/108/EC. For detailed information on EMC-compliant installation, refer to the publication “Electromagnetic Compatibility in Drive Engineering” from SEW-EURODRIVE.

9.1.2 EAC marking

The MOVIFIT® unit series fulfills the requirements of the technical regulations of the Customs Union of Russia, Kazakhstan, and Belarus.

The EAC marking on the nameplate certifies the conformity with the safety requirement of the Custom Union.

9.1.3 UL approval

UL and cUL approval has been granted for the MOVIFIT® MC unit series.

9.1.4 C-Tick

C-Tick approval has been granted for the MOVIFIT® MC unit series. C-Tick certifies conformity with ACA (Australian Communications Authority) standards.

19484828/EN – 01/2015

9.2 General technical data

General technical data		
Connection voltages	V_{line}	AC 3 x 380 V - 10% – AC 3 x 500 V + 10%
Line frequency	f_{line}	50 – 60 Hz ± 10%
Input line current:	I_{line}	Depending on the connected MOVIMOT®, the motor protection switch limits the rated current to 12 A.
Cable length between MOVIFIT® and MOVIMOT®		max. 30 m (with SEW hybrid cable, type B)
Hybrid cable shielding		Connect inner shield via EMC shield clamps (not for ABOX with Intercontec circular connector); see chapter "Installation instructions"
Interference immunity		Meets EN 61800-3
Interference emission		Limit value class C2 according to EN 61800-3
Ambient temperature		-25 to +60 °C (P_{Rated} reduction: 3% I_{Rated} per K to max. 60 °C)
Climate class		EN 60721-3-3, class 3K3
Storage temperature		-25 to +85 °C (EN 60721-3-3, class 3K3)
Maximum permitted vibration and impact load		According to EN 50178
Degree of protection		IP65 in accordance with EN 60529 (MOVIFIT® housing closed and all cable bushings and plug connections sealed)
Type of cooling		Natural cooling (DIN 41751)
Overvoltage category		III according to IEC 60664-1 (VDE 0110-1)
Pollution class		2 according to IEC 60664-1 (VDE 0110-1) within the housing
Installation altitude (see chapters "Electrical Installation" > "Installation instructions")	h	h ≤ 1000 m: no derating h > 1000 m: I_{Rated} reduction by 1% per 100 m h > 2000 m: V_{line} derating by AC 6 V per 100 m h_{max} = 4000 m
Weight		EBOX: about 3.1 kg Standard ABOX: about 4.5 kg Hybrid ABOX: about 4.8 kg

9.3 Electronics data

General electronics data	
Electronics and sensor supply 24V_C (continuous)	V_{IN} = DC 24 V -15%/+20% according to EN 61131-2 I_{IN} ≤ 500 mA, typically 200 mA (for MOVIFIT® electronics) plus up to 1500 mA (3 x 500 mA) for sensor supply (depending on number and type of connected sensors) **Notice: The following currents must be added to 24V_S and 24V_P supplies from 24V_C.**

19484828/EN – 01/2015

General electronics data	
Actuator supply 24V_S (switched)	V_{IN} = DC 24 V -15%/+20% according to EN 61131-2 I_{IN} ≤ 2000 mA (4 outputs with 500 mA each or 1 x sensor supply – group 4 with 500 mA)
Inverter supply 24V_P	V_{IN} = DC 24 V -15%/+20% according to EN 61131-2 I_{IN} ≤ 750 mA, typically 450 mA with 3 connected MOVIMOT® units
Electrical isolation	Separate potentials for: • Fieldbus connection (X30, X31), floating • SBus connection (X35/1-3), floating • 24V_C for DI00 to DI11, diagnostic interface (X50), MOVIFIT® electronics • 24V_S for DO00 - DO03 and DI12 - DI15 • 24V_P for MOVIMOT® signal connections (X71, X81 and X91) • 24V_O for integrated option card
Shielding of bus cables	Connect shielding using EMC metal cable glands or EMC shield clamps (see chapter "Installation instructions")

19484828/EN – 01/2015

9.4 Digital inputs

Digital inputs	Function level "Classic" with PROFIBUS or DeviceNet™	Function level "Technology" with PROFIBUS Function level "Classic" or "Technology" with PROFINET IO, EtherNet/IP™, or Modbus/TCP
Number of inputs	6 – 8	12 – 16
Input type	PLC-compatible according to EN 61131-2 (digital inputs type 1) R_i about 4 kΩ, sampling cycle ≤ 5 ms Signal level: +15 V – +30 V -3 V – +5 V	 "1" = contact closed "0" = contact open
Number of simultaneously controllable inputs	8	16 at 24 V 8 at 28.8 V
Sensor supply (4 groups) **Rated current** **Permitted total current** **Internal voltage drop**	DC 24 V to EN 61131-2, interference voltage proof and short-circuit-proof 500 mA per group 2 A / 1 A at ambient temperatures above 30 °C max. 2 V	
Potential reference	Group III Group IV	→ 24V_C → 24V_S

9.5 Digital outputs DO00 – DO03

Digital outputs	Function level "Classic" with PROFIBUS or DeviceNet™	Function level "Technology" with PROFIBUS Function level "Classic" or "Technology" with PROFINET IO, EtherNet/IP™, or Modbus/TCP
Number of outputs	0 – 2	0 – 4
Output type	PLC-compatible to EN 61131-2, interference voltage proof and short-circuit-proof	
Rated current	500 mA	
Permitted total current	2 A / 1 A at ambient temperatures above 30 °C	
Leakage current	max. 0.2 mA	
Internal voltage drop	max. 2 V	
Potential reference	24V_S	

19484828/EN – 01/2015

9.6 Interfaces

9.6.1 SBus interface

SBus	
SBus interface (not with function level "Classic")	Interface to other SBUS-capable SEW units CAN bus to CAN specification 2.0, parts A and B
Connection technology	Terminals M12
Transmission technology	according to ISO 11898
Bus termination	120 Ω terminating resistor, can be activated using DIP switch S3

9.6.2 RS485 interface

RS485	
RS485 interface	Diagnostic interface, not electrically isolated from MOVIFIT® electronics
Connection technology	RJ10 socket

19484828/EN – 01/2015

9.6.3 Fieldbus interfaces

One of the following protocols can be used for communication depending on the EBOX and ABOX designs:

PROFIBUS interface

PROFIBUS		
Function level	**Classic**	**Technology**
PROFIBUS protocol variant	PROFIBUS DP/DPV1	
Supported baud rates	9.6 kBd – 1.5 MBd / 3 – 12 MBd (with automatic detection)	
Bus termination	Can be activated via DIP switch S1	
Maximum line length		
9.6 kBd:	1200 m	
19.2 kBd:	1200 m	
93.75 kBd:	1200 m	
187.5 kBd:	1000 m	
500 kBd:	400 m	
1.5 MBd:	200 m	
12 MBd:	100 m	
	To extend the length, several segments can be coupled using repeaters. The max. expansion/cascading depth can be found in the manuals for the DP Master or the repeater modules.	
Address setting	Addresses 1 to 125 can be set using DIP switches in the connection box	
DP ident number	Classic 600 A_{hex} (24586_{dec})	Technology $600B_{hex}$ (24587_{dec})
GSD file name	Classic `SEW_600A.GSD`	Technology `SEW_600B.GSD`
Bitmap file name	Classic `SEW600AN.BMP SEW600AS.BMP`	Technology `SEW600BN.BMP SEW600BS.BMP`

19484828/EN – 01/2015

PROFINET IO interface

PROFINET IO		
Function level	**Classic**	**Technology**
PROFINET protocol variant	PROFINET IO RT	
Supported baud rates	100 Mbit/s (full duplex)	
SEW ident number	$010A_{hex}$	
Unit ident number	2	
Connection technology	M12, RJ45 (push-pull) and RJ45 plug connector (in ABOX)	
Integrated switch	Supports auto-crossing, auto-negotiation	
Permitted cable types	Category 5 and higher, class D according to IEC 11801	
Maximum line length (from switch to switch)	100 m according to IEEE 802.3	
GSD file name	`GSDML-V2.2-SEW-MTX-jjjjmmtt.xml`	`GSDML-V2.1-SEW-MTX-jjjjmmtt.xml`
Bitmap file name	`SEW-MTX-Classic.bmp`	`SEW-MTX-Technology.bmp`

EtherNet/IP™ interface

EtherNet/IP™	
Function level	**Technology**
Automatic baud rate detection	10 MBd/100 MBd
Connection technology	M12, RJ45 (push-pull) and RJ45 plug connector (in ABOX)
Integrated switch	Supports auto-crossing, auto-negotiation
Maximum line length	100 m according to IEEE 802.3
Addressing	4 byte IP address or MAC-ID (00-0F-69-xx-xx-xx) Can be configured using DHCP server or MOVITOOLS® MotionStudio with version 5.5 and higher, Default address 192.168.10.4 (depending on S11 DIP switch setting)
Vendor ID	$013B_{hex}$
Name of EDS files	`SEW_MOVIFIT_TECH_ENIP.eds`
Name of icon files	`SEW_MOVIFIT_TECH_ENIP.ico`

19484828/EN – 01/2015

Modbus/TCP interface

Modbus/TCP	
Function level	**Technology**
Automatic baud rate detection	10 MBd/100 MBd
Connection technology	M12, RJ45 (push-pull) and RJ45 plug connector (in ABOX)
Integrated switch	Supports auto-crossing, auto-negotiation
Maximum line length	100 m according to IEEE 802.3
Addressing	4 byte IP address or MAC-ID (00-0F-69-xx-xx-xx) Can be configured using DHCP server or MOVITOOLS® MotionStudio with version 5.5 and higher, Default address 192.168.10.4 (depending on S11 DIP switch setting)
Vendor ID	$013B_{hex}$
Supported services	FC3, FC16, FC23, FC43

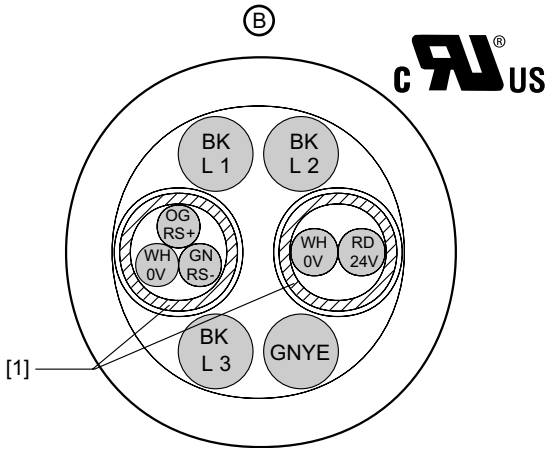
DeviceNet™ interface

DeviceNet™		
Function level	**Classic**	**Technology**
Protocol variant	Master-slave connection set with polled I/O and bit-strobe I/O	
Supported baud rates	500 kBd 250 kBd 125 kBd	
Cable length DeviceNet™	See DeviceNet™ specification V 2.0	
500 kBd	100 m	
250 kBd	250 m	
125 kBd	500 m	
Bus termination	120 Ω (switch on externally)	
Process data configuration	See "MOVIFIT® Function Level Classic..." manual	See "MOVIFIT® Function Level Technology.." manual
Bit-strobe response	Checkback signal of the unit status via bit-strobe I/O data	
Address setting	DIP switch	
Name of EDS files	`SEW_MOVIFIT_Classic.eds`	`SEW_MOVIFIT_TECH_DNET.eds`
Name of icon files	`SEW_MOVIFIT_Classic.ico`	`SEW_MOVIFIT_TECH_DNET.ico`

19484828/EN – 01/2015

9.7 Hybrid cable type "B" and "B/2,5"

9.7.1 Mechanical design



1031705739

Cable type	B	B/2,5
	8145172	13284363
• Supply conductors:	4 x 1.5 mm²	4 x 2.5 mm²
• Control conductor pair:	2 x 0.75 mm²	2 x 0.75 mm²
• Control conductor group:	3 x 0.75 mm²	3 x 0.75 mm²
• Conductor insulation:	TPE-E (polyester)	TPE-E (polyester)
• Conductor:	Bare E-Cu litz wire, extra fine wires with individual wire 0.1 mm	
• Shield:	Tinned E-Cu wire	Tinned E-Cu wire
• Overall diameter:	13.2 – 13.8 mm	14.4 – 15.2 mm
• Color of outer cable jacket:	Black	Black
• Outer cable jacket insulation	TPE-U (polyurethane)	TPE-U (polyurethane)

9.7.2 Electrical properties

Cable type	B	B/2,5
• Conductor resistance for 1.5/2.5 mm² (at 20° C):	Max. 13 Ω/km	Max. 8 Ω/km
• Conductor resistance for 0.75 mm² (at 20° C):	Max. 26 Ω/km	Max. 26 Ω/km
• Operating voltage for 1.5/2.5 mm² conductor:	Max. 600 V according to cULus	Max. 600 V according to cULus

19484828/EN – 01/2015

• Operating voltage for 0.75 mm² conductor:	Max. 600 V according to c UL us	Max. 600 V according to c UL us
• Insulation resistance at 20° C:	Min. 20 MΩ x km	Min. 20 MΩ x km

9.7.3 Mechanical properties

- Suitable for cable carriers
  - Bending cycles > 2.5 million
  - Travel speed ≤ 3 m/s
- Bending radius in the cable carrier: 10 x diameter
  for fixed installation: 5 x diameter
- Torsional strength (e.g. rotary table applications)
  - Torsion ± 180° for a cable length of > 1 m
  - Torsional cycles > 100 000

INFORMATION

You will have to check the mechanical marginal conditions if you encounter reversed bending and high torsional load for a length of < 3 m. Please contact SEW-EURODRIVE in such cases.

9.7.4 Thermal properties

- Processing and operation: -30 to +90 °C (current-carrying capacity according to DIN VDE 0298-4)
  -30 to +80 °C according to c UL us
- Transport and storage: -40 to +90 °C (current-carrying capacity according to DIN VDE 0298-4)
  -30 to +80 °C according to c UL us
- Flame-retardant according to UL1581 Vertical Wiring Flame Test (VW-1)
- Flame-retardant according to CSA C22.2 Vertical Flame Test (FT-1)

9.7.5 Chemical properties

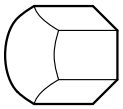
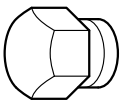
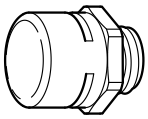
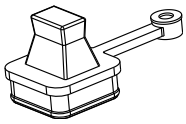
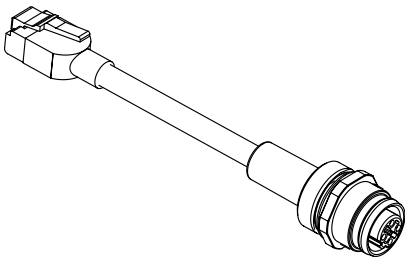
Cable type	B	B/2,5
• Oil resistant:	In accordance with VDE 0472 part 803, method B	In accordance with VDE 0282 part 10 HD 22.10 S1

- General fuel resistance (such as diesel, gasoline) according to DIN ISO 6722 parts 1 and 2
- General resistance to acids, alkalis, cleaning agents
- General resistance against dusts (e.g. bauxite, magnesite)

19484828/EN – 01/2015

- Insulation and cable jacket material is halogen free in accordance with VDE 0472 part 815
- Within the specified temperature range, free from paint-wetting impairment substances (silicone free)

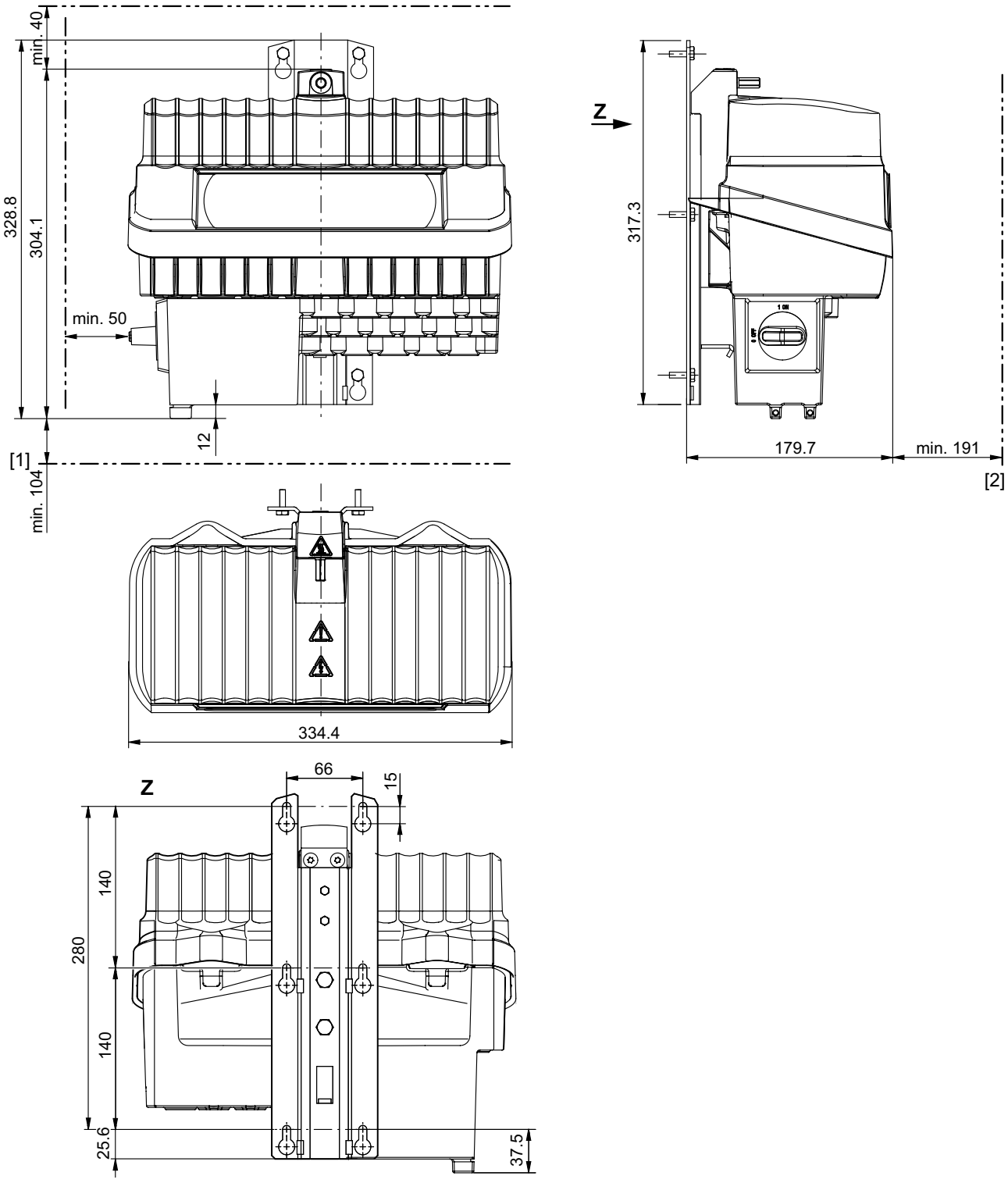
9.8 Accessories

Type of screw fitting	Image	Contents	Size	Part number
M12 plug for plug connector with male thread (made of stainless steel)		10 pieces	M12 x 1.0	18202799
M12 plug for plug connector with female thread (made of stainless steel)		10 pieces	M12 x 1.0	18202276
Pressure compensation fitting (made of stainless steel)		1 pieces	M16 x 1.5	18204090
Ethernet closing plug for push-pull RJ45 socket			10 pieces	18223702
			30 pieces	18223710
Ethernet adapter RJ45_M12 RJ45 (internal) M12 (external) 2 required for each unit.	 *9007200853487883*		1 pieces	13281682

19484828/EN – 01/2015

9.9 Dimension drawings

9.9.1 MOVIFIT® size 1 with standard mounting rail

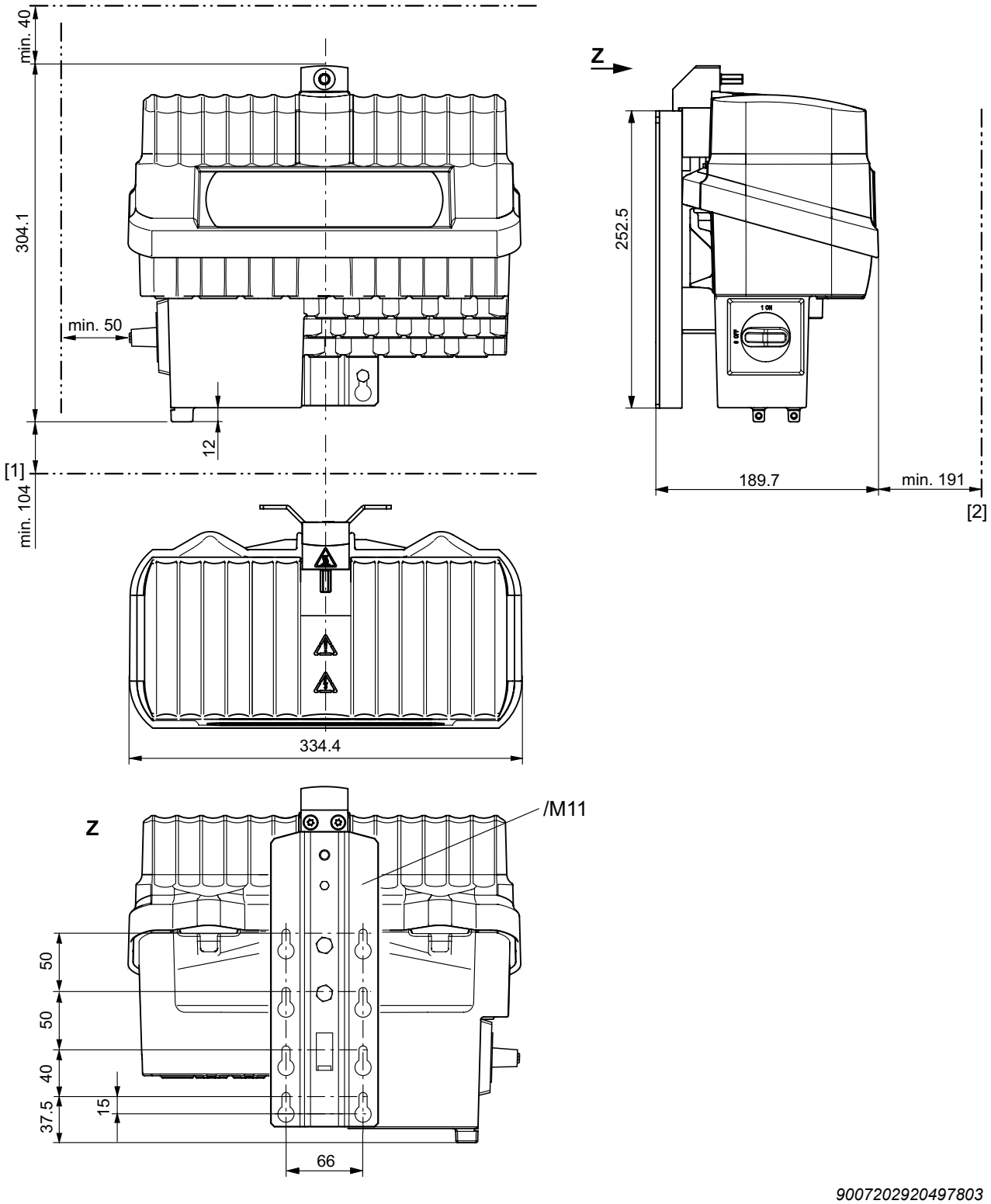


27021598603385995

[1] The clearance of 104 mm below is only necessary for ABOXes with circular connector (Intercontec) motor output pointing downward.

[2] The clearance of 191 mm at the front is only necessary for ABOXes with circular connector (Intercontec) motor output at the front.

9.9.2 MOVIFIT® size 1 with optional stainless steel mounting rail /M11



9007202920497803

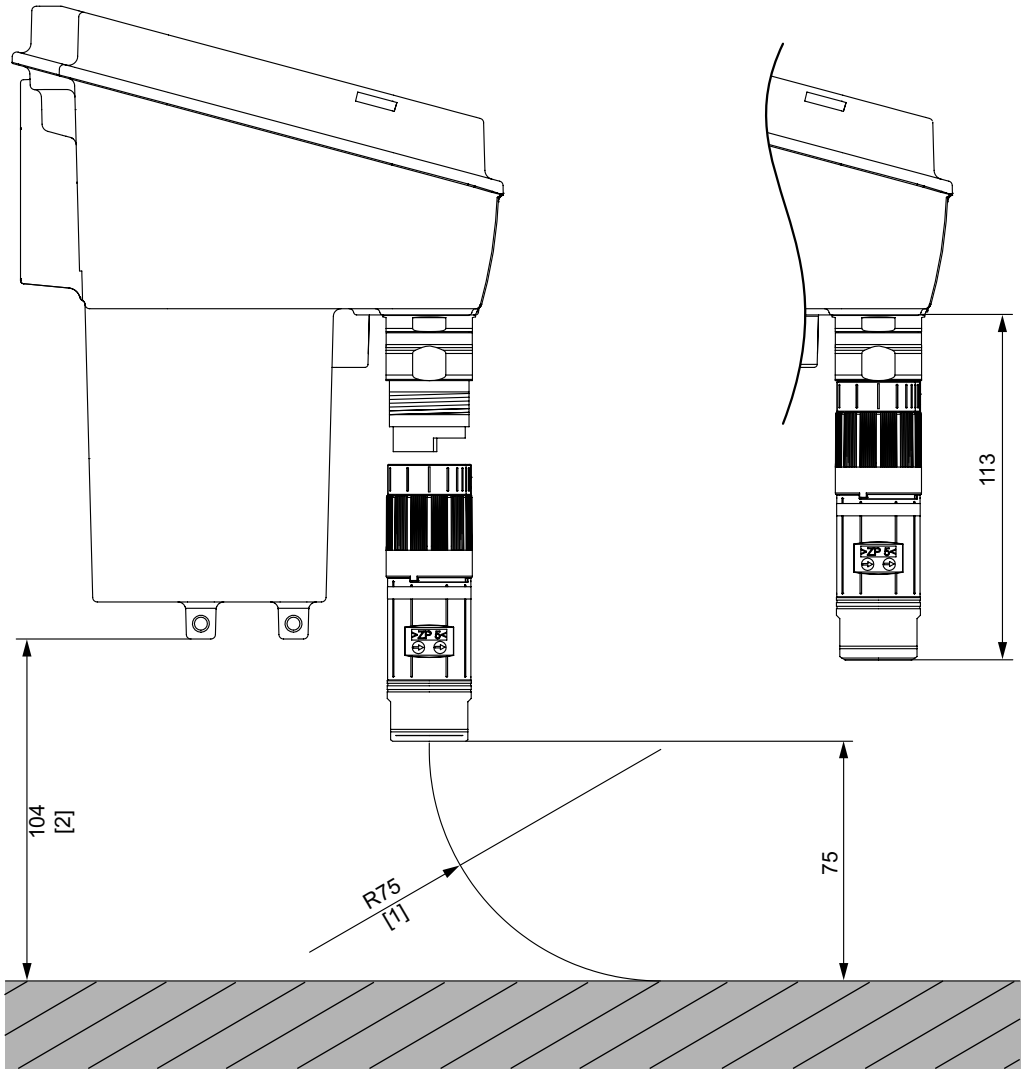
[1] The clearance of 104 mm below is only necessary for ABOXes with circular connector (Intercontec) motor output pointing downward.

[2] The clearance of 191 mm at the front is only necessary for ABOXes with circular connector (Intercontec) motor output at the front.

19484828/EN – 01/2015

9.9.3 ABOX with round connector (Intercontec), motor output pointing downward

The following figure shows the minimum installation clearance of the hybrid ABOX with circular connector (Intercontec) and motor output pointing downward:

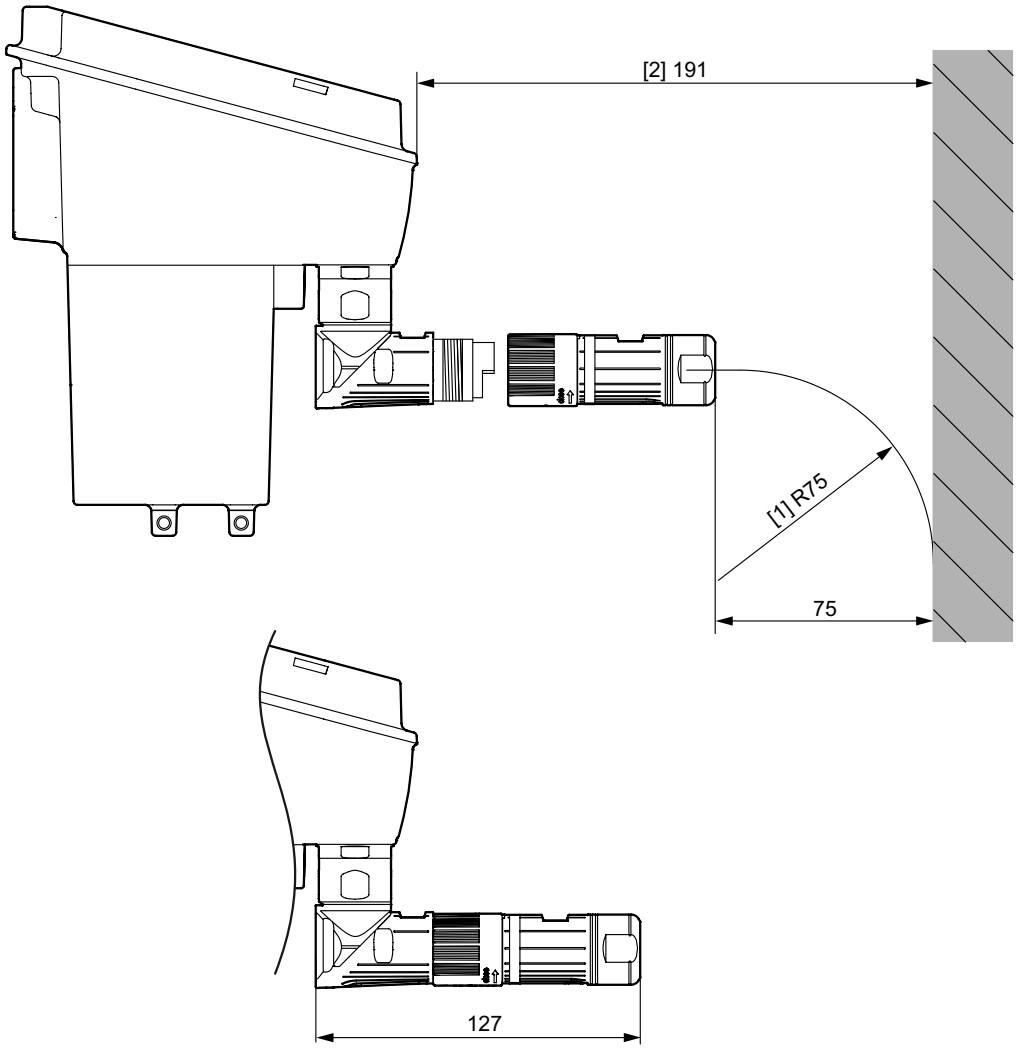


36028801787793163

[1] Smallest permitted bending radius of bulk cable: 75 mm
[2] Minimum distance to the bottom of the ABOX: 104 mm

9.9.4 ABOX with round connector (Intercontec), motor output pointing forward:

The following figure shows the minimum installation clearance of the hybrid ABOX with circular connector (Intercontec) and motor output pointing forward:



9007204023573387

[1] Smallest permitted bending radius of bulk cable: 75 mm
[2] Minimum distance to the front of the ABOX: 191 mm

19484828/EN – 01/2015

10 Declaration of Conformity

EC Declaration of Conformity

Translation of the original text **900070110**

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

declares under sole responsibility that the

units of the series	**MOVIFIT® FC** **MOVIFIT® MC**
are in conformity with	
Machinery Directive	**2006/42/EC**

This includes the fulfillment of the protection targets for "electrical power supply" in accordance with annex I No. 1.5.1 according to the Low Voltage Directive 73/23/EEC and 2006/95/EC.

EMC Directive	**2004/108/EC**	**4)**
Applied harmonized standards:	**EN ISO 13849-1:2008** **EN 61800-5-1:2007** **EN 61800-3:2004 + A1:2012**	

4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. For the assessment, the product was installed in a typical plant configuration.

Bruchsal	**12.01.2015**	Johann Soder	
Place	Date	Managing Director Technology	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents with same address as manufacturer

19484828/EN – 01/2015

EC Declaration of Conformity

Translation of the original text **900080110**

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

declares under sole responsibility that the

units of the series	**MOVIFIT® FC** **MOVIFIT® MC**	
in combination with	**S11**	**PROFIsafe®**

are in conformity with

Machinery Directive	**2006/42/EC**	

This includes the fulfillment of the protection targets for "electrical power supply" in accordance with annex I No. 1.5.1 according to the Low Voltage Directive 73/23/EEC and 2006/95/EC.

EMC Directive	**2004/108/EC**	**4)**
Applied harmonized standards:	**EN ISO 13849-1:2008** **EN 62061:2005** **EN 61800-5-1:2007** **EN 61800-3:2004 + A1:2012**	

4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. For the assessment, the product was installed in a typical plant configuration.

Bruchsal	**12.01.2015**	Johann Soder	
Place	Date	Managing Director Technology	a) b)

a) Authorized representative for issuing this declaration on behalf of the manufacturer
b) Authorized representative for compiling the technical documents with same address as manufacturer

19484828/EN – 01/2015

EC Declaration of Conformity

902070013

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

declares under sole responsibility that the

units of the series	**MOVIFIT® FC** **MOVIFIT® MC**	
in connection with	**S12A / S12B**	**Drive Safety Option**
are in conformity with		
Machinery Directive	**2006/42/EC**	**1)**
Low Voltage Directive	**2006/95/EC**	
EMC Directive	**2004/108/EC**	**4)**
Applied harmonized standards:	**EN ISO 13849-1:2008** **EN 61800-5-2:2007** **EN 61800-5-1:2007** **EN 61800-3:2007 + A1:2012**	**5)**

1) The products are intended for installation in machines. Startup is prohibited until it has been established that the machinery into which these products are to be incorporated complies with the provisions of the aforementioned Machinery Directive.

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

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

Bruchsal	11.07.13	Johann Soder	
Place	Date	Managing Director Technology	a) b)

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

19484828/EN – 01/2015

11 Address List

Germany			
Headquarters Production plant Sales	**Bruchsal**	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Strasse 42 76646 Bruchsal, Germany P.O. box address Postfach 3023 • 76642 Bruchsal, Germany	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Production Plant / Industrial Gear Units	**Bruchsal**	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str.10 76646 Bruchsal, Germany	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Service Competence Centers	**Mechanical/ Mechatronic Components**	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Strasse 1 76676 Graben-Neudorf, Germany	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 sc-mitte@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Strasse 42 76646 Bruchsal, Germany	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 sc-elektronik@sew-eurodrive.de
Drive Technology Center	**North**	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Strasse 40-42 30823 Garbsen (near Hanover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 sc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Daenkritzer Weg 1 08393 Meerane (near Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 sc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstrasse 5 85551 Kirchheim (near Munich)	Tel. +49 89 909552-10 Fax +49 89 909552-50 sc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstrasse 1 40764 Langenfeld (near Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 sc-west@sew-eurodrive.de
	Drive Service Hotline / 24-hour availability		+49 800 SEWHELP +49 800 7394357
	Additional addresses for service centers in Germany are provided on request.		

France			
Production plant Sales Service	**Haguenau**	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex, France	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
Production plant	**Forbach**	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex, France	Tel. +33 3 87 29 38 00
Assembly plant Sales Service	**Bordeaux**	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan - B. P. 182 33607 Pessac Cedex, France	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'affaires Roosevelt Rue Jacques Tati 69120 Vaulx en Velin, France	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon, France	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'Etang, France	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
	Please contact us for other service center addresses in France.		

Egypt			
Sales Service	**Cairo**	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo, Egypt	Tel. +20 2 22566-299 +1 23143088 Fax +20 2 22594-757 http://www.copam-egypt.com/ copam@datum.com.eg

19484828/EN – 01/2015

Algeria			
Sales	**Algiers**	REDUCOM Sarl 16, rue des Frères Zaghnoune Bellevue 16200 El Harrach Alger	Tel. +213 21 8214-91 Fax +213 21 8222-84 info@reducom-dz.com http://www.reducom-dz.com
Argentina			
Assembly plant **Sales**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Ruta Panamericana Km 37.5, Lote 35 (B1619IEA) Centro Industrial Garín Prov. de Buenos Aires	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar http://www.sew-eurodrive.com.ar
Australia			
Assembly plants **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043, Australia	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164, Australia	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
Belgium			
Assembly plant **Sales** **Service**	**Brussels**	**SEW-EURODRIVE n.v./s.a.** Researchpark Haasrode 1060 Evenementenlaan 7 BE-3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 http://www.sew-eurodrive.be info@sew-eurodrive.be
Service Competence Centers	**Industrial gear units**	**SEW-EURODRIVE n.v./s.a.** Rue de Parc Industriel, 31 6900 Marche-en-Famenne, Belgium	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-wallonie@sew-eurodrive.be
Brazil			
Production plant **Sales** **Service**	**São Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208 Guarulhos - 07251-250 - SP, Brazil SAT - SEW ATENDE - 0800 7700496	Tel. +55 11 2489-9133 Fax +55 11 2480-3328 http://www.sew-eurodrive.com.br sew@sew.com.br
Assembly plants **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
	Joinville	SEW-EURODRIVE Brasil Ltda. Rua Dona Francisca, 12.346 – Pirabeiraba 89239-270 – Joinville / SC	Tel. +55 47 3027-6886 Fax +55 47 3027-6888 filial.sc@sew.com.br
	Indaiatuba	SEW-EURODRIVE Brasil Ltda. Estrada Municipal Jose Rubim, 205 Rodovia Santos Dumont Km 49 13347-510 – Indaiatuba / SP	Tel. +55 19 3835-8000 sew@sew.com.br
Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GmbH Bogdanovetz Str.1 1606 Sofia, Bulgaria	Tel. +359 2 9151160 Fax +359 2 9151166 bever@bever.bg
Chile			
Assembly plant **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. box address Casilla 23 Correo Quilicura – Santiago – Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl
China			
Production plant **Assembly plant** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25323273 info@sew-eurodrive.cn http://www.sew-eurodrive.cn

China			
Assembly plant **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 51262581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530, China	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, China	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan, China	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
	Please contact us for other service center addresses in China.		

Denmark			
Assembly plant **Sales** **Service**	**Copenhagen**	SEW-EURODRIVE A/S Geminivej 28-30 2670 Greve, Denmark	Tel. +45 43 9585-00 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk

Ivory Coast			
Sales	**Abidjan**	SICA Société Industrielle & Commerciale pour l'Afrique 165, Boulevard de Marseille 26 BP 1173 Abidjan 26	Tel. +225 21 25 79 44 Fax +225 21 25 88 28 sicamot@aviso.ci

Estonia			
Sales	**Tallinn**	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa, Estonia	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee

Finland			
Assembly plant **Sales** **Service**	**Hollola**	SEW-EURODRIVE OY Vesimäentie 4 15860 Hollola 2, Finland	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 FIN-15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production plant **Assembly plant**	**Karkkila**	SEW Industrial Gears Oy Valurinkatu 6, PL 8 FI-03600 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 sew@sew.fi http://www.sew-eurodrive.fi

Gabon			
Sales	**Libreville, Gabon**	ESG Electro Services Gabun Feu Rouge Lalala 1889 Libreville Gabon	Tel. +241 741059 Fax +241 741059 esg_services@yahoo.fr

Greece			
Sales	**Athens**	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr

19484828/EN – 01/2015

Great Britain			
Assembly plant **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 availability		Tel. +44 1924 896911
Hong Kong			
Assembly plant **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 36902200 Fax +852 36902211 contact@sew-eurodrive.hk
India			
Company office **Assembly plant** **Sales** **Service**	**Vadodara**	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243, India Gujarat	Tel. +91 265 3045200, +91 265 2831086 Fax +91 265 3045300, +91 265 2831087 http://www.seweurodriveindia.com salesvadodara@seweurodriveindia.com
Assembly plant **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
Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11, Ireland	Tel. +353 1 830-6277 Fax +353 1 830-6458 info@alperton.ie http://www.alperton.ie
Israel			
Sales	**Tel Aviv**	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon, Israel	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly plant **Sales** **Service**	**Solaro**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano), Italy	Tel. +39 02 96 9801 Fax +39 02 96 980 999 http://www.sew-eurodrive.it sewit@sew-eurodrive.it
Japan			
Assembly plant **Sales** **Service**	**Iwata**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373855 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp
Cameroon			
Sales	**Douala, Cameroon**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala, Cameroon	Tel. +237 33 431137 Fax +237 33 431137 electrojemba@yahoo.fr
Canada			
Assembly plants **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, ON L6T 3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.watson@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. Tilbury Industrial Park 7188 Honeyman Street Delta, BC V4G 1G1	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Lasalle, PQ H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew-eurodrive.ca
	Please contact us for more addresses of service centers in Canada.		

Kazakhstan			
Sales	**Almaty**	ТОО "СЕВ-ЕВРОДРАЙВ" пр.Райымбека, 348 050061 г. Алматы Республика Казахстан	Тел. +7 (727) 334 1880 Факс +7 (727) 334 1881 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz

Kenya			
Sales	**Nairobi**	Barico Maintenances Ltd Kamutaga Place Commercial Street Industrial Area P.O.BOX 52217 - 00200 Nairobi	Tel. +254 20 6537094/5 Fax +254 20 6537096 info@barico.co.ke

Colombia			
Assembly plant **Sales** **Service**	**Bogota**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá, Colombia	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sew@sew-eurodrive.com.co

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. Zeleni dol 10 10 000 Zagreb, Croatia	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr

Latvia			
Sales	**Riga**	SIA Alas-Kuul Katlakalna 11C 1073 Riga, Latvia	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.com info@alas-kuul.com

Lebanon			
Sales Lebanon	**Beirut**	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut, Lebanon	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
		After Sales Service	service@medrives.com
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 info@medrives.com http://www.medrives.com
		After Sales Service	service@medrives.com

Lithuania			
Sales	**Alytus**	UAB Irseva Statybininku 106C LT-63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 irmantas@irseva.lt http://www.sew-eurodrive.lt

Luxembourg			
Assembly plant **Sales** **Service**	**Brussels**	**SEW-EURODRIVE n.v./s.a.** Researchpark Haasrode 1060 Evenementenlaan 7 BE-3001 Leuven	Tel. +32 16 386-311 Fax +32 16 386-336 http://www.sew-eurodrive.lu info@sew-eurodrive.be

Madagascar			
Sales	**Antananarivo**	Ocean Trade BP21bis. Andraharo Antananarivo. 101 Madagascar	Tel. +261 20 2330303 Fax +261 20 2330330 oceantrabp@moov.mg

Malaysia			
Assembly plant **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

19484828/EN – 01/2015

Morocco			
Sales **Service**	**Mohammedia**	SEW-EURODRIVE SARL 2 bis, Rue Al Jahid 28810 Mohammedia	Tel. +212 523 32 27 80/81 Fax +212 523 32 27 89 sew@sew-eurodrive.ma http://www.sew-eurodrive.ma
Mexico			
Assembly plant **Sales** **Service**	**Quéretaro**	SEW-EURODRIVE MEXICO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Quéretaro C.P. 76220 Quéretaro, Mexico	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx
Mongolia			
Sales	**Ulan Bator**	SEW-EURODRIVE Representative Office Mongolia Olympic street 8, 2nd floor Juulchin corp bldg., Sukhbaatar district, Ulaanbaatar 14253	Tel. +976-70009997 Fax +976-70009997 http://www.sew-eurodrive.mn sew@sew-eurodrive.mn
Namibia			
Sales	**Swakopmund**	DB Mining & Industrial Services Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 sales@dbmining.in.na
New Zealand			
Assembly plants **Sales** **Service**	**Auckland**	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount Drive East Tamaki Auckland, New Zealand	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch, New Zealand	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch, New Zealand	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
The Netherlands			
Assembly plant **Sales** **Service**	**Rotterdam**	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam, Netherlands Postbus 10085 3004 AB Rotterdam, Netherlands	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
Nigeria			
Sales	**Lagos**	EISNL Engineering Solutions and Drives Ltd Plot 9, Block A, Ikeja Industrial Estate (Ogba Scheme) Adeniyi Jones St. End Off ACME Road, Ogba, Ikeja, Lagos Nigeria	Tel. +234 (0)1 217 4332 team.sew@eisnl.com http://www.eisnl.com
Norway			
Assembly plant **Sales** **Service**	**Moss**	SEW-EURODRIVE A/S Solgaard skog 71 1599 Moss, Norway	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Austria			
Assembly plant **Sales** **Service**	**Vienna**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 1230 Wien, Austria	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://www.sew-eurodrive.at sew@sew-eurodrive.at
Pakistan			
Sales	**Karatschi**	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 sew-py@sew-eurodrive.com.py
Peru			
Assembly plant **Sales** **Service**	**Lima**	SEW DEL PERU MOTORES REDUCTORES S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima, Peru	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Poland			
Assembly plant **Sales** **Service**	**Łódź**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź, Poland	Tel. +48 42 676 53 00 Fax +48 42 676 53 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 6765332 / 42 6765343 Fax +48 42 6765346	Linia serwisowa 24 hour hotline Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Portugal			
Assembly plant **Sales** **Service**	**Coimbra**	SEW-EURODRIVE, LDA. Apartado 15 3050-901 Mealhada, Portugal	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, Romania	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro
Russia			
Assembly plant **Sales** **Service**	**St. Petersburg**	ZAO SEW-EURODRIVE P.O. Box 36 RUS-195220 St. Petersburg	Tel. +7 812 3332522 +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Zambia			
Sales	**Kitwe**	EC Mining Limited Plots No. 5293 & 5294,Tangaanyika Road, Off Mutentemuko Road, Heavy Industrial Park, P.O.BOX 2337 Kitwe	Tel. +260 212 210 642 Fax +260 212 210 645 sales@ecmining.com http://www.ecmining.com
Sweden			
Assembly plant **Sales** **Service**	**Jönköping**	SEW-EURODRIVE AB Gnejsvägen 6-8 55303 Jönköping, Sweden Box 3100 S-55003 Jönköping	Tel. +46 36 3442 00 Fax +46 36 3442 80 http://www.sew-eurodrive.se jonkoping@sew.se
Switzerland			
Assembly plant **Sales** **Service**	**Basel**	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
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 senemeca@sentoo.sn http://www.senemeca.com
Serbia			
Sales	**Belgrade**	DIPAR d.o.o. Ustanicka 128a PC Košum, IV sprat SRB-11000 Beograd, Serbia	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs

19484828/EN – 01/2015

Singapore			
Assembly plant **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	**Bratislava**	SEW-EURODRIVE SK s.r.o. Rybničná 40 831 06 Bratislava, Slovakia	Tel. +421 2 33595 202 Fax +421 2 33595 200 sew@sew-eurodrive.sk http://www.sew-eurodrive.sk
	Žilina	SEW-EURODRIVE SK s.r.o. Industry Park - PChZ ulica M.R.Štefánika 71 010 01 Žilina, Slovakia	Tel. +421 41 700 2513 Fax +421 41 700 2514 sew@sew-eurodrive.sk
	Banska Bystrica	SEW-EURODRIVE SK s.r.o. Rudlovská cesta 85 974 11 Banská Bystrica, Slovakia	Tel. +421 48 414 6564 Fax +421 48 414 6566 sew@sew-eurodrive.sk
	Košice	SEW-EURODRIVE SK s.r.o. Slovenská ulica 26 040 01 Košice, Slovakia	Tel. +421 55 671 2245 Fax +421 55 671 2254 sew@sew-eurodrive.sk

Slovenia			
Sales **Service**	**Celje**	Pakman - Pogonska Tehnika d.o.o. Ul. XIV. divizije 14 3000 Celje, Slovenia	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

Spain			
Assembly plant **Sales** **Service**	**Bilbao**	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya), Spain	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es

South Africa			
Assembly plants **Sales** **Service**	**Johannesburg**	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013, South Africa P.O.Box 90004 Bertsham 2013, South Africa	Tel. +27 11 248-7000 Fax +27 11 494-3104 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, South Africa P.O. Box 36556 Chempet 7442 Cape Town, South Africa	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban, South Africa	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban, South Africa P.O. Box 10433, Ashwood 3605, South Africa	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PTY) LTD. 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 plant **Sales** **Service**	**Ansan**	SEW-EURODRIVE KOREA CO., LTD. B 601-4, Banweol Industrial Estate #1048-4, Shingil-Dong, Danwon-Gu, Ansan-City, Kyunggi-Do Zip 425-839	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-korea.co.kr master.korea@sew-eurodrive.com
	Busan	SEW-EURODRIVE KOREA Co., Ltd. No. 1720 - 11, Songjeong - dong Gangseo-ku Busan 618-270, Korea	Tel. +82 51 832-0204 Fax +82 51 832-0230 master@sew-korea.co.kr

19484828/EN – 01/2015

Swaziland			
Sales	**Manzini**	C G Trading Co. (Pty) Ltd PO Box 2960 Manzini M200	Tel. +268 2 518 6343 Fax +268 2 518 5033 engineering@cgtrading.co.sz
Tanzania			
Sales	**Dar es Salaam**	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 uroos@sew.co.tz
Thailand			
Assembly plant **Sales** **Service**	**Chonburi**	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000, Thailand	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
Czech Republic			
Sales **Assembly plant** **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 availability	HOTLINE: +420 800 739 739 (800 SEW SEW)	**Service:** Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz
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 plant **Sales** **Service**	**Kocaeli-Gebze**	SEW-EURODRİVE Sistemleri San. Ve TIC. Ltd. Sti 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
Ukraine			
Assembly plant **Sales** **Service**	**Dnipropetrowsk**	ООО «СЕВ-Евродрайв» ул.Рабочая, 23-В, офис 409 49008 Днепропетровск	Тел. +380 56 370 3211 Факс. +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua
Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. 1037 Budapest, Hungary Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
USA			
Production plant **Assembly plant** **Sales** **Service**	**Southeast Region**	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manufacturing +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com

19484828/EN – 01/2015

USA			
Assembly plants **Sales** **Service**	**Northeast Region**	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014, USA	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373, USA	Tel. +1 937 335-0036 Fax +1 937 332-0038 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237, USA	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544, USA	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
	Please contact us for other service center addresses in the USA.		
Venezuela			
Assembly plant **Sales** **Service**	**Valencia**	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo, Venezuela	Tel. +58 241 832-9804 Fax +58 241 838-6275 http://www.sew-eurodrive.com.ve ventas@sew-eurodrive.com.ve sewfinanzas@cantv.net
United Arab Emirates			
Sales **Service**	**Sharjah**	Copam Middle East (FZC) Sharjah Airport International Free Zone P.O. Box 120709 Sharjah	Tel. +971 6 5578-488 Fax +971 6 5578-499 copam_me@eim.ae
Vietnam			
Sales	**Ho Chi Minh City**	**All sectors except for ports and offshore:** Nam Trung Co., Ltd 250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province HCM office: 91 Tran Minh Quyen Street District 10, Ho Chi Minh City	Tel. +84 8 8301026 Fax +84 8 8392223 namtrungco@hcm.vnn.vn truongtantam@namtrung.com.vn khanh-nguyen@namtrung.com.vn
		Ports and offshore: DUC VIET INT LTD Industrial Trading and Engineering Services A75/6B/12 Bach Dang Street, Ward 02, Tan Binh District, 70000 Ho Chi Minh City	Tel. +84 8 62969 609 Fax +84 8 62938 842 totien@ducvietint.com
	Hanoi	Nam Trung Co., Ltd R.205B Tung Duc Building 22 Lang ha Street Dong Da District, Hanoi City	Tel. +84 4 37730342 Fax +84 4 37762445 namtrunghn@hn.vnn.vn
Belarus			
Sales	**Minsk**	SEW-EURODRIVE BY RybalkoStr. 26 220033 Minsk, Belarus	Tel. +375 17 298 47 56 / 298 47 58 Fax +375 17 298 47 54 http://www.sew.by sales@sew.by

19484828/EN – 01/2015

Index

Numerical

A

B

C

19484828/EN – 01/15

D

E

19484828/EN – 01/15

F

G

H

I

19484828/EN – 01/15

L

M

19484828/EN – 01/15

19484828/EN – 01/15

19484828/EN – 01/15

T

19484828/EN – 01/15

U

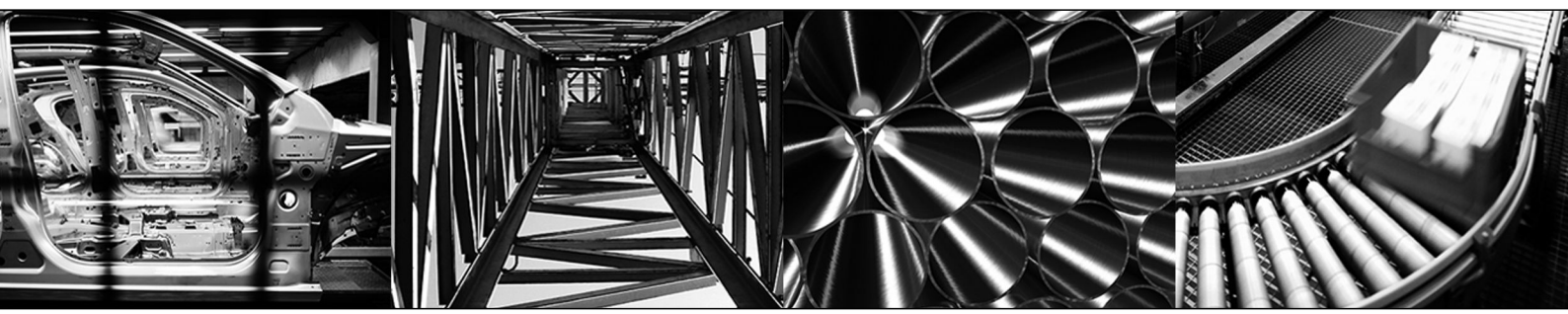
V

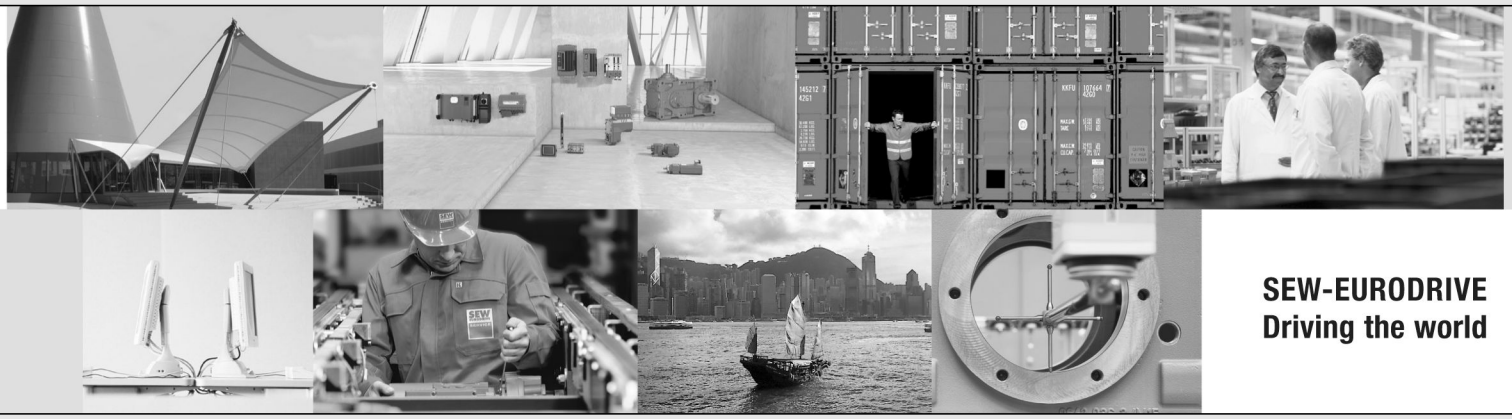
W

X

Y

19484828/EN – 01/15





SEW-EURODRIVE
Driving the world

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