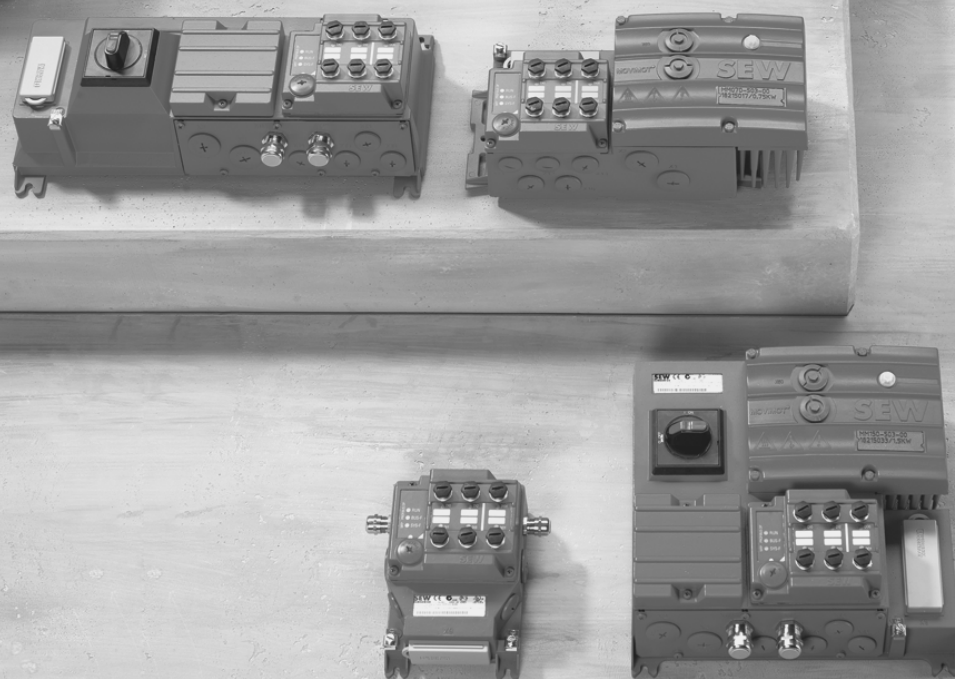




SEW
EURODRIVE

Compact Manual



EtherNet/IP™

Drive System for Decentralized Installation
EtherNet/IP™ Interfaces, Field Distributors



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1 General information

1.1 Scope of this documentation

This documentation contains the general safety notes and selected information regarding EtherNet/IP™ interfaces and field distributors.

- Please note that this documentation does not replace the detailed manual and the operating instructions.
- Read the detailed manual and the detailed operating instructions first before you start working with EtherNet/IP™ interfaces and field distributors.
- Observe the information, instructions and notes in the detailed manual and the operating instructions. This is essential for fault-free operation of the EtherNet/IP™ interfaces and field distributors, and for fulfillment of any rights to claim under guarantee.
- The enclosed CD or DVD contains PDF files of the detailed manual and the operating instructions as well as further documentation regarding EtherNet/IP™ interfaces and field distributors.
- All technical documentation from SEW-EURODRIVE is available for download in PDF format from the SEW-EURODRIVE website: www.sew-eurodrive.de.

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.

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.

2 Safety notes

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

2.1 Preliminary information

The following safety notes are primarily concerned with the use of MFE62 EtherNet/IP™ interfaces/field distributors. If you use other components from SEW-EURODRIVE, 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 documentation.

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, MOVIMOT® drives can have live and bare parts as well as hot surfaces, depending on their degree of protection.

Unauthorized removal of covers, improper use, or incorrect installation and operation may result in severe injury to persons, or damage to machinery. Consult the documentation for further information.

2.3 Target group

Only qualified personnel is authorized to perform installation, startup, troubleshooting or maintenance (observing EN 60364 and CENELEC HD 384 or DIN VDE 0100 and EN 60664-1, as well as national accident prevention guidelines).

Qualified electricians in the context of these basic safety notes are all persons familiar with setup, 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.

2.4 Designated use

Field distributors and fieldbus interfaces are components intended for installation in electrical systems or machines.

In case of installation in machines, startup of the field distributors and fieldbus interfaces (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.

The field distributors and fieldbus interfaces meet the requirements stipulated in Low Voltage Directive 2006/95/EC. The standards listed in the declaration of conformity are applied to the field distributors and fieldbus interfaces.

Technical data and information on the connection requirements are provided on the nameplate and in the documentation; these must be observed under all circumstances.

2.4.1 Safety functions

Field distributors, fieldbus interfaces and MOVIMOT® inverters may not perform safety functions unless these functions are described and expressly permitted.

If MOVIMOT® inverters are used in safety applications, the supplementary documentation "MOVIMOT® MM..D – Functional Safety" must be observed. Use only those components in safety applications that were explicitly designed and delivered for this purpose by SEW-EURODRIVE.

2.4.2 Hoist applications

When using MOVIMOT® inverters in lifting applications, you must observe the special configuration and settings for lifting applications specified in the operating instructions for MOVIMOT®.

Do not use MOVIMOT® inverters as safety devices in lifting applications.

2.5 Transportation, storage

You must observe the notes on transportation, storage and proper handling. Comply with the requirements for climatic conditions stated in chapter "Technical data" of the manual. Tighten installed eyebolts securely. They are designed to handle the weight of the MOVIMOT® drive. Do not attach any additional loads. Use suitable, sufficiently rated handling equipment (e.g. rope guides) if required.

2.6 Installation

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

Protect the field distributors, fieldbus interfaces and MOVIMOT® inverters 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.

2.7 Electrical connection

Observe the applicable national accident prevention guidelines when working on live field distributors, fieldbus interfaces and MOVIMOT® inverters (e.g. BGV A3).

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 the documentation of the MOVIMOT® inverter. The manufacturer of the machine or system is responsible for maintaining the limits established by the EMC legislation.

Protective measures and protection devices must comply with the regulations in force, such as EN 60204 or EN 61800-5-1.

2.8 Safe disconnection

The field distributors and fieldbus interfaces meet all requirements for protective separation of power and electronics connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for protective separation to ensure protective separation.

2.9 Operation

Systems equipped with field distributors, fieldbus interfaces and MOVIMOT® inverters must be equipped with additional monitoring and protection devices according to the applicable safety guidelines, such as the law governing technical equipment, accident prevention regulations, etc. Additional protective measures may be necessary for applications with increased hazard potential.

Do not touch live components or power connections immediately after disconnecting the MOVIMOT® inverter, the field distributor (if present) or the bus module (if present) 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 the supply voltage is present at the field distributor, the fieldbus interfaces and the MOVIMOT® inverter, the housings must be closed, which means that:

- The MOVIMOT® inverter must be screwed on.
- The connection box cover of the field distributor (if present) and the fieldbus interface (if present) must be screwed on.
- The hybrid cable connector must be connected and screwed on.

NOTICE! The maintenance switch of the field distributor (if installed) only disconnects the connected MOVIMOT® drive or motor from the power supply system. The terminals of the field distributor remain connected to the line voltage even after the maintenance switch is activated.

The fact that the status LED and other display elements are no longer illuminated does not indicate that the unit has been disconnected from the supply system and no longer carries any voltage.

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, for safety reasons, this is not permitted for the driven machine, disconnect the unit from the supply system before you start troubleshooting.

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

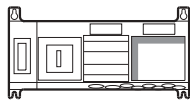
2.10 Supplementary safety notes for field distributors

2.10.1 MFZ.3. field distributor



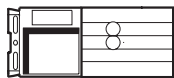
- Disconnect the unit from the power supply system before removing the fieldbus interface or the motor connector. Dangerous voltages may still be present for up to 1 minute after disconnection from the power supply.
- The fieldbus interface and the connector of the hybrid cable must be connected to the field distributor and fastened during operation.

2.10.2 MFZ.6. field distributor



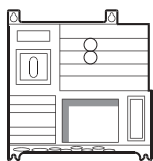
- Before removing the connection box cover for the line connection, disconnect the unit from the power supply system. Dangerous voltages may still be present for up to 1 minute after disconnection from the power supply.
- **NOTICE!** The switch only disconnects the MOVIMOT® inverter from the power supply system. The terminals of the field distributor are still connected to the power supply after activating the maintenance switch.
- During operation, the connection box cover for the line connection and the connector of the hybrid cable must be connected to the field distributor and fastened.

2.10.3 MFZ.7. field distributor



- Before removing the MOVIMOT® inverter, disconnect the unit from the power supply system. Dangerous voltages may still be present for up to 1 minute after disconnection from the power supply.
- The MOVIMOT® inverter and the connector of the hybrid cable must be connected to the field distributor and fastened during operation.

2.10.4 MFZ.8. field distributor



- Disconnect the unit from the power supply system before removing the connection box cover for the power supply connection or the MOVIMOT® inverter. Dangerous voltages may still be present for up to 1 minute after disconnection from the power supply.
- **NOTICE!** The maintenance switch only disconnects the connected motor from the power supply system. The terminals of the field distributor are still connected to the power supply after activating the maintenance switch.
- During operation, the terminal box cover for the power supply connection, the MOVIMOT® inverter, and the connector of the hybrid cable must be connected to the field distributor and secured.

3 Type Designation

3.1 Type designation of EtherNet/IP™ interface

3.1.1 Type designation

The following table shows the type designation of the fieldbus interface **MFE62A/Z21D** as an example:

MFE	Fieldbus interface	
	MFI..	= INTERBUS
	MFP..	= PROFIBUS
	MQP..	= PROFIBUS with integrated minicontroller
	MFE..	PROFINET IO, EtherNet/IP™ or EtherCAT®
	MFD..	= DeviceNet™
	MQD..	= DeviceNet™ with integrated minicontroller
62	Connections	
	21 = 4 x I / 2 x O	(connection via terminals)
	22 = 4 x I / 2 x O	(connection via plug connector + terminals)
	32 = 6 x I	(connection via plug connector + terminals)
	52 = 4 x I / 2 x I/O	(connection via plug connector + terminals) for PROFINET IO
	62 = 4 x I / 2 x I/O	(connection via plug connector + terminals) for EtherNet/IP™
	72 = 4 x I / 2 x I/O	(connection via plug connector + terminals) for EtherCAT®
	23 = 4 x I / 2 x O	(FOC rugged line, only for INTERBUS)
	33 = 6 x I	(FOC rugged line, only for INTERBUS)
A	Variant	
/		
Z21	Connection module	
	Z11	= For INTERBUS
	Z21	= For PROFIBUS, PROFINET IO, EtherNet/IP™ and EtherCAT®
	Z31	= For DeviceNet™
D	Variant	

3.2 Type designation of EtherNet/IP™ field distributor

3.2.1 Example MF../Z.3.

The following table shows the type designation of the MF../Z.3. field distributors:

MFE 62A	Fieldbus interface	
	MFI..	= INTERBUS
	MFP../MQP..	= PROFIBUS
	MFE..	= PROFINET IO, EtherNet/IP™ or EtherCAT®
	MFD../MQD..	= DeviceNet™
/		
Z23	Connection module	
	Z13	= For INTERBUS
	Z23	= for PROFIBUS, PROFINET IO, EtherNet/IP™ and EtherCAT®
	Z33	= For DeviceNet™
A		
Variant		



3.2.2 Example MF../Z.6.

The following table shows the type designation of the MF../Z.6. field distributors:

MFE 62A	Fieldbus interface	
	MFI..	= INTERBUS
	MFP../MQP..	= PROFIBUS
	MFE..	= PROFINET IO, EtherNet/IP™ or EtherCAT®
	MFD../MQD..	= DeviceNet™
/		
Z26	Connection module	
	Z16	= For INTERBUS
	Z26	= for PROFIBUS, PROFINET IO, EtherNet/IP™ and EtherCAT®
	Z36	= For DeviceNet™
F		
Variant		
/		
AF0	Connection technology	
	AF0	= Metric cable entry
	AF1	= With micro-style connector/M12 connector for DeviceNet™
	AF2	= M12 plug connector for PROFIBUS
	AF3	= M12 plug connector for PROFIBUS + M12 plug connector for DC 24 V supply



3.2.3 Example MF../MM../Z.7.

The following table shows the type designation of the MF../MM../Z.7. field distributors:

MFE 62A	Fieldbus interface
	MFI.. = INTERBUS
	MFP../MQP.. = PROFIBUS
	MFE.. = PROFINET IO, EtherNet/IP™ or EtherCAT®
	MFD../MQD.. = DeviceNet™
/	
MM15D -503-00	MOVIMOT® inverter
/	
Z27	Connection module
	Z17 = For INTERBUS
	Z27 = for PROFIBUS, PROFINET IO, EtherNet/IP™ and EtherCAT®
	Z37 = For DeviceNet™
F	Variant
0	Connection type
	0 = 
	1 = 

3.2.4 Example MF../MM../Z.8.

The following table shows the type designation of the MF../MM../Z.8. field distributors:

MFE 62A	Fieldbus interface
	MFI.. = INTERBUS
	MFP../MQP.. = PROFIBUS
	MFE.. = PROFINET IO, EtherNet/IP™ or EtherCAT®
	MFD../MQD.. = DeviceNet™
/	
MM15D -503-00	MOVIMOT® inverter
/	
Z28	Connection module
	Z18 = For INTERBUS
	Z28 = for PROFIBUS, PROFINET IO, EtherNet/IP™ and EtherCAT®
	Z38 = For DeviceNet™
F	Variant
0	Connection type
	0 = 
	1 = 
/	
AF0	Connection technology
	AF0 = Metric cable entry
	AF1 = With micro-style connector/M12 connector for DeviceNet™
	AF2 = M12 plug connector for PROFIBUS
	AF3 = M12 plug connector for PROFIBUS + M12 plug connector for DC 24 V supply

4 Mechanical installation

4.1 Installation instructions

INFORMATION



On delivery, field distributors are equipped with transportation protection covering the plug connector of the outgoing motor circuit (hybrid cable).

This only guarantees the degree of protection IP40. To obtain the specified degree of protection, remove the transport protection and plug on the appropriate mating connector. Screw them together.

4.1.1 Assembly

- Mount field distributors on a level, vibration-proof and torsionally rigid support structure only.
- Use M5 screws and suitable washers for attaching the **MFZ.3** field distributor. Tighten the screws with a torque wrench (permitted tightening torque 2.8 – 3.1 Nm).
- Use M6 screws and suitable washers for installing **MFZ.6**, **MFZ.7** or **MFZ.8** field distributors. Tighten the screws with a torque wrench (permitted tightening torque 3.1 – 3.5 Nm).

4.1.2 Installation in damp locations or in the open

Observe the following notes for mounting the fieldbus interface and the field distributor in damp locations or outdoors:

- Use suitable cable glands for the cables. Use reducing adapters, if necessary.
- Seal open cable entries and M12 connection sockets with screw plugs.
- When the cable entry on the side is used, route the cable with a drip loop.
- Thoroughly clean the sealing surface of the fieldbus interface and of the connection box cover before re-installing.

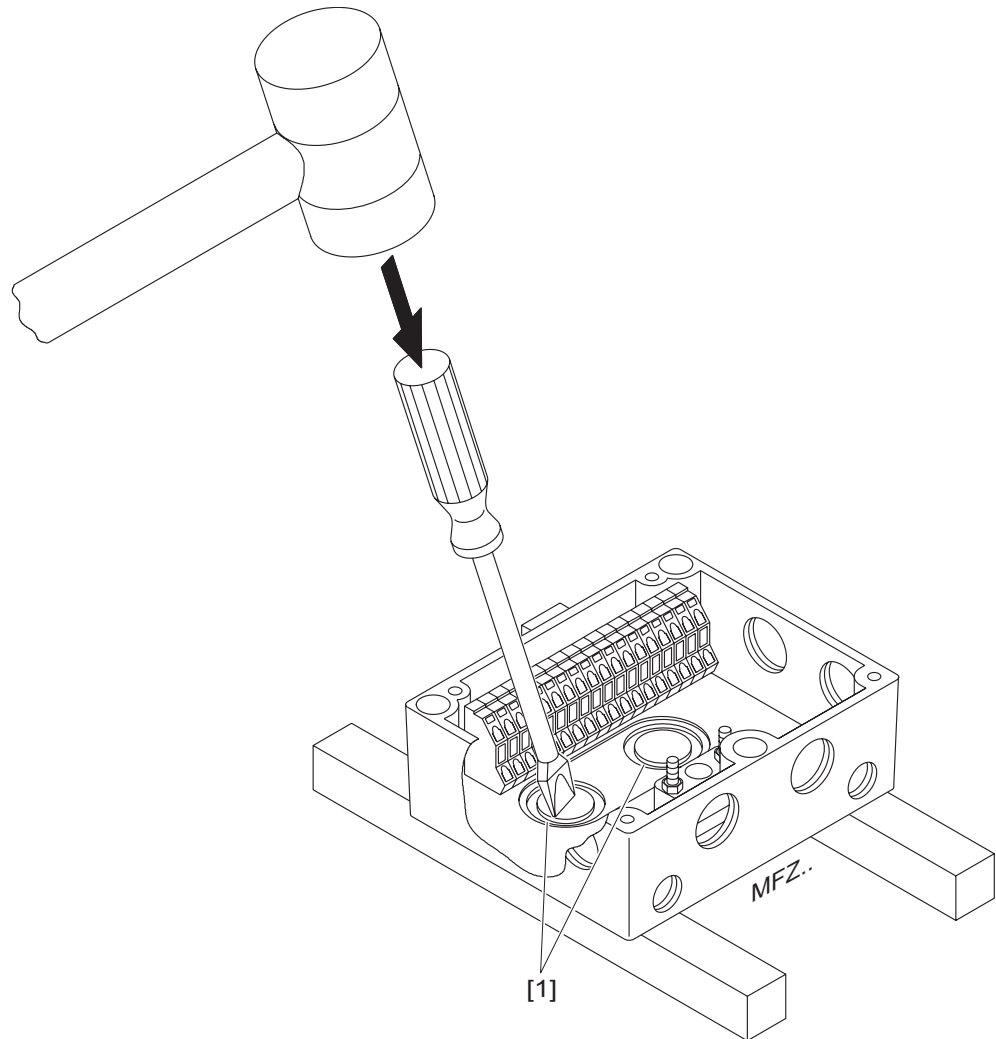
4.2 Fieldbus interfaces MF../MQ..

MF../MQ.. fieldbus interfaces can be installed as follows:

- Installation on MOVIMOT® connection box
- Installation in the field (= mounting close to the motor)

4.2.1 Installation on MOVIMOT® connection box

1. Remove the knock outs at the MFZ lower section from the inside as shown in the following figure.



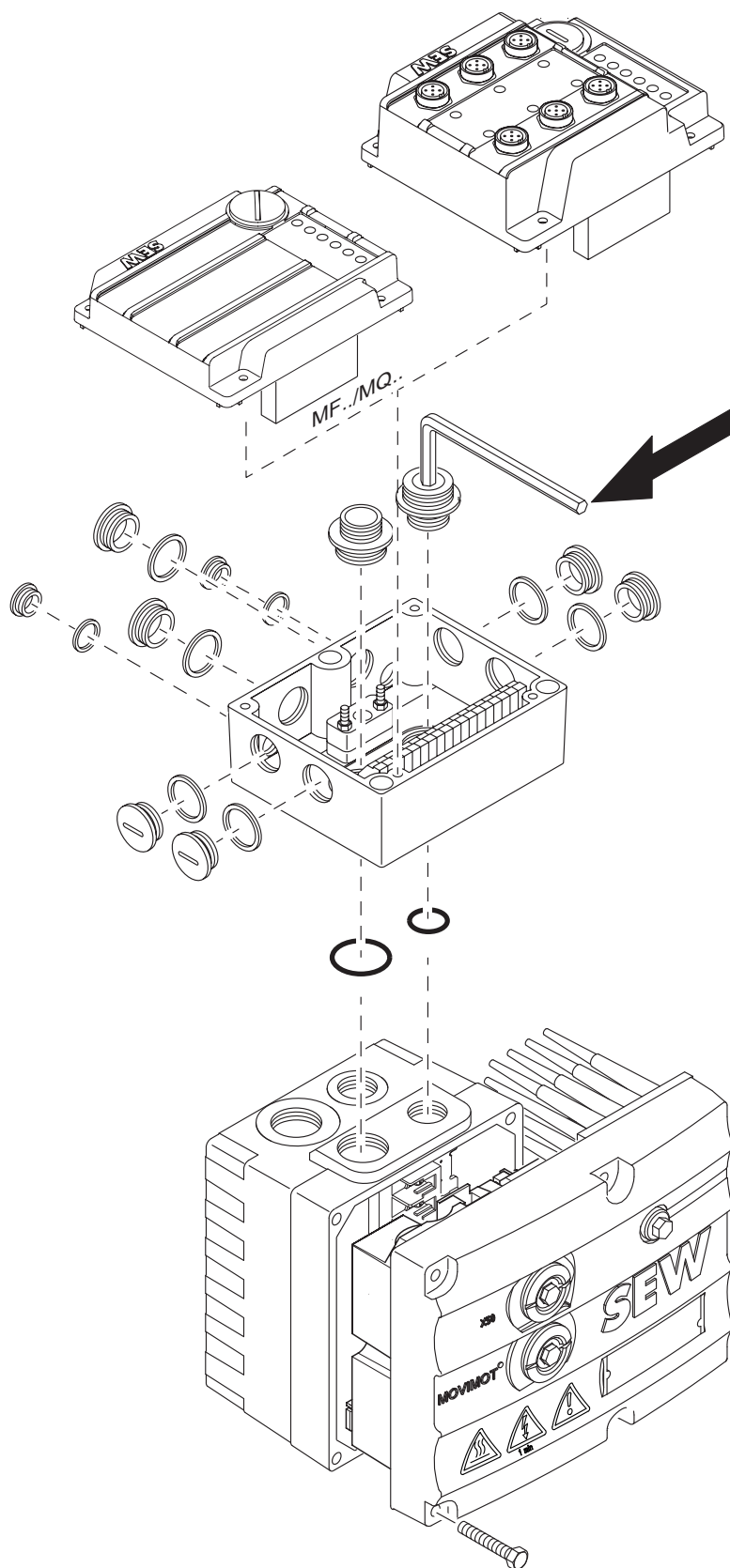
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- ⇒ If necessary, deburr the break lines that occur after the knock outs [1] have been removed.

4 Mechanical installation

Fieldbus interfaces MF../MQ..

2. Mount the fieldbus interface to the MOVIMOT® connection box, according to the following figure.

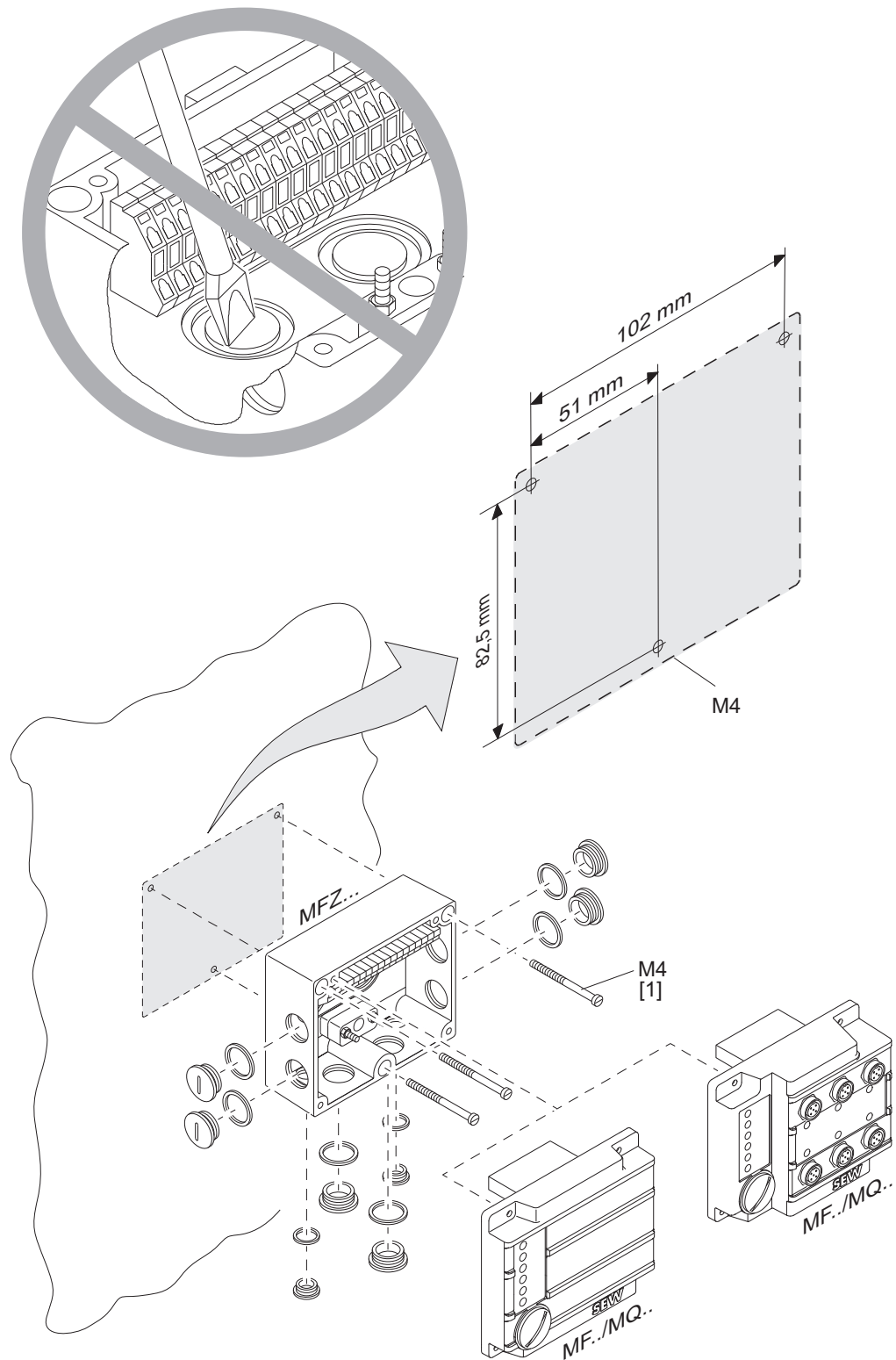


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4.2.2 Installation in the field

The following figure shows the installation of an MF../MQ.. fieldbus interface close to the motor:



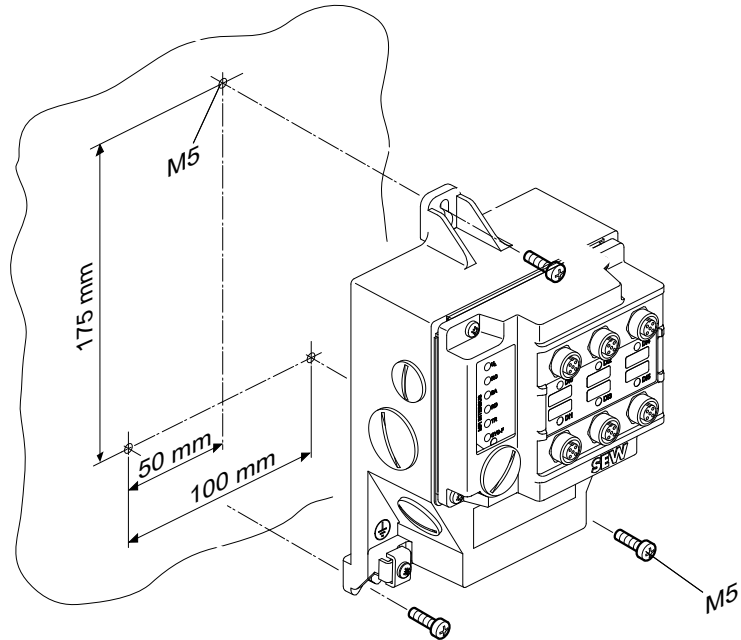
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[1] Length of screws min. 40 mm

4.3 Field distributor

4.3.1 Installation of MF../Z.3., MQ../Z.3. field distributors

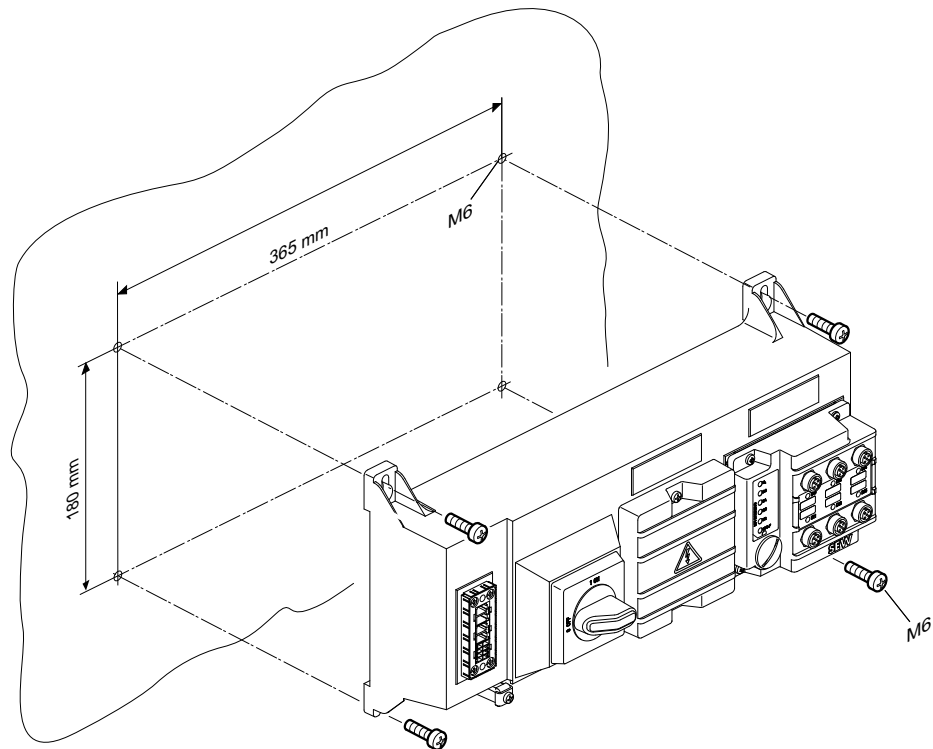
The following figure shows the mounting dimensions for ..Z.3. field distributors:



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4.3.2 Installation of MF../Z.6., MQ../Z.6. field distributors

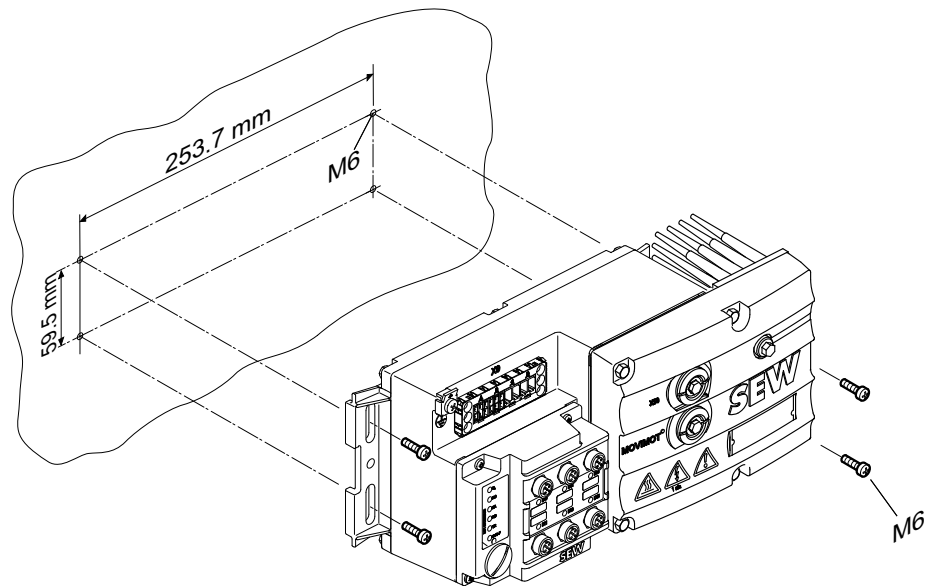
The following figure shows the mounting dimensions for ..Z.6. field distributors:



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4.3.3 Installation of MF../MM../Z.7., MQ../MM../Z.7. field distributors

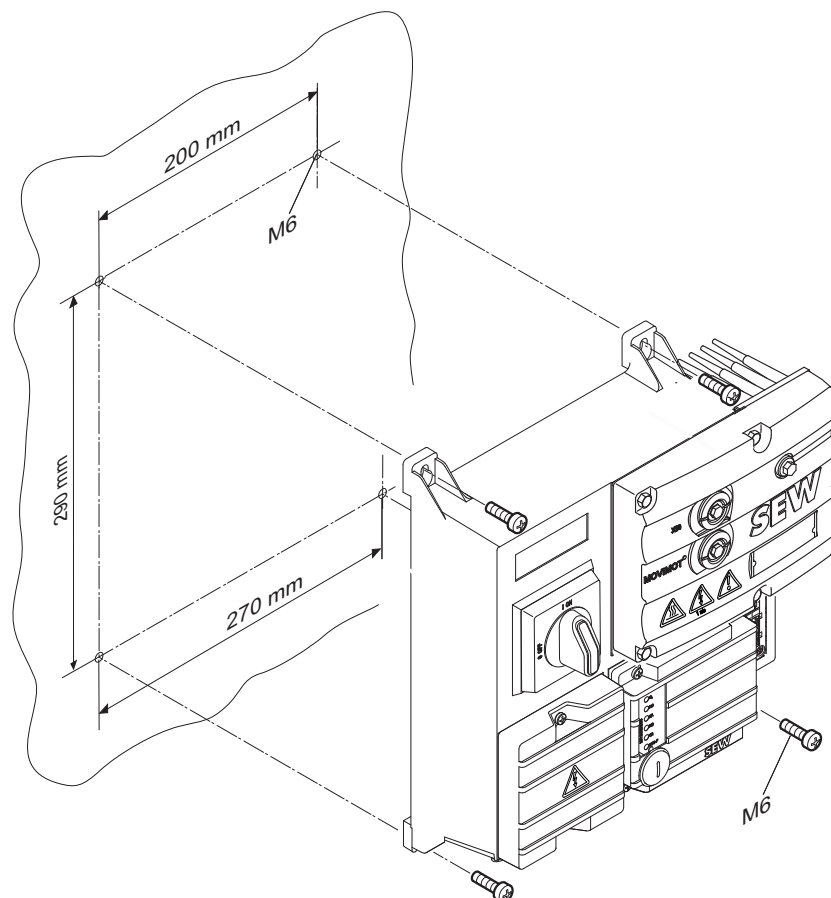
The following figure shows the mounting dimensions for ..Z.7. field distributors:



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4.3.4 Installation of MF../MM../Z.8., MQ../MM../Z.8. field distributors (Size 1)

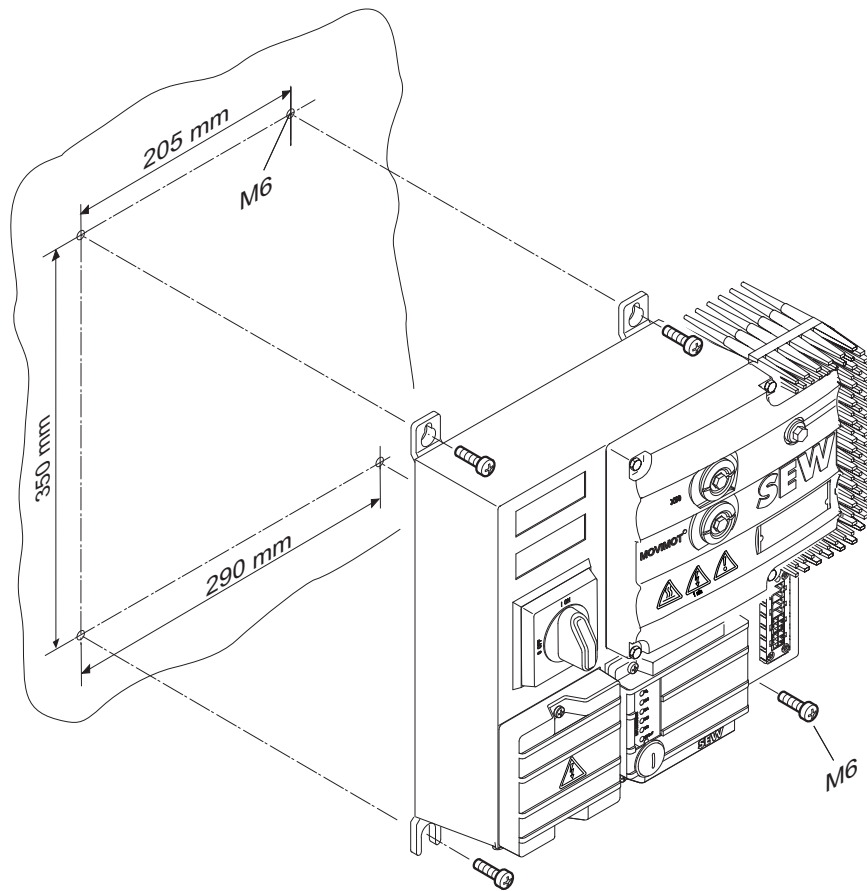
The following figure shows the mounting dimensions for ..Z.8. field distributors (Size 1):



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4.3.5 Installation of MF../MM../Z.8., MQ../MM../Z.8. field distributors (Size 2)

The following figure shows the mounting dimensions for ..Z.8. field distributors (Size 2):



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5 Electrical installation

5.1 Installation planning considering EMC aspects

5.1.1 Notes on arranging and routing installation components

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

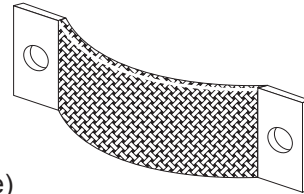
Always adhere to the **relevant standards**. Also observe the following points in particular:

- **Equipotential bonding**

- Low resistance and HF-capable equipotential bonding must be provided independent of the functional earth (PE connection) (see also VDE 0113 or VDE 0100 part 540),

for example by:

- Flat contact surface connection of metal components



- Using flat grounding strips (HF litz wire)

- **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).

- **Field distributor**

- We recommend using prefabricated SEW-EURODRIVE hybrid cables, especially designed for connecting field distributors and motors.

- **Cable glands**

- Select only cable glands with a shield connected over a large area. Observe the notes regarding the selection of the cable glands.

- **Cable shields**

- Must have good EMC properties (high screening attenuation).
- It must protect the cable mechanically and serve as shielding.
- Must be connected to a wide area of the unit's metal housing at the cable ends (via EMC metal cable glands). Also observe the further notes regarding the selection of the cable glands.

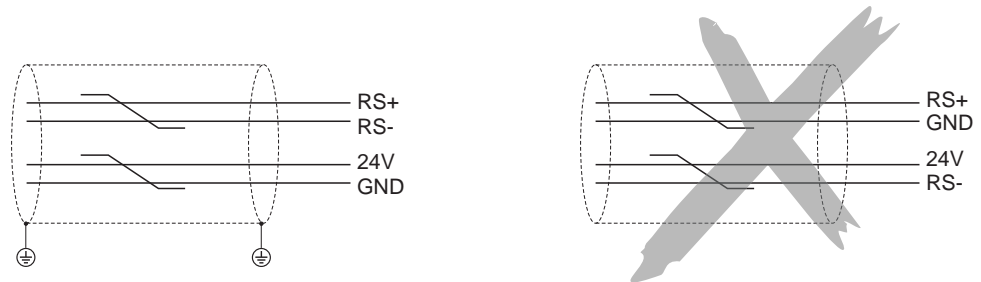
- Additional information is available in the SEW-EURODRIVE publication "**Drive Engineering – Practical Implementation, EMC in Drive Engineering.**"

5.1.2 Example for connection of the MF../MQ.. fieldbus interface and MOVIMOT®

If the MF../MQ.. fieldbus interface and MOVIMOT® are installed separately, the RS485 connection must be implemented as follows:

- **Carrying the DC 24 V supply**

- Use shielded cables.
- Connect the shield to the housing of both units using EMC cable glands.
- Twist the conductors in pairs as shown in the following figure.

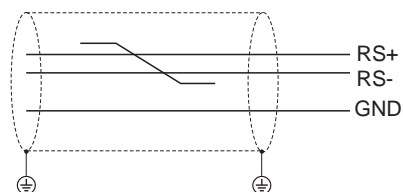


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- **Without carrying the DC 24 V supply**

If the MOVIMOT® drive is supplied with DC 24 V via a separate connection, the RS485 connection must be carried out as follows:

- Use shielded cables.
- Connect the shield to the housing of both units using EMC cable glands. Also observe the further notes regarding the selection of the cable glands.
- Generally provide the GND reference potential.
- Twist the conductors as shown in the following figure.



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5.2 Installation instructions for fieldbus interfaces, field distributors

5.2.1 Connecting supply system leads

- The nominal voltage and frequency of the MOVIMOT® inverter must correspond to the data for the power supply system.
- Dimension the cable cross section according to the input current I_{line} for rated power (see MOVIMOT® operating instructions, "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 circuit breaker

Size the fuses according to the cable cross section.

- 3-phase frequency inverters generate a DC current component in the leakage current and can significantly reduce the sensitivity of a residual current device of type A. A type A residual current device is thus not permitted as protection device.

Only use type B residual current devices.

If the use of a residual current device is not mandatory according to the standards, SEW-EURODRIVE recommends not to use a residual current device.

- Use only a line contactor in utilization category AC-3 (EN 60947-4-1) for switching the MOVIMOT® drive.
- SEW-EURODRIVE recommends using earth-leakage monitors with pulse-code measurement in voltage supply systems with a non-grounded star point (IT systems). Using such devices prevents the earth-leakage monitor mis-tripping due to the ground capacitance of the inverter.

5.2.2 Notes on PE connection

▲ WARNING

Electric shock due to incorrect connection of PE.

Severe, fatal injuries

- The permitted tightening torque for the retaining screws is 2.0 – 2.4 Nm.
- 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 mm ²

[1] Forked cable lug suitable for M5 PE screws

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

- The ground connection (PE) 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.

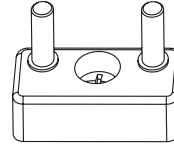
5.2.3 Permitted connection cross section and current carrying capacity of the terminals

	Power terminals X1, X21 (screw terminals)	Control terminals X20 (cage clamp terminals)
Connection cross section	0.2 mm ² – 4 mm ²	0.08 mm ² – 2.5 mm ²
Current carrying capacity	32 A max. continuous current	12 A max. continuous current

The permitted tightening torque of the power terminals is 0.6 Nm.

5.2.4 Looping through the DC 24 V supply voltage in the MFZ.1 module terminal box

- There are 2 M4 x 12 studs in the connection area of the DC 24 V supply. The studs can be used for looping the DC 24 V supply voltage.

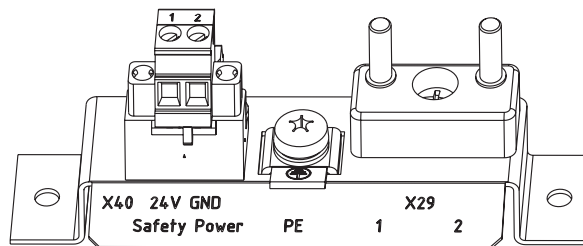


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- The terminal studs have a current carrying capacity of 16 A.
- The permitted tightening torque for the hex nuts of the terminal studs is 1.2 Nm \pm 20%.

5.2.5 Additional connection options with MFZ.6, MFZ.7 and MFZ.8 field distributors

- The connection part of the DC 24 V supply comprises an X29 terminal block with two M4 x 12 studs and a pluggable X40 terminal.



1141387787

- The X29 terminal block can be used as an alternative to the X20 terminal (see chapter "Unit Structure" in the manual) for looping through the DC 24 V supply voltage. Both studs are connected internally to the 24 V connection at terminal X20.

Terminal assignment			
No.		Name	Function
X29	1	24 V	0V24 reference potential for module electronics and sensors (studs, jumpered with terminal X20/11)
	2	GND	0V24 reference potential for module electronics and sensors (studs, jumpered with terminal X20/13)

- The plug-in terminal X40 ("Safety Power") is intended for the external DC 24 V supply of the MOVIMOT® inverter using a safety relay.

This setup allows for the operation of a MOVIMOT® drive with FS marking in safety applications. For detailed information, refer to the "MOVIMOT® MM..D – Functional Safety" manual.

Terminal assignment			
No.		Name	Function
X40	1	24 V	24 V MOVIMOT® voltage supply for disconnection with safety relay
	2	GND	0V24 MOVIMOT® reference potential for disconnection with safety relay

- Terminal X29/1 is factory-jumpered with X40/1 and terminal X29/2 with X40/2, so that the MOVIMOT® inverter is supplied by the same DC 24 V voltage as the fieldbus interface.
- The guide values for both studs are:
 - Current carrying capacity: 16 A
 - Permitted tightening torque for the hex nuts: 1.2 Nm ± 20 %
- The guide values for screw terminal X40 are:
 - Current carrying capacity: 10 A
 - Connection cross section: 0.25 mm² – 2.5 mm²
 - Permitted tightening torque: 0.6 Nm

5.2.6 UL-compliant installation

Routing power terminals in the field

Note the following points for UL-compliant installation:

- Use only 60°/75°C copper conductors.
- The terminals' permitted tightening torque is 1.5 Nm (13.3 lb.in)

Short circuit current rating

Suitable for use in current circuits with a maximum short circuit current of AC 200,000 A_{eff} for the following fuses:

For 240 V systems:

250 V min., 25 A max., fuse

or 250 V min., 25 A max., circuit breaker

For 500 V systems:

500 V min., 25 A max., fuse

or 500 V min., 25 A max., circuit breaker

The maximum voltage is limited to 500 V.

Branch circuit protection

Integral semiconductor 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 regulation.

The following table shows the maximum values for the circuit protection of branch circuits.

Series	Fuse	Circuit breaker
MOVIMOT® MM..D	250 V/500 V minimum, 25 A maximum	250 V/500 V minimum, 25 A maximum

Motor overload protection

MOVIMOT® MM..D is fitted with a load and speed-dependent overload protection with thermal memory in the event of disconnection and power loss.

The trigger threshold is 140% of the rated motor current.

Ambient temperature

MOVIMOT® MM..D 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 3.0% per °C between 40°C and 60°C.

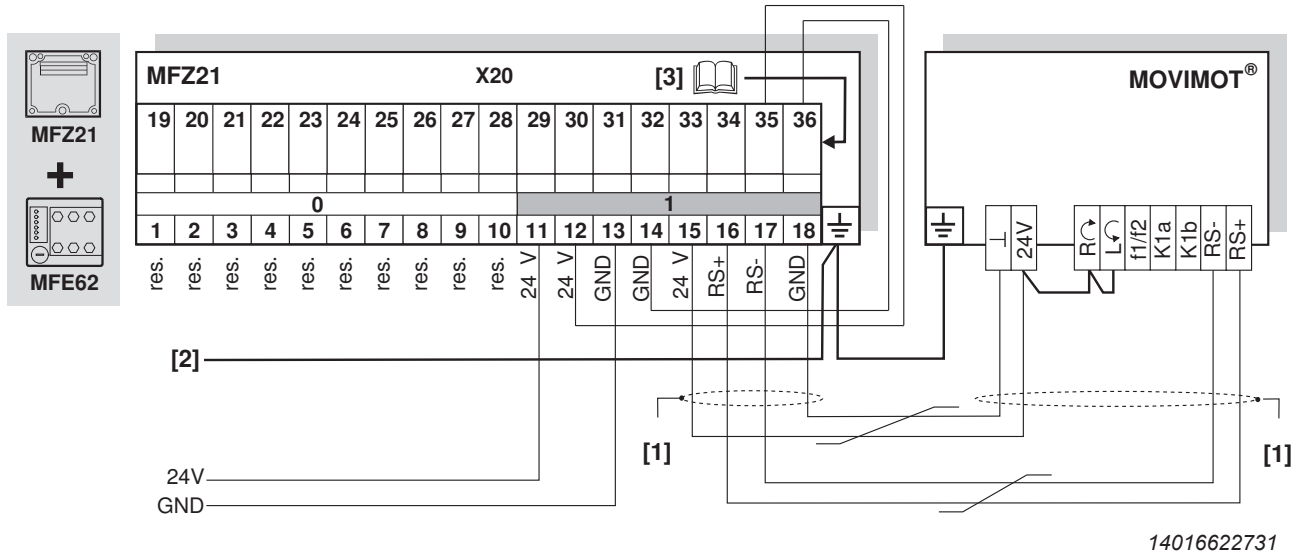
INFORMATION

- Only use certified units with a limited output voltage ($U_{\max} = \text{DC } 30 \text{ V}$) and limited output current ($I \leq 8 \text{ A}$) as an external DC 24 V voltage source
- The UL certification only applies to operation on voltage supply systems with voltages to ground of max. 300 V. The UL-certification does not apply to operation on voltage supply systems with a non-grounded star point (IT systems).

5.3 Connection of MFZ21 connection module with MFE62 to MOVIMOT®

5.3.1 MFZ21 connection module with MFE62 EtherNet/IP™ interface to MOVIMOT®

(for a configuration with 6 inputs or with 4 inputs/2 outputs)



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0 = Potential level 0 **1** = Potential level 1

[1] For separate MF../Z21/MOVIMOT® installation:

Connect the shield of the RS485 cable using the EMC metal cable gland on MFZ and the MOVIMOT® housing.

[2] Ensure equipotential bonding between all bus stations.

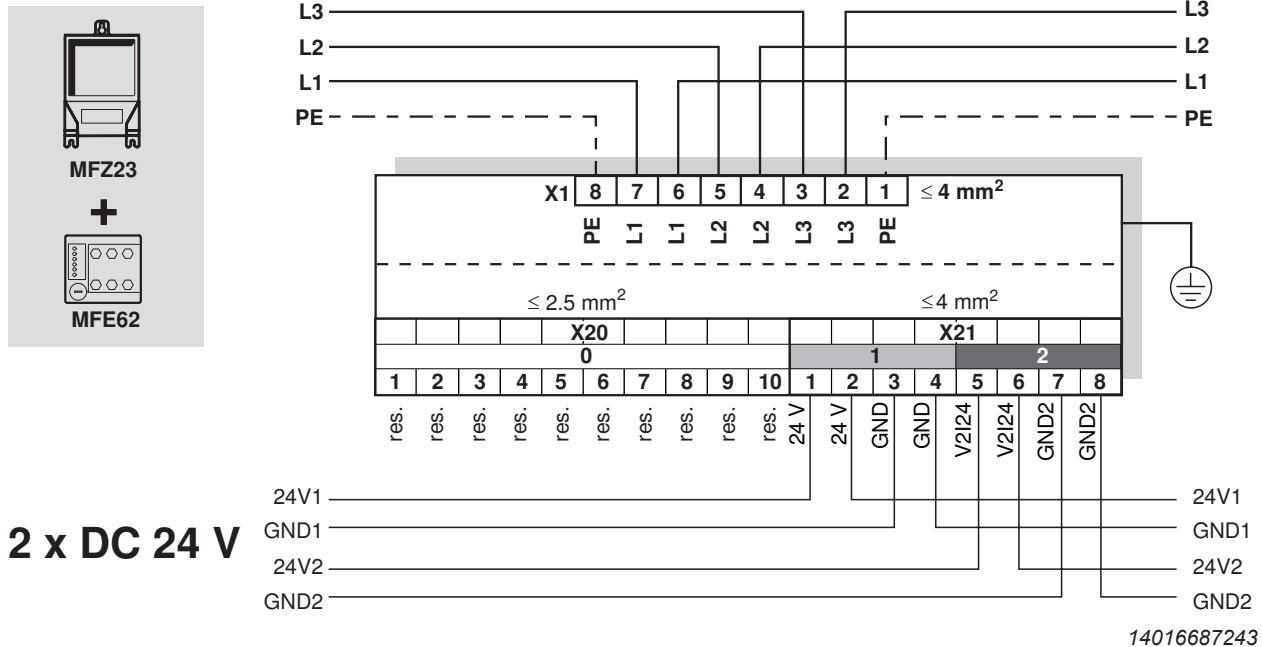
[3] Assignment of terminals 19 – 36, see chapter "Connection of the inputs/outputs of the MFE62 fieldbus interface" (→ 35)

Terminal assignment			
No.	Name	Direction	Function
X20	1 – 10	Res.	Reserved
	11	24 V	Input
	12	24 V	Output
	13	GND	–
	14	GND	–
	15	24 V	Output
	16	RS+	Output
	17	RS-	Output
	18	GND	–

5.4 Connection of MFZ23 field distributor with MFE62

5.4.1 MFZ23 connection module with MFE62 EtherNet/IP™ interface and 2 separate DC 24 V voltage circuits

(only for a configuration with 4 inputs/2 outputs)



0 = Potential level 0

1 = Potential level 1

2 = Potential level 2

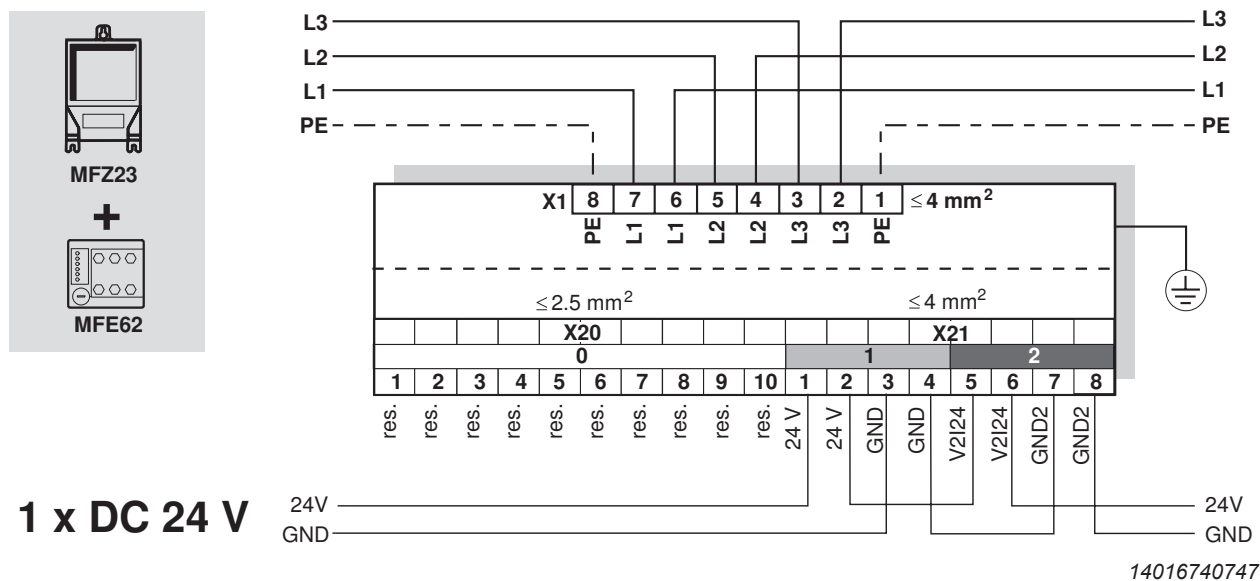
Terminal assignment			
No.	Name	Direction	Function
X20 1 – 10	Res.	–	Reserved
X21 1	24 V	Input	24 V voltage supply for module electronics, DI0 – DI3 sensors and MOVIMOT®
2	24 V	Output	24 V voltage supply for module electronics, DI0 – DI3 sensors and MOVIMOT® (jumped with terminal X21/1)
3	GND	–	0V24 reference potential for module electronics, sensors DI0 - DI3 and MOVIMOT®
4	GND	–	0V24 reference potential for module electronics, sensors DI0 - DI3 and MOVIMOT®
5	V2I24	Input	24 V voltage supply for actuators (digital outputs) and sensors DI4 – DI5
6	V2I24	Output	24 V voltage supply for actuators (digital outputs) and sensors DI4 – DI5 (jumped with terminal X21/5)
7	GND2	–	0V24V reference potential for actuators and sensors DI4 – DI5
8	GND2	–	0V24V reference potential for actuators and sensors DI4 – DI5

5 Electrical installation

Connection of MFZ23 field distributor with MFE62

5.4.2 MFZ23 connection module with MFE62 EtherNet/IP™ interface and 1 shared DC 24 V voltage circuit

(for a configuration with 6 inputs or with 4 inputs/2 outputs)



0 = Potential level 0

1 = Potential level 1

2 = Potential level 2

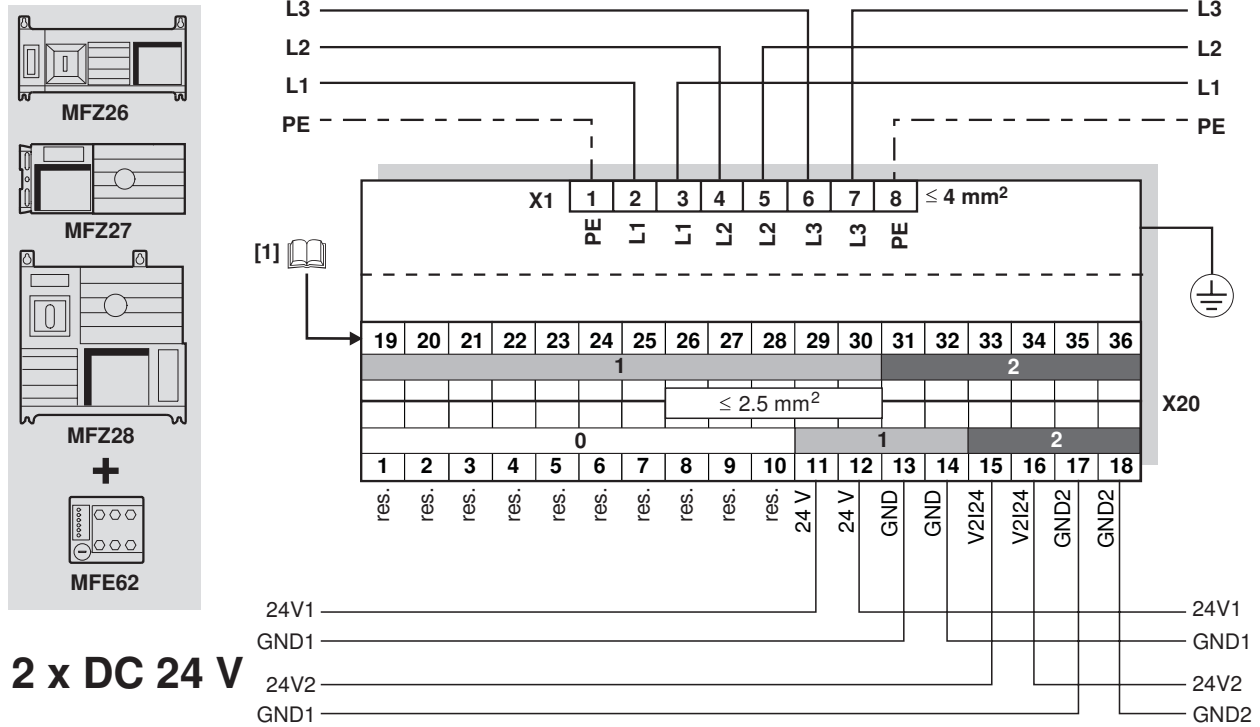
Terminal assignment			
No.	Name	Direction	Function
X20 1 – 10	Res.	–	Reserved
X21 1	24 V	Input	24 V voltage supply for module electronics, sensors and MOVIMOT®
2	24 V	Output	24 V voltage supply (jumpared with terminal X21/1)
3	GND	–	0V24 reference potential for module electronics, sensors and MOVIMOT®
4	GND	–	0V24 reference potential for module electronics, sensors and MOVIMOT®
5	V2I24	Input	24 V voltage supply for actuators (digital outputs)
6	V2I24	Output	24 V voltage supply for actuators (digital outputs) (jumpared with terminal X21/5)
7	GND2	–	0V24 reference potential for actuators
8	GND2	–	0V24 reference potential for actuators

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5.5 Connection of field distributors MFZ26, MFZ27, MFZ28 with MFE62

5.5.1 MFZ26, MFZ27, MFZ28 connection modules to MFE62 EtherNet/IP™ interface and 2 separate 24 V DC voltage circuits

(only for a configuration with 4 inputs/2 outputs)



2 x DC 24 V

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0 = Potential level 0

1 = Potential level 1

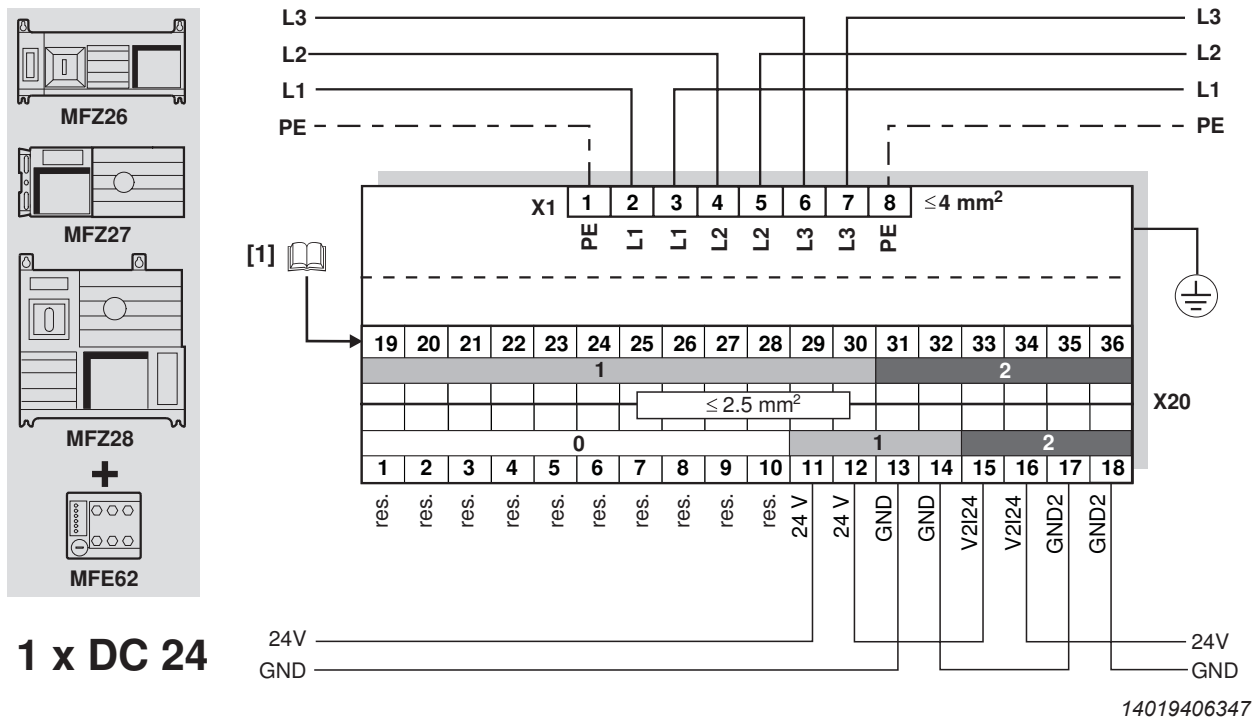
2 = Potential level 2

[1] Assignment of terminals 19 – 36, see chapter "Connection of the inputs/outputs of the MFE62 fieldbus interface" (→ 35)

Terminal assignment			
No.	Name	Direction	Function
X20	1 – 10	Res.	Reserved
	11	24 V	Input
	12	24 V	Output
	13	GND	–
	14	GND	–
	15	V2I24	Input
	16	V2I24	Output
	17	GND2	–
	18	GND2	–

5.5.2 MFZ26, MFZ27, MFZ28 connection modules with EtherNet/IP™ interface MFE62 and 1 shared DC 24 V voltage circuit

(for a configuration with 6 inputs or with 4 inputs/2 outputs)



0 = Potential level 0

1 = Potential level 1

2 = Potential level 2

[1] Assignment of terminals 19 – 36, see chapter "Connection of the inputs/outputs of the MFE62 fieldbus interface" (→ 35)

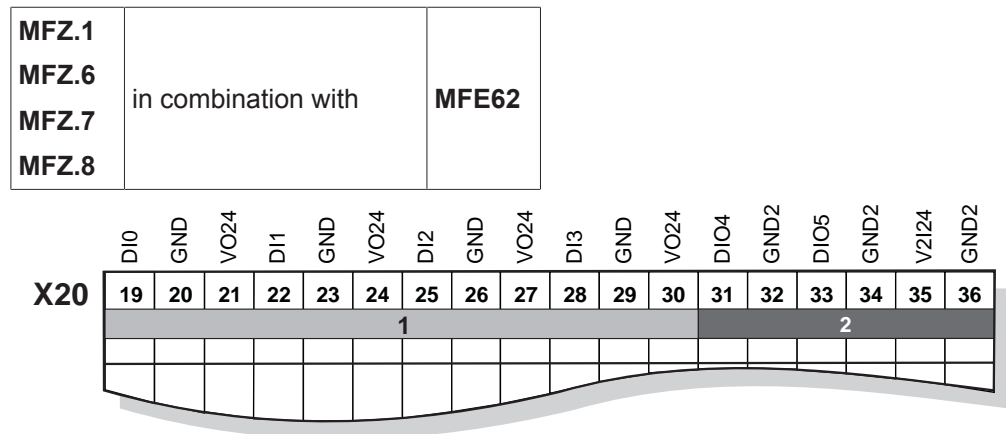
Terminal assignment			
No.	Name	Direction	Function
X20	1 – 10	Res.	Reserved
	11	24 V	Input
	12	24 V	Output
	13	GND	–
	14	GND	–
	15	V2I24	Input
	16	V2I24	Output
	17	GND2	–
	18	GND2	–

5.6 Connection of the inputs/outputs of the MFE62 fieldbus interface

The fieldbus interface is connected via terminals or M12 plug connectors.

5.6.1 Connection of inputs/outputs via terminals

For fieldbus interfaces with 4 digital inputs and 2 digital inputs/outputs:



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1 = Potential level 1

2 = Potential level 2

Terminal assignment				
No.	Name	Direction	Function	
X20	19	DI0	Input	Switching signal of sensor DI0 ¹⁾
	20	GND	–	0V24 reference potential for sensor DI0
	21	V024	Output	24 V voltage supply for sensor DI0 ¹⁾
	22	DI1	Input	Control signal of sensor DI1
	23	GND	–	0V24 reference potential for sensor DI1
	24	V024	Output	24 V voltage supply for sensor DI1
	25	DI2	Input	Control signal of sensor DI2
	26	GND	–	0V24 reference potential for sensor DI2
	27	V024	Output	24 V voltage supply for sensor DI2
	28	DI3	Input	Control signal of sensor DI3
	29	GND	–	0V24 reference potential for sensor DI3
	30	V024	Output	24 V voltage supply for sensor DI3

Terminal assignment			
No.	Name	Direction	Function
X20	31	Input	Control signal of sensor DI4
		Output	Control signal of actuator DO0
	32	–	0V24 reference potential for sensor DI4
		–	0V24 reference potential for actuator DO0
	33	Input	Control signal of sensor DI5
		Output	Control signal of actuator DO1
	34	–	0V24 reference potential for sensor DI5
		–	0V24 reference potential for actuator DO1
	35	Input	24 V voltage supply for actuators (only for MFZ.6, MFZ.7 and MFZ.8: jumpered with terminal 15 or 16)
	36	–	0V24 reference potential for actuators DO0 and DO1 or sensors DI4 and DI5 (only for MFZ.6, MFZ.7 and MFZ.8: jumpered with terminal 17 or 18)

1) This signal is used in conjunction with field distributors MFZ26J and MFZ28J as maintenance switch feedback signal (NO contact). Evaluation via control is possible.

5.6.2 Connection of inputs/outputs via M12 plug connectors

For MFE62 fieldbus interfaces with 4 digital inputs and 2 digital inputs/outputs:

NOTICE

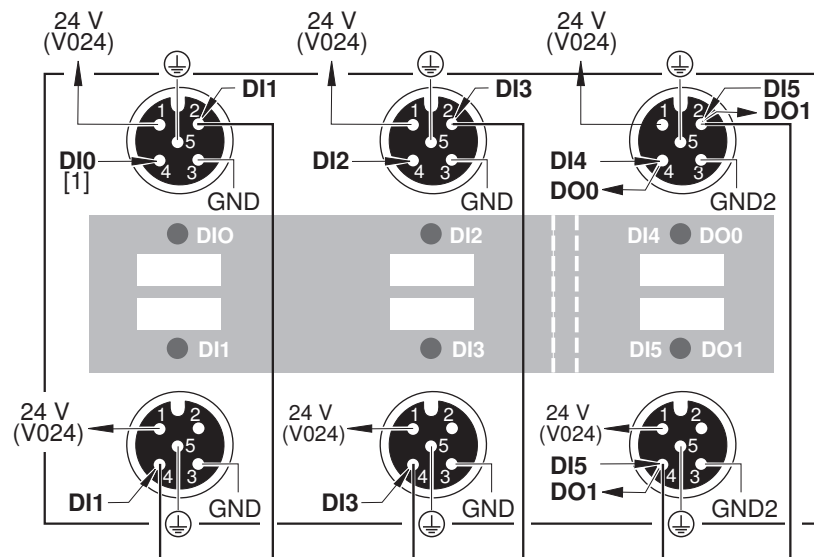


Loss of the ensured degree of protection if the screw plugs of unused M12 connections are not installed or not installed correctly.

Damage to the fieldbus interface.

- Seal all unused M12 connection sockets with screw plugs.

- Connect sensors/actuators using either M12 sockets or terminals.
- When using outputs: Connect 24 V to V2I24/GND2 terminals.
- Connect dual-channel sensors/actuators to DI0, DI2 and DI4/DO0.
DI1, DI3 and DI5/DO1 can no longer be used.

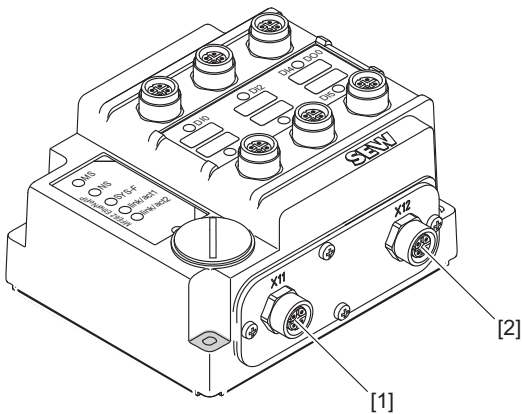


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[1] Do not use DI0 in combination with field distributors MFZ26J and MFZ28J.

5.7 Connection of EtherNet/IP™


The following figure shows the connections of the EtherNet/IP™ bus:



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- [1] X11, connection EtherNet/IP™, port 1
- [2] X12, connection EtherNet/IP™, port 2

The following table shows the pin assignment of the EtherNet/IP™ ports X11 and X12:

Function		
EtherNet/IP™ interface		
Connection type		
M12, 4-pole, female, D-coded		
Wiring diagram		
		
3545032843		
Assignment		
No.	Name	Function
1	TX+	Transmit line (+)
2	RX+	Receive line (+)
3	TX-	Transmit line (-)
4	RX-	Receive line (-)

5.7.1 The integrated Ethernet switch

You can use the integrated Ethernet switch to achieve line topologies known from the fieldbus technology. Other bus topologies, such as star or tree, are also possible. Ring topologies are not supported.



INFORMATION

The number of Industrial Ethernet switches connected in line affects the telegram runtime. If a telegram passes through the units, the telegram runtime is delayed by the store & forward function of the Ethernet switch:

This means the more units a telegram has to pass through, the higher the telegram runtime is.

- For a telegram length of 64 bytes by approximately 10 µs (at 100 Mbit/s)
- For a telegram length of 1500 bytes by approximately 130 µs (at 100 Mbit/s)

Auto-crossing

The two ports leading out of the Ethernet switch have auto-crossing functionality. This means that they can use both patch and cross-over cables to connect to the next Ethernet node.

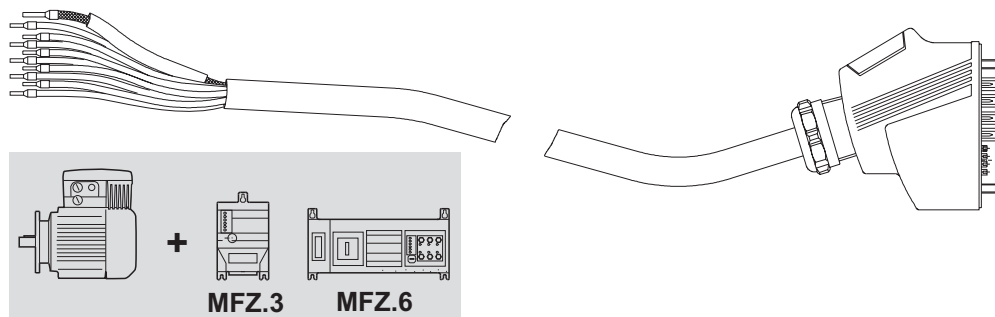
Auto-negotiation

The baud rate and duplex mode are negotiated by both Ethernet nodes when establishing the connection. For this purpose, both Ethernet ports of the Ethernet connection support an auto-negotiation functionality and work with a baud rate of either 100 Mbit or 10 Mbit in full duplex or half-duplex mode.

5.8 Hybrid cable connection

5.8.1 Hybrid cable between MFZ.3. or MFZ.6. field distributor and MOVIMOT®

The following figure shows the hybrid cable for connecting the MOVIMOT® drive **part number (01867253)**.



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The following table shows the terminal assignment of the hybrid cable in the MOVIMOT® connection box:

Terminal assignment	
MOVIMOT® terminal	Wire color/hybrid cable designation
L1	Black/L1
L2	Black/L2
L3	Black/L3
24 V	Red/24 V
⊥	White/0 V
RS+	Orange/RS+
RS-	Green/RS-
PE terminal	Green/yellow + shield end

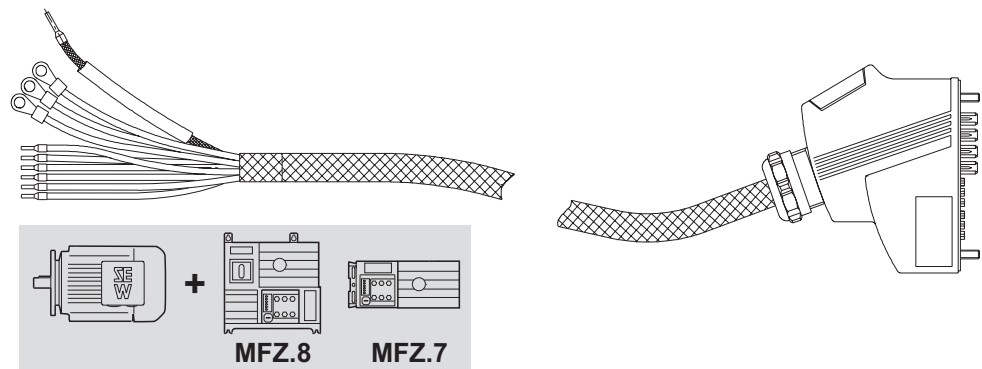
Note the enabled direction of rotation

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

	Both directions of rotation are enabled.		Drive is inhibited or is being brought to a standstill.
	Only CCW operation is enabled. Setpoint specifications for CW rotation result in stopping of drive.		Only CW operation is enabled. Pre-selected setpoints for CCW rotation result in stopping of the drive.

5.8.2 Hybrid cable between MFZ.7. or MFZ.8. field distributor and AC motors

The following figure shows the hybrid cable for connecting the AC motor **part number 01867423**.



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The following table shows the terminal assignment of the hybrid cable in the motor terminal box:

Terminal assignment	
Motor terminal	Wire color/hybrid cable designation
U1	Black/U1
V1	Black/V1
W1	Black/W1
4a	Red/13
3a	White/14
5a	Blue/15
1a	Black/1
2a	Black/2
PE terminal	Green/yellow + shield end (inner shield)



INFORMATION

Attach the outer shield of the cable to the housing of the motor terminal box using an EMC metal cable gland.

5.9 PC/laptop connection

The fieldbus interfaces have a diagnostic interface (RJ10 plug connector) for startup, parameter setting, and service.

The diagnostic interface is located underneath the screw plug of the fieldbus interface.

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

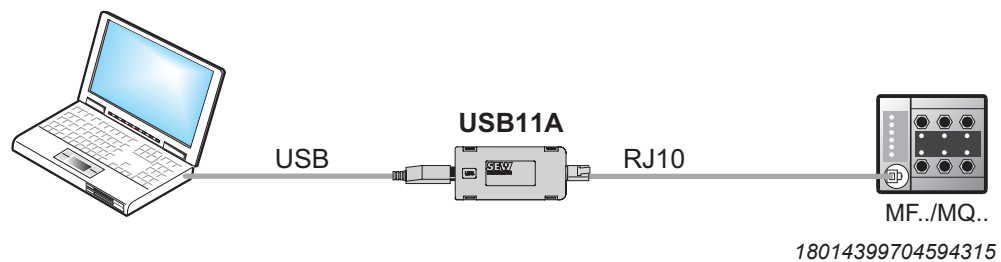
▲ WARNING!

Danger of burns from the hot surfaces of the MOVIMOT® drive (in particular the heat sink).

Severe injuries.

- Wait for the MOVIMOT® drive to cool down sufficiently before touching it.

The diagnostic interface is connected to a commercially available PC/Laptop via the USB11A interface adapter with USB port, part number 08248311:



Scope of delivery:

- USB11A interface adapter
- Cable with RJ10 plug connector
- Interface cable for USB (USB11A)

5.10 Wiring check

In order to prevent injury to persons or damage to the plant, check the wiring as described below before you connect the voltage supply for the first time:

- Remove all fieldbus interfaces from the connection module.
- Disconnect all MOVIMOT® inverters from the connection module (only with MFZ.7, MFZ.8).
- Disconnect all plug connectors of the motor connection (hybrid cable) from the field distributor.
- 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 supply system cable and communication cable.
- Check the polarity of the DC 24 V cable.
- Check the polarity of the communication line.
- Check the mains phase sequence.
- Ensure equipotential bonding between the fieldbus interfaces.

5.10.1 After the wiring check

- Connect and fasten all motor connections (hybrid cable).
- Plug in and fasten all fieldbus interfaces.
- Install and fasten all MOVIMOT® inverters (only with MFZ.7, MFZ.8).
- Install all connection box covers.
- Seal any plug connections not in use.

6 Startup

6.1 Startup instructions



▲ WARNING

Risk of crushing due to missing or defective protective covers.

Severe or fatal injuries.

- Install the protective covers of the unit according to the regulations, see the operating instructions of the gear unit.
- Never start the unit if the protective covers are not installed.



▲ 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



▲ 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.



▲ WARNING

Unit malfunction due to incorrect unit setting.

Severe or fatal injuries.

- The installation may only be carried out by qualified personnel.
- Only use settings that are suitable for operation.



INFORMATION

- Switch off the DC 24 V voltage supply before removing/installing the fieldbus interface.
- The bus connection of the incoming and outgoing fieldbus is integrated in the connection module, which means the fieldbus can be operated even when the module electronics have been disconnected.
- In addition, observe the notes in chapter "Supplementary Field Distributor Startup Information" of the manual.



INFORMATION

- Remove the paint protection cap from the status LED before startup. Remove the paint protection film from the nameplates before startup.
- Observe a minimum switch-off time of 2 seconds for the line contactor.

6.2 TCP/IP addressing and subnetworks

6.2.1 Introduction

The settings for the address of the IP protocol are made using the following parameters

- MAC ID
- IP address
- Subnet mask
- Standard gateway

The addressing mechanisms and subdivision of the IP networks into subnetworks are explained in this chapter to help you set the parameters correctly.

6.2.2 MAC ID

The MAC (**M**edia **A**ccess **C**ontroller) ID is the basis for all address settings. The MAC ID is a worldwide unique 6-byte value (48 bits) assigned to the Ethernet device. The MAC address of Ethernet devices from SEW-EURODRIVE is 00-0F-69-xx-xx-xx. The MAC ID is difficult to handle for larger networks. This is why freely assignable IP addresses are used.

6.2.3 IP address

The IP address is a 32-bit value that uniquely identifies a node in the network. An IP address is represented by 4 decimal numbers separated by decimal points.

Example: 192.168.10.4

Each decimal number stands for one byte (= 8 bits) of the address and can also be represented using binary code (see following table).

Byte 1		Byte 2		Byte 3		Byte 4
11000000	.	10101000	.	00001010	.	00000100

The IP address comprises a network address and a node address (see following table).

Network address	Node address
192.168.10	4

The part of the IP address that denotes the network and the part that identifies the node are determined by the network class and the subnet mask.

Node addresses cannot consist of only zeros or ones (binary) because they represent the network itself or a broadcast address.

6.2.4 Network classes

The first byte of the IP address determines the network class and as such represents the division into network addresses and node addresses.

Range of values Byte 1	Network class	Complete network address (example)	Explanation
0 – 127	A	10.1.22.3	10 = network address 1.22.3 = node address
128 – 191	B	172.16.52.4	172.16 = network address 52.4 = node address
192 – 223	C	192.168.10.4	192.168.10 = network address 4 = node address

This rough division is not sufficient for a number of networks. They also use an explicit, adjustable subnet mask.

6.2.5 Subnetwork mask

A subnet mask is used to divide the network classes into even finer sections. Like the IP address, the subnet mask is represented by 4 decimal numbers separated by decimal points.

Example: 255.255.255.128

Each decimal number stands for one byte (= 8 bits) of the subnet mask and can also be represented using binary code (→ following table).

Byte 1		Byte 2		Byte 3		Byte 4
11111111	.	11111111	.	11111111	.	10000000

If you compare the IP addresses with the subnet masks, you see that in the binary representation of the subnet mask all ones determine the network address and all the zeros determine the node address (see following table).

		Byte 1		Byte 2		Byte 3		Byte 4
IP address	decimal	192	.	168.	.	10	.	129
	binary	11000000	.	10101000	.	00001010	.	10000001
Subnet mask	decimal	255	.	255	.	255	.	128
	binary	11111111	.	11111111	.	11111111	.	10000000

The class C network with the address 192.168.10. is further subdivided by the subnet mask 255.255.255.128. 2 networks are created with the address 192.168.10.0 and 192.168.10.128.

The following node addresses are permitted in the two networks:

- 192.168.10.1 – 192.168.10.126
- 192.168.10.129 – 192.168.10.254

The network nodes use logic AND operation for the IP address and the subnet mask to determine whether there is a communication partner in the same network or in a different network. If the communication partner is in a different network, the standard gateway is addressed for passing on the data.

6.2.6 Standard gateway

The standard gateway is also addressed via a 32-bit address. The 32-bit address is represented by 4 decimal numbers separated by decimal points.

Example: 192.168.10.1

The standard gateway establishes a connection to other networks. In this way, a network node that wants to address another node can use logic AND operation with the IP address and the subnet mask to decide whether the desired node is located in the same network. If this is not the case, the node addresses the standard gateway (router), which must be part of the actual network. The standard gateway then takes on the job of transmitting the data packages.

6.3 Setting the IP address parameters

6.3.1 Initial startup

On delivery, the MFE fieldbus interface has the following IP address parameters:

Standard IP address	Subnet mask
192.168.10.4	255.255.255.0

6.3.2 Changing the IP address parameters after initial startup



INFORMATION

With Ethernet units, the IP address is assigned via the engineering system of the IO controller. In this case, it is not mandatory to set the IP address using MOVITOOLS® MotionStudio.

The IP address parameters can be accessed via the Ethernet fieldbus connection or the service interface.

You can change the IP address parameters via Ethernet by one of the following methods:

- Using the MOVITOOLS® MotionStudio software.
- Using the SEW Address Editor.

If the IP address parameters have been assigned to the fieldbus interface unit via a DHCP server, you can only change the parameters by adjusting the settings of the DHCP server.

The ways of changing the IP address parameters only come into effect once the supply voltage (including DC 24 V) has been switched off and back on again.

You can set the type of IP address assignment via the *DHCP Startup Control* parameter in the parameter tree of the MFE fieldbus interface in MOVITOOLS® MotionStudio.

- "Stored IP parameters" setting
The stored IP address parameters are used.
- "DHCP" setting
The IP address parameters are requested by a DHCP server.

6.4 Startup procedure

INFORMATION



This chapter describes the startup procedure for MOVIMOT® MM..D in **Easy** mode. For information on the startup of MOVIMOT® MM..D in Expert mode, refer to the "MOVIMOT® MM..D" operating instructions.

⚠ WARNING

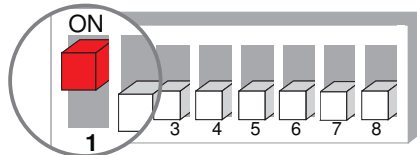


Electric shock from capacitors that have not been fully discharged.

Severe or fatal injuries.

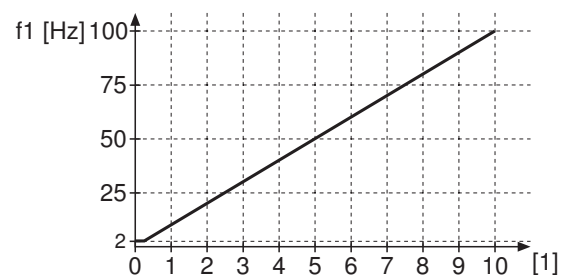
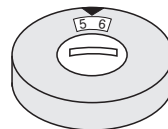
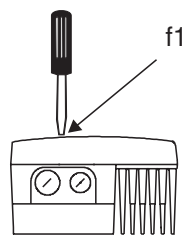
- Disconnect the inverter from the power. Observe the minimum switch-off time after disconnection from the supply system:
– **1 minute**

1. Check for correct installation of the MOVIMOT® inverter and the EtherNet/IP™ interface (MFZ21, MFZ23, MFZ26, MFZ27 or MFZ28).
2. Set DIP switch S1/1 of the MOVIMOT® inverter (see corresponding MOVIMOT® operating instructions) to "ON" (= address 1).



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3. Unscrew the screw plug above the setpoint potentiometer f1 on the MOVIMOT® inverter.
4. Set the maximum speed using setpoint potentiometer f1.



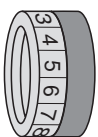
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[1] Potentiometer setting

5. **NOTICE!** Loss of warranted degree of protection if the screw plugs of the f1 setpoint potentiometer or the X50 diagnostics 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} with switch f2.



Function	Setting										
Detent setting	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 time is not specified via fieldbus (2 PD), set the ramp time at switch t1 of the MOVIMOT® inverter.

⇒ The ramp times are based on a setpoint step change of 1500 1/min (50 Hz).

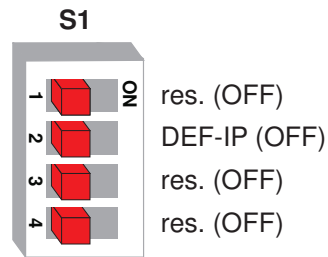


Function	Setting										
Detent setting	0	1	2	3	4	5	6	7	8	9	10
Ramp time t1 [s]	0.1	0.2	0.3	0.5	0.7	1	2	3	5	7	10

8. Check to see if requested direction of rotation has been enabled on the MOVIMOT® inverter.

CW/stop	CCW/stop	Meaning
Activated	Activated	<ul style="list-style-type: none"> Both directions of rotation are enabled.
Activated	Not activated	<ul style="list-style-type: none"> Only CW operation is enabled. Setpoint selection for CCW rotation will stop the drive.
Not activated	Activated	<ul style="list-style-type: none"> Only CCW operation is enabled. Setpoint selection for CW rotation will stop the drive.
Not activated	Not activated	<ul style="list-style-type: none"> The unit is inhibited or the drive is brought to a stop.

9. Make sure that DIP switch S1/2 "DEF-IP" of the MFE EtherNet/IP™ interface is set to "OFF".



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10. Place the MOVIMOT® inverter and the MFE housing cover on the field distributor and screw them on.
11. Switch on the DC 24 V supply voltage of the MFE EtherNet/IP™ interface and the MOVIMOT® inverter.
- ⇒ Startup has been completed successfully when the "MS" LED at the MFE.. fieldbus interface lights up green.
12. Configure the MFE EtherNet/IP™ interface at the EtherNet/IP™ controller.

INFORMATION



With EtherNet/IP™, no further settings are necessary on the drive.

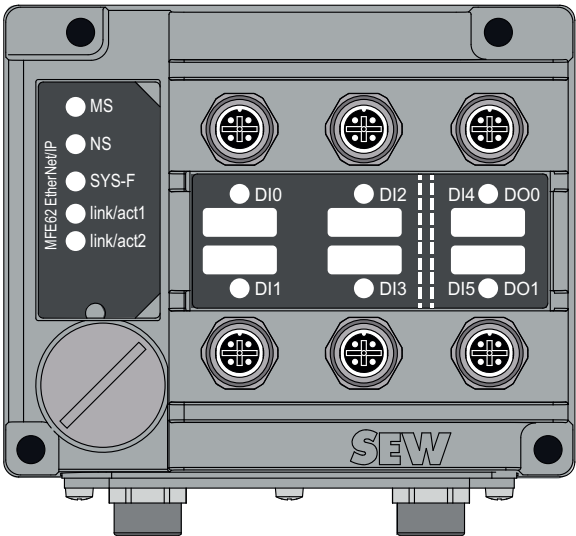
The entire EtherNet/IP™ configuration is performed via software tools. For more information about configuration, refer to chapter "EtherNet/IP™ configuration" in the manual.

7 Function

7.1 Meaning of LED display

The MFE EtherNet/IP™ interface has 5 LEDs for diagnostic purposes.

- The "MS" LED indicates the operating state of the MFE fieldbus interface.
- The "NS" LED indicates the operating state of the EtherNet/IP™ network.
- "SYS-F" LED for displaying system errors.
- The "Link/act1" LED indicates the activity of the EtherNet/IP™ port 1 (X11).
- The "Link/act2" LED indicates the activity of the EtherNet/IP™ port 2 (X12).



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7.1.1 LEDs "MS" and "NS"

The following table lists the statuses of the "MS" (Module Status) and "NS" (Network Status) LEDs:

LED		Meaning	Measure
MS Off	NS Off	MFE62 not ready for operation. No DC 24 V supply.	<ul style="list-style-type: none">• Check DC 24 V supply.• Switch MFE62 on again.• If this occurs repeatedly, replace MFE62.
MS Red/ green Flashing	NS Red/ green Flashing	MFE62 is performing an LED test. This status should only be activated briefly during startup.	-

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LED		Meaning	Measure
MS Red Flashing	NS Red Lights up	Conflict detected while assigning the IP address. Another station in the network uses the same IP address.	<ul style="list-style-type: none"> Check whether there is a unit in the network with the same IP address. Change the IP address of the MFE62. Check the DHCP settings for assigning an IP address of the DHCP server (only when a DHCP server is used).
MS Red Lights up	NS X	Error in the MFE62 assembly hardware.	<ul style="list-style-type: none"> Switch MFE62 on again. Restore MFE62 to factory settings. If this occurs repeatedly, replace MFE62.
MS Green Flashing	NS Off	MFE62 does not have any IP parameters yet. Starting TCP IP stack. If the status continues and the DHCP DIP switch is activated, MFE62 waits for data from the DHCP server.	<ul style="list-style-type: none"> Set DIP switch S11/1 of the DHCP server to "OFF". Check the DHCP server connection (only if DHCP is activated and the status continues).
MS Green Lights up	NS X	MFE62 assembly hardware OK.	-
MS X	NS Red Flashing	Timeout delay of the controlling connection has expired. The state is reset by restarting communication.	<ul style="list-style-type: none"> Check the bus connection of the MFE62. Check the master/scanner. Check all the cables in the Ethernet.
MS X	NS Green Flashing	No controlling connection.	-
MS X	NS Green Lights up	There is no controlling connection to a master/scanner.	-

X Any state

7.1.2 "SYS-F" LED

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

LED SYS-F	Meaning	Measure
Off	Standard operating state. MFE is currently exchanging data with the MOVIMOT® inverter.	-
Red Lights up	MFE cannot exchange data with the MOVIMOT® drive.	Check the RS485 wiring between MFE and MOVIMOT® drive. Check the voltage supply of the MOVIMOT® drive.
Red Flashing (2 s cycle)	MFE initialization error or serious unit error	Use MOVITOOLS® MotionStudio to read out the fault status. Determine cause and acknowledge error.

7.1.3 LEDs "Link/act1" and "Link/act2"

The following table shows the statuses of the "Link/act1" and "Link/act2" LEDs:

LED	Meaning
Green Lights up	Ethernet cable connects device to other Ethernet stations.
Red Flashing	"Localizing" function activated. The LED flashes red when the "Localize" check box was activated in the MOVITOOLS® MotionStudio Address Editor.
Yellow Lights up	Ethernet communication is active.

8 Service

INFORMATION



For information on service and maintenance of the MOVIMOT® inverters, refer to the respective operating instructions.

8.1 Fieldbus Interfaces error table

Code	Meaning	Response	Possible cause	Measure
25	EEPROM	Rapid stop of MOVIMOT® drives DO = 0	Error while accessing EEPROM	<ul style="list-style-type: none"> • Activate "Delivery state" settings, perform reset and set parameters again. • If the problem occurs again, contact SEW-EURODRIVE Service.
28	Fieldbus timeout	Process output data = 0 DO = 0 (can be switched off)	No communication between master and slave within the projected response monitoring.	<ul style="list-style-type: none"> • Check master communication routine.
37	Watchdog error	Communication to MOVIMOT® stopped DO = 0	Error while executing system software	<ul style="list-style-type: none"> • Contact SEW-EURODRIVE Service.
28	System software error			
45	Initialization error		Error after self-test during reset	<ul style="list-style-type: none"> • Perform a reset. If the problem occurs again, contact SEW-EURODRIVE Service.
98	CRC sum error		MFE detected a faulty CRC sum in the internal flash memory.	<ul style="list-style-type: none"> • Contact SEW-EURODRIVE Service.
111	MOVIMOT® Timeout	No response	MOVIMOT® could not be addressed by the MFE within the timeout interval.	<ul style="list-style-type: none"> • Check voltage supply and RS485 wiring. • Check address of configured nodes.
112	Periphery error		Short circuit digital output Overload digital output Overload sensor supply	<ul style="list-style-type: none"> • Analyze MFE status word and correct fault.

9 Declaration of conformity

EC Declaration of Conformity



900040110

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

declares under sole responsibility that the



field distributors of the series

	MF../Z.3.
	MQ../Z.3.
	MF../Z.6.
	MQ../Z.6.
	MF../Z.7.
	MQ../Z.7.
	MF../Z.8.
	MQ../Z.8.

are in conformity with

Low Voltage Directive 2006/95/EC

EMC Directive 2004/108/EC 4)

Applied harmonized standards: EN 50178:1997
 EN 61000-6-2:2005
 EN 61000-6-3:2001+ A11:2004

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

Bruchsal 04.12.13

Place Date Johann Soder a) b)
 Managing Director Technology

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

EC Declaration of Conformity

Translation of the original text

SEW
EURODRIVE

900030210



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

declares under sole responsibility that the

frequency inverters of the series **MOVIMOT® D**

possibly in connection with **AC motor**

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)**

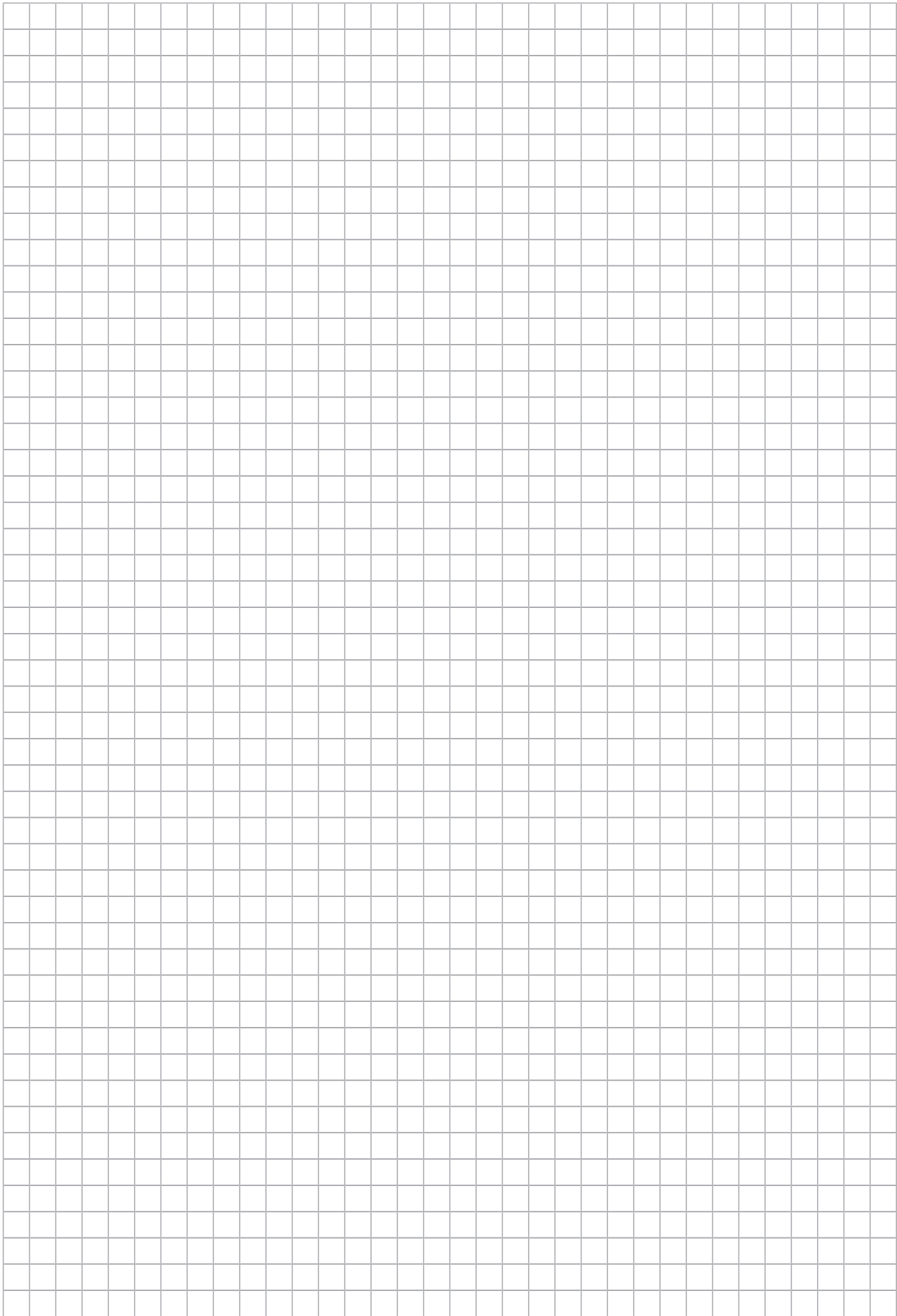
Applied harmonized standards:
EN ISO 13849-1:2008
EN 61800-5-2: 2007
EN 60034-1:2010
EN 61800-5-1:2007
EN 60664-1:2007
EN 61800-3:2004 + A1:2012

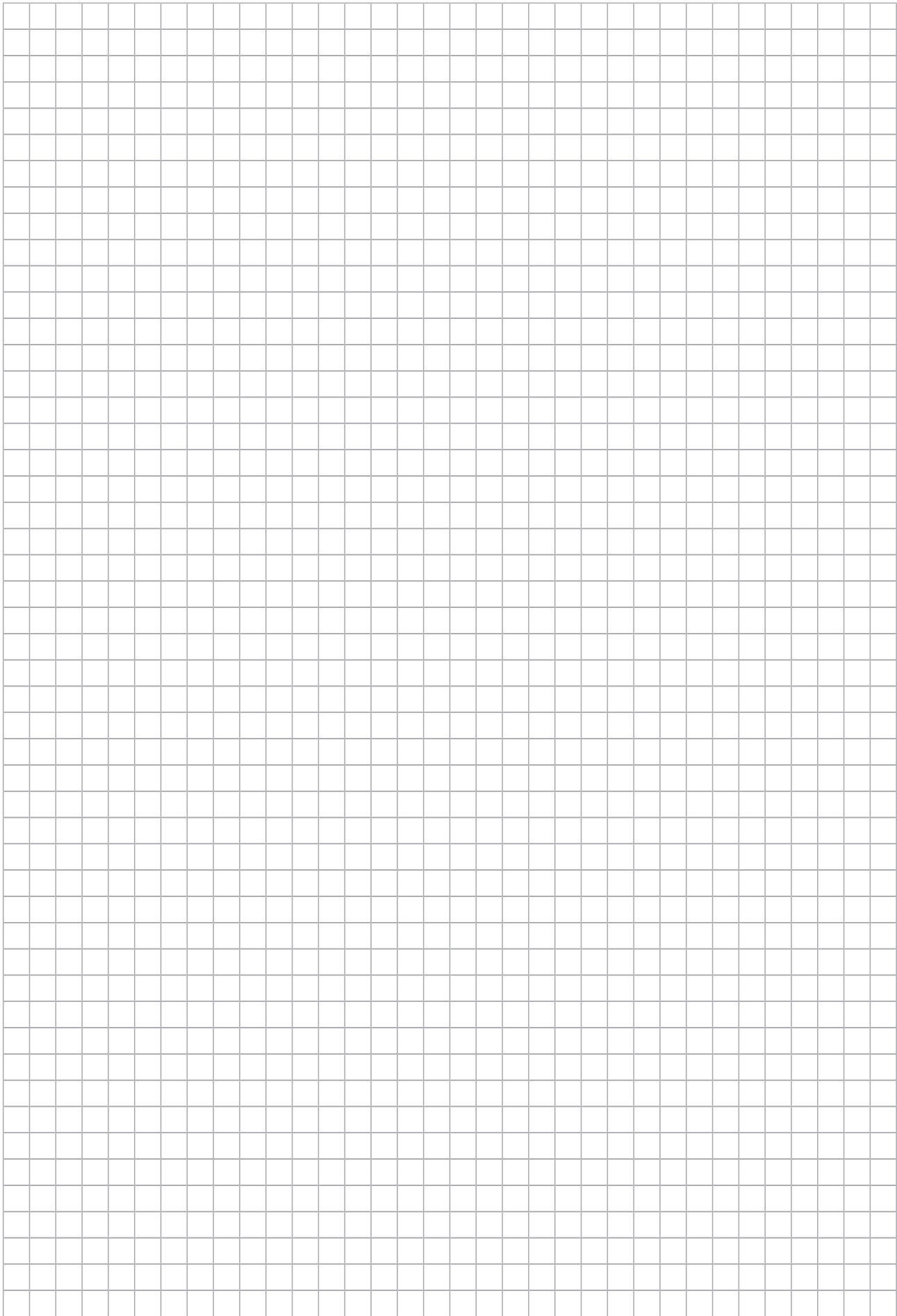
- 4) According to the EMC Directive, the listed products are not independently operable products. EMC assessment is only possible after these products have been integrated in an overall system. For the assessment, the product was installed in a typical plant configuration.

Bruchsal **04.12.2014**

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

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









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Driving the world

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