



SEW
EURODRIVE

Manual



MOVIDRIVE[®] technology Startup with PROFIBUS DP-V1



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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 work on the product.

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

1.2 Content of the documentation

The descriptions in this documentation apply to the software and firmware versions applicable at the time of publication. These descriptions might differ if you install later software or firmware versions. In this case, contact SEW-EURODRIVE.

1.3 Other applicable documentation

This documentation supplements the operating instructions of the associated product. Use this documentation only in connection with the operating instructions.

Observe the following applicable documentation:

- "MOVIDRIVE® technology Application Inverters" operating instructions
- "MOVIDRIVE® technology Application Inverters" product manual

Always use the latest edition of the documentation and the software.

The SEW-EURODRIVE website (www.sew-eurodrive.com) provides a wide selection of documents for download in various languages. If required, you can also order printed and bound copies of the documentation from SEW-EURODRIVE.

1.4 Structure of the safety notes

1.4.1 Meaning of signal words

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

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

1.4.2 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.

Meaning of the hazard symbols

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

Hazard symbol	Meaning
	General hazard

1.4.3 Structure of embedded safety notes

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

This is the formal structure of an embedded safety note:

⚠ SIGNAL WORD! Type and source of hazard. Possible consequence(s) if disregarded. Measure(s) to prevent the hazard.

1.5 Decimal separator in numerical values

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

Example: 30.5 kg

1.6 Rights to claim under limited warranty

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

1.7 Product names and trademarks

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

1.8 Copyright notice

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2 Safety notes

2.1 Preliminary information

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

2.2 Target group

Software specialist Any work with the software may only be performed by a specialist with suitable training. A specialist in this context is someone who has the following qualifications:

- Appropriate training
- Knowledge of this documentation and other applicable documentation
- SEW-EURODRIVE recommends additional training for products that are operated using this software.

2.3 Network security and access protection

A bus system makes it possible to adapt electronic drive technology components to the particulars of the machinery within wide limits. There is a risk that a change of parameters that cannot be detected externally may result in unexpected but not uncontrolled system behavior and may have a negative impact on operational safety, system availability, or data security.

Ensure that unauthorized access is prevented, especially with respect to Ethernet-based networked systems and engineering interfaces.

Use IT-specific safety standards to increase access protection to the ports. For a port overview, refer to the respective technical data of the device in use.

2.4 Designated use

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

If you also use other components, also pay attention to the technical data and conditions that apply to them.

3 Introduction

3.1 Short designation

The following short designations are used in this document.

Type designation	Short designation
Inverter of the MOVI-C® modular automation system	Inverter
MOVIDRIVE® technology application inverter	Inverter
PROFIBUS DP-V1	PROFIBUS
Higher-level controller	PLC
MOVISUITE® standard	MOVISUITE®

3.2 Content of this document

This document describes the startup of a MOVIDRIVE® technology application inverter with the PROFIBUS fieldbus interface using a higher-level programmable logic controller (PLC) from Siemens as an example.

For control via the PROFIBUS fieldbus interface, the CFP21A fieldbus card is installed in the inverter. The CFP21A fieldbus card can be used with a MOVIDRIVE® technology application inverter with firmware version V5.0 or higher.

3.3 MOVISUITE® engineering software

MOVISUITE® engineering software is the operating platform for all hardware components and software components of the MOVI-C® modular automation system.

The following engineering tasks can be conveniently performed with MOVISUITE®:

- Project planning
- Startup
- Parameterization
- Programming
- Diagnostics

INFORMATION



MOVISUITE® cannot be used to perform engineering tasks on the inverter via the PROFIBUS fieldbus interface. For communication, the engineering PC with the US-M21A interface adapter or the CBG21A keypad must be connected to the inverter.

4 PROFIBUS network

4.1 PROFIBUS communication standard

PROFIBUS (**Process Field Bus**) is a communication standard for the automation of PROFIBUS and PROFINET International (PI).

The modular range of functions makes PROFIBUS a flexible solution for all applications and markets. The following applications can be implemented with PROFIBUS:

- Applications for production and process automation
- Applications for the spectrum of drive technology through to isochronous motion control applications

INFORMATION



When planning and starting up your PROFIBUS network, follow the instructions and regulations of the PROFIBUS Nutzerorganisation e.V. (PNO) and of PROFIBUS and PROFINET International (PI).

Detailed technical information on PROFIBUS, white papers, planning and installation notes as well as guidelines can be found on the homepage of PROFIBUS and PROFINET International (PI) (www.profibus.com).

4.2 Communication protocol

PROFIBUS communication is based on a master-slave principle in which a master (higher-level controller, PC or control system) cyclically requests the connected slaves (field devices, inputs/outputs or drives) to exchange data. The master is the active communication station and the slaves are the passive ones.

The PROFIBUS DP (Decentralized Periphery) communication protocol defines the rule for cyclic and acyclic communication. The version V0 of the communication protocol describes the cyclic communication. In version V1, the version V0 is supplemented with functionalities for acyclic communication, such as parameterization, operation, monitoring, and handling of diagnostic alarms.

4.3 Shielding and routing bus cables

NOTICE

Flowing compensating currents due to the incorrect cable type, inadequate shielding, and/or the incorrect routing of bus cables.

Damage to property.

- In the event of fluctuations in the ground potential, a compensating current may flow via the bilaterally connected shield that is also connected to the protective earth (PE). Make sure you always supply adequate equipotential bonding in accordance with the relevant IEC regulations.

The PROFIBUS fieldbus interface supports RS485 transmission technology. The cable type A specified by IEC 61158 for PROFIBUS is used as a shielded twisted pair cable.

Do the following to minimize electrical interference:

- Tighten the retaining screws of connectors, modules and equipotential bonding cables below the guaranteed yield strength.
Tighten the retaining screws of connectors, modules and equipotential bonding cables to the tightening torque specified by the manufacturer.
- Only use connectors with a metal housing or a metalized housing.
- Connect the shielding in the connector over a wide surface area.
- Apply the shielding of the bus cable on both ends.
- Always route the signal and bus cables spatially separated from power cables (motor leads) and, whenever possible, in separate cable ducts.
- Use metallic, grounded cable racks in industrial environments.
- Route the signal cable and the corresponding equipotential bonding close to each other using the shortest possible route.
- Avoid using plug connectors to extend bus cables.
- Route the bus cables closely along existing grounding surfaces.


4.4 Bus termination

To avoid disturbances of the bus system by e.g. reflections, connect the physically first and last station of the PROFIBUS segment with a PROFIBUS cable whose plug has an integrated bus terminating resistor.

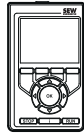
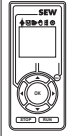
Switch on the bus terminating resistors for these connectors.

5 Engineering accesses of the inverter

The following table shows the access options from an engineering PC to the inverter.

Connection to device	Connection: Via the USB interface of the PC		
	Cable PC – USM21A	Cable USM21 – device	Interface adapter USM21A
Part number	–	18123864	28231449
X32 D-sub plug connector , 9-pin, male	USB 2.0 connection cable ¹⁾	RJ10/D-sub connection cable, Length: 1.5 m	

1) Included in the delivery of the interface adapter.

Connection to device	Connection: Via the USB interface of the PC			
	Cable PC – CBG..	Cable CBG.. – device	Keypad	
Part number	25643517	–	CBG21A	CBG11A
X32 D-sub plug connector , 9-pin, male	Connection cable USB-A/USB-2.0 Mini B Length: 3 m	Directly plugged		

6 PROFIBUS operating characteristics

The inverter is a PROFIBUS slave.

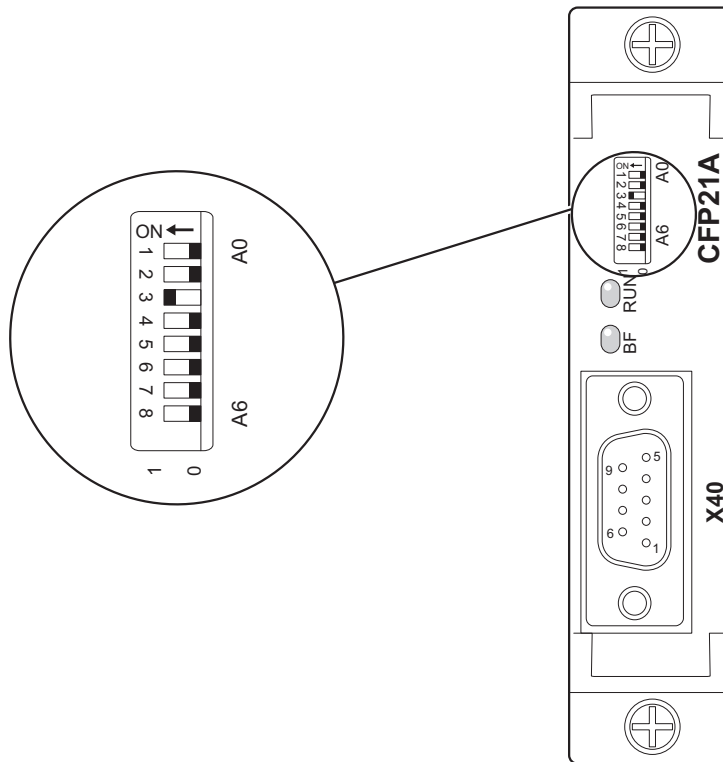
6.1 PROFIBUS fieldbus interface

The supported features of the PROFIBUS fieldbus interface can be found in chapter "Technical data" in the operating instructions of the respective inverter.

6.2 PROFIBUS address

The PROFIBUS address of the inverter is set using DIP switches on the CFP21A fieldbus card. The fieldbus card supports the address range 1 to 125.

PROFIBUS address 4 is set in delivery state.



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DIP switch	Setting	State	Calculation
1	OFF	0	$2^0 \times 0 = 0$
2	OFF	0	$2^1 \times 0 = 0$
3	ON	1	$2^2 \times 1 = 4$
4	OFF	0	$2^3 \times 0 = 0$
5	OFF	0	$2^4 \times 0 = 0$
6	OFF	0	$2^5 \times 0 = 0$
7	OFF	0	$2^6 \times 0 = 0$
8	Not used		

If the PROFIBUS address is changed during ongoing operation, the change is only effective after the inverter is switched off and switched on again.

The current PROFIBUS address is displayed in MOVISUITE®.

6.3 Bus-specific LEDs for PROFIBUS

6.3.1 "BF" LED

The "BF" LED indicates communication errors on the PROFIBUS interface.

Status LED	Possible cause	Measure
Off	Error-free operating state. The device is exchanging data with the PROFIBUS master (data exchange state).	–
Red Illuminated	<ul style="list-style-type: none"> PROFIBUS master not in operation. The connection to the PROFIBUS master has failed. The device does not detect a PROFIBUS baud rate. Bus communication has been interrupted. 	<ul style="list-style-type: none"> Check the PROFIBUS connection of the device. Check all the cables in the PROFIBUS network. Check the configuration of the PROFIBUS master.
Red Flashing with 2 Hz	<ul style="list-style-type: none"> The device detects the PROFIBUS baud rate but is not addressed by the PROFIBUS master. The device was not configured or was configured incorrectly in the PROFIBUS master. 	<ul style="list-style-type: none"> Check the PROFIBUS address set in the device and in the engineering tool of the PROFIBUS master. Check the configuration of the PROFIBUS master. Check to see that you use the matching device description file (GSD file).

6.3.2 "RUN" LED

The "RUN" LED indicates whether the bus electronics is functioning properly.

Status LED	Possible cause	Measure
Green	PROFIBUS hardware OK. Bus electronics without faults.	–
Off	The hardware of the bus electronics is faulty.	Switch the device off and back on again. If the fault occurs repeatedly, contact SEW-EURODRIVE Service.
Red Flashing with 2 Hz	The PROFIBUS address is set to 0 or to a value greater than 125.	<ul style="list-style-type: none"> Check the PROFIBUS address set in the device. Reset the device.

6.4 Device description file

INFORMATION



A modified device description file can cause malfunctions in the device.

Do **not** change or expand entries in the device description file. SEW-EURODRIVE assumes no liability for malfunctions of the device caused by a modified device description file.

A requirement for the proper configuration of the inverter with PROFIBUS fieldbus interface is that the matching device description file (GSD file) is used in the engineering tool of the PROFIBUS master. The file contains all the relevant data for engineering and for the data exchange of the inverter.

SEW-EURODRIVE provides the following device description file for the inverter:
SEW_6011.gsd

The current version of the device description file is available on the homepage of SEW-EURODRIVE (www.sew-eurodrive.com). Search for "GSD file" on the [Online Support] > [Data & Documents] > [Software] page.

6.5 Process data configuration

The inverter is controlled via the process data channel. Process data words are mapped in the I/O or peripheral area of the PLC (PROFIBUS master) and can be addressed as usual.

The following table shows the assignments of the PROFIBUS slot model on the inverter:

Slot	Process data module
1	Reserved
2	Module I/O (05 words) for the MOVIKIT® Velocity Drive software module
	Module I/O (08 words) for the MOVIKIT® Positioning Drive software module
	Module I/O 01 – 16 (number of process data words according to the configuration of the device)
3 – 5	Can be assigned in the same way as slot 2.

INFORMATION



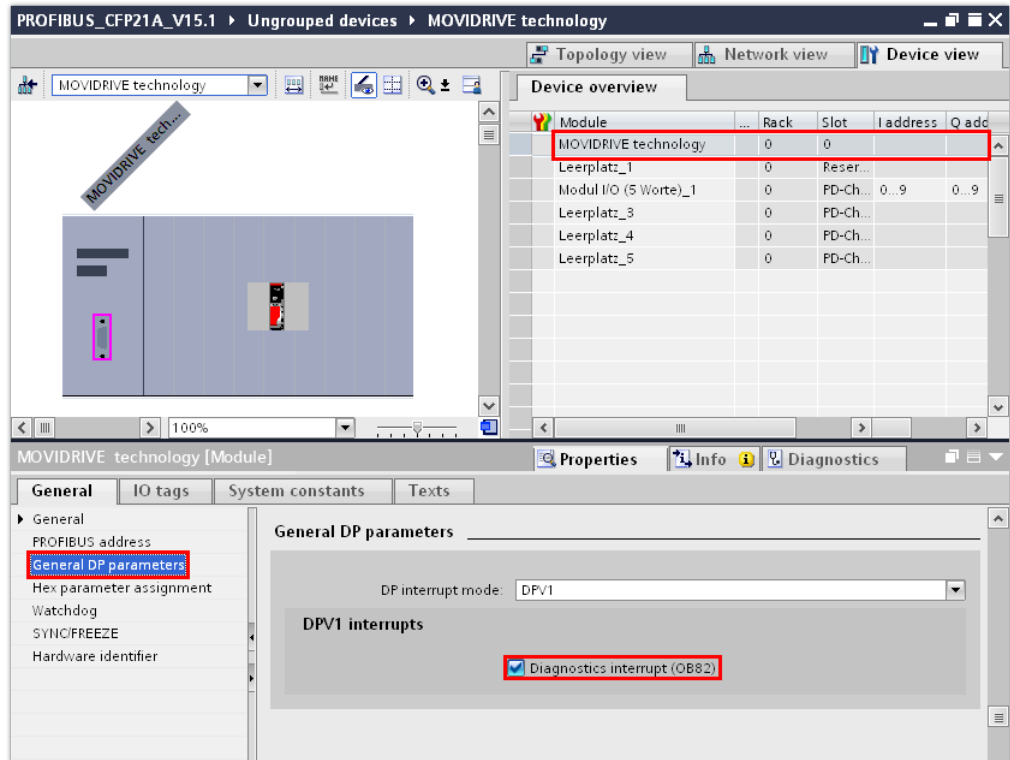
A maximum of 16 process data words may be assigned to the slots of the slot model.

6.6 PROFIBUS diagnostic alarm

The PROFIBUS fieldbus interface supports diagnostic alarms in the event of a device fault. The diagnostic alarm is enabled in the delivery state of the inverter. You can enable or disable diagnostic alarms in the TIA Portal engineering tool in the device view.

Proceed as follows:

1. In the device overview, select slot 0 of the inverter.
2. Enable/disable the diagnostic alarm in the inspector window (lower editor area) in the "General DP parameters" group.



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- ⇒ Fault messages of the device (fault number and description of the fault) are reported as diagnostic alarm and are displayed as text in the module diagnostics.

7 Control with MOVIKIT® software modules

Users can configure the flexible process data interface of the devices individually. In this way, users are granted maximum flexibility but they also need detailed knowledge of the device, the parameters, and the configuration options.

INFORMATION



Process data words with SIMATIC S7 data lengths of 3 bytes or more than 4 bytes must be transferred via the system functions SFC14 and SFC15 due to data consistency.

7.1 MOVIKIT® software modules

SEW-EURODRIVE provides preconfigured software modules for standard automation technology tasks.

MOVIKIT® software modules offer the following advantages:

- Reduced startup time
- Defined, tested scope of functions
- Standardized process data interface
- Sample modules and sample projects for the engineering tool TIA Portal

Further sample modules and sample projects for other engineering tools are available on request.

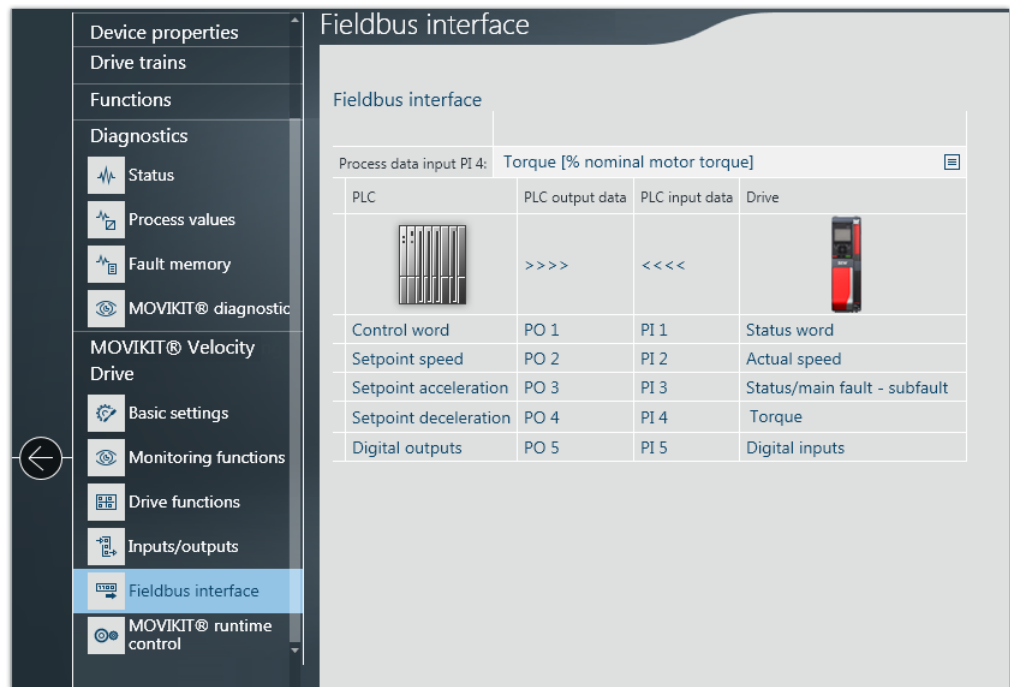
The software modules can be taken into operation using the MOVISUITE® engineering software. This allows for easy and fast startup without detailed knowledge of how to configure the process data and setpoints of the device.

7.2 MOVIKIT® Velocity Drive software module

MOVIKIT® Velocity Drive includes the functions of a speed-variable drive.

A sample project for the TIA Portal engineering tool can be found on the homepage of SEW-EURODRIVE (www.sew-eurodrive.com). Search for "Movikit" on the [Online Support] > [Data & Documents] > [Software] page.

For information on the software module, refer to the "MOVIKIT® Positioning Drive / Velocity Drive" manual.



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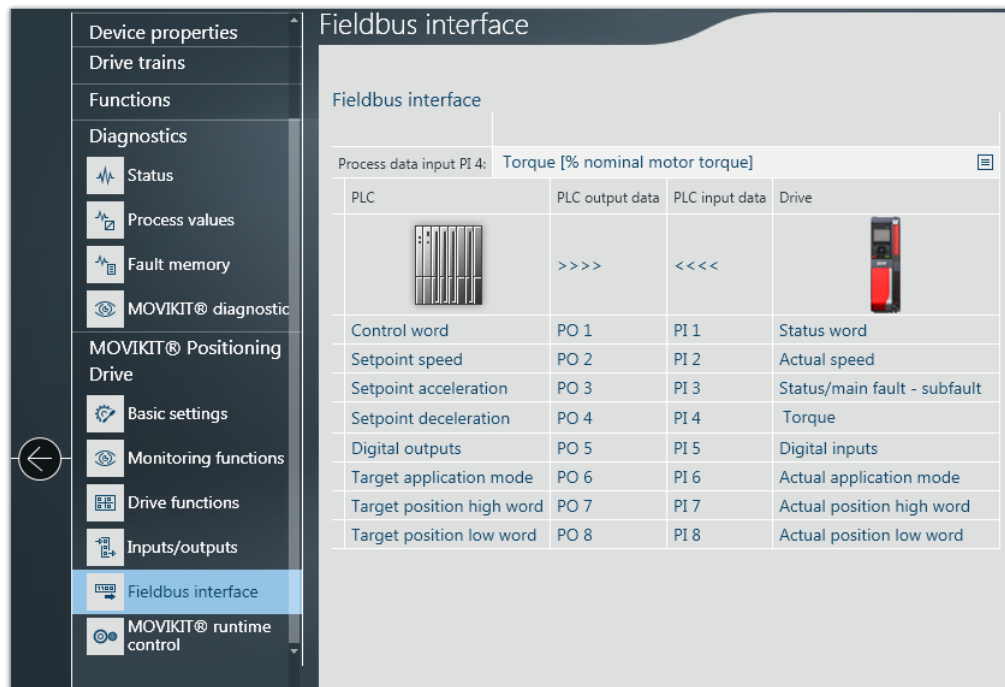
7.3 MOVIKIT® Positioning Drive software module

MOVIKIT® Positioning Drive includes the functions of a positioning-capable drive. The following operating modes are supported:

- Jog mode
- Speed control
- Referencing
- Linear positioning
- Modulo positioning

A sample project for the TIA Portal engineering tool can be found on the homepage of SEW-EURODRIVE (www.sew-eurodrive.com). Search for "Movikit" on the [Online Support] > [Data & Documents] > [Software] page.

For information on the software module, refer to the "MOVIKIT® Positioning Drive / Velocity Drive" manual.



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8 Parameter setting via function block

The SEW_MOVI-C_SingleParameterAccess [FB200] function block is used for communication between the PLC and the lower-level inverters of SEW-EURODRIVE.

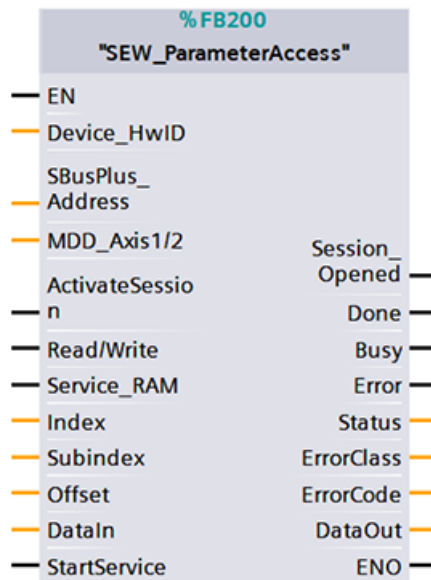
Advantages of the function block:

- Simple engineering of inverters
- Communication via PROFIBUS and PROFINET
- The parameters are read and written via acyclical communication services

From a functional point of view, the function block can be regarded as the successor to the acyclic parameter services of the SMLP (Simple MOVILINK® Protocol) protocol from SEW-EURODRIVE.

A sample project for the TIA Portal engineering tool can be found on the homepage of SEW-EURODRIVE (www.sew-eurodrive.com). Search for "Individual parameter access" on the [Online Support] > [Data & Documents] > [Software] page.

For information on platform availability, use and control via function block, refer to the "MOVI-C® SingleParameterAccess" manual integrated in the sample project.



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9 Startup with PROFIBUS

Startup is described in detail by way of an example. In the example, a MOVIDRIVE® technology application inverter is integrated into a PROFIBUS network.

9.1 Connecting engineering PC and inverter

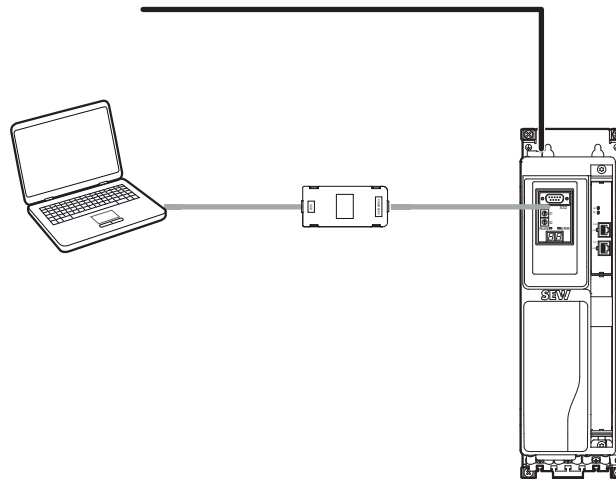
The engineering PC can be connected to the inverter in several ways:

- "Connection via engineering interface" (→ 21)
- "Connection via CBG.. keypad" (→ 22)

9.1.1 Connection via engineering interface

A point-to-point connection can be established to the engineering interface of the inverter via the USM21A interface adapter.

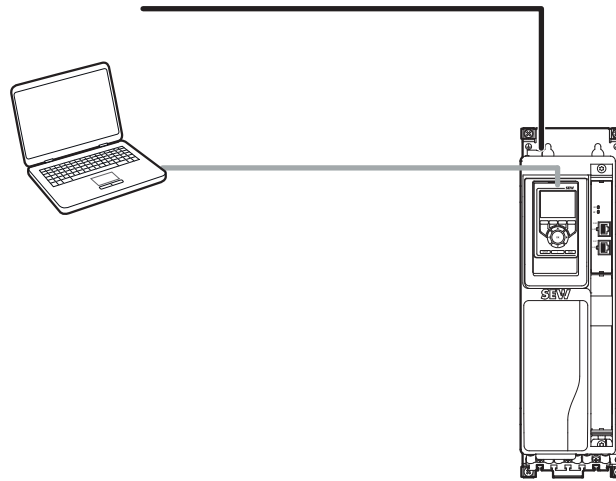
The interface adapter is connected to the engineering PC via USB interface.



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9.1.2 Connection via CBG.. keypad

A point-to-point connection to the inverter can be established via the CBG.. keypad. The CBG.. keypad is connected to the engineering PC via USB interface.



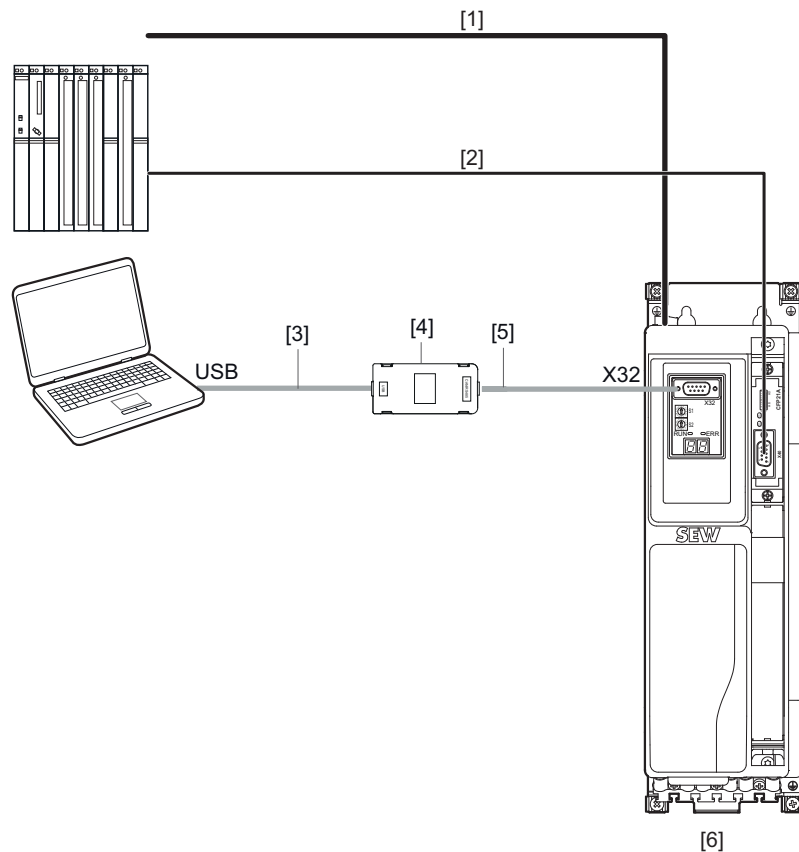
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9.2 Integrating the inverter into a PROFIBUS network

The following device topology is used in the example:

- Higher-level controller (PLC) SIMATIC S7
- MOVIDRIVE® technology MDX9.. application inverter
- USM21A interface adapter

The following figure is a schematic representation of the device topology:



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- [1] DC 24 V supply voltage
- [2] Fieldbus connection
- [3] USB connection cable USB A-B
- [4] USM21A interface adapter
- [5] Interface cable with RJ10 connector and 9-pin D-sub connector
- [6] MOVIDRIVE® technology application inverter

For configuration and startup of the devices, the following tools are used:

- MOVISUITE® for inverters from SEW-EURODRIVE
- TIA Portal (SIMATIC STEP 7) from Siemens for the PLC

The inverter is integrated into the PROFIBUS network in several process steps:

- "Configuring the fieldbus stations" (→ 23)
- "Configuring the inverter in MOVISUITE®" (→ 26)

9.2.1 Configuring the fieldbus stations

Fieldbus stations in the sample project

In the sample project, the following devices are the fieldbus stations:

- The PLC is the PROFIBUS master.
- The inverter is the PROFIBUS slave.

The devices are configured in the TIA Portal, version V14.

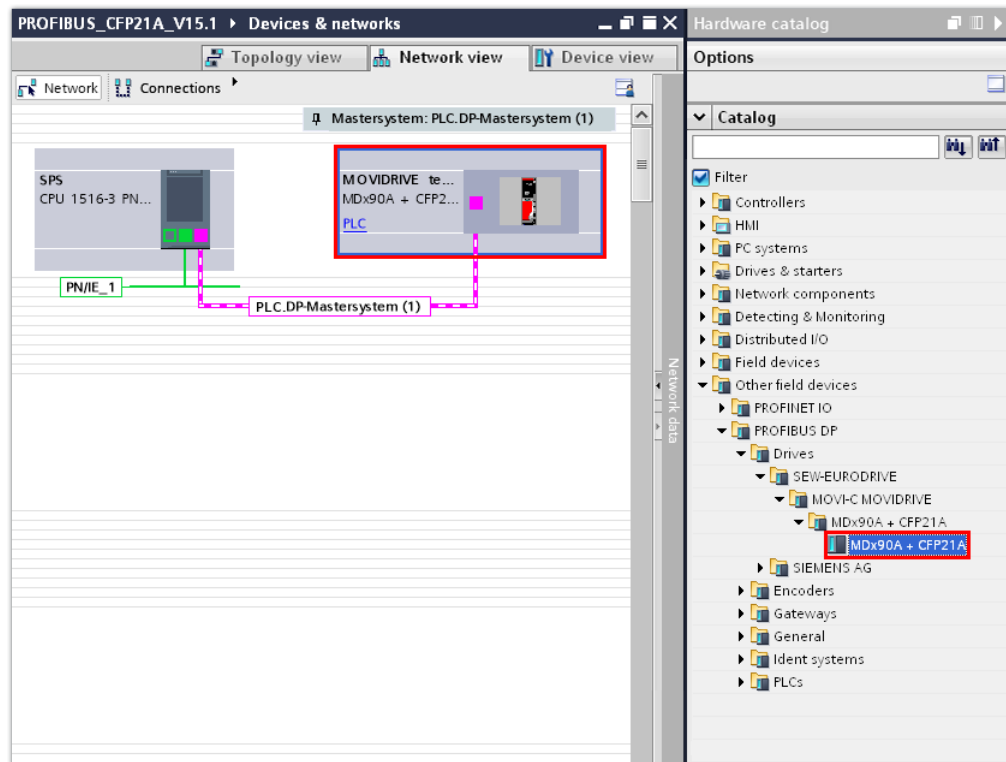
Integrating and configuring an inverter in the PROFIBUS network

The inverter must be added to the TIA Portal project, connected with the PLC, and configured.

During configuration, the inverter is assigned a PROFIBUS address and process data with addresses.

Proceed as follows:

- ✓ The PROFIBUS address of the inverter is the address you have already set via the DIP switches of the CFP21A fieldbus card (see "PROFIBUS address" (→ 13)).
 - ✓ You have already downloaded the device description file (GSD file) of the inverter from the SEW-EURODRIVE homepage (www.sew-eurodrive.com) and saved it locally on the engineering PC.
1. Start the TIA Portal and create a new TIA Portal project.
 2. Install the device description file in the TIA Portal.
 3. Add the PLC to the project. Enter the IP address parameters of the PLC and set the PROFIBUS fieldbus interface as the interface type.
 4. Insert the master system at the PROFIBUS fieldbus interface of the PLC.
 5. Open the hardware catalog. Under [More field devices] > "PROFIBUS DP" > [Drives] > [SEW-EURODRIVE] > [MOVI-C MOVIDRIVE], select the entry for the MOVIDRIVE® technology application inverter and assign this entry in the network view of the PLC.



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6. In the inspector window (lower editor area), in the "PROFIBUS address" group, from the "Address" drop-down menu, select the PROFIBUS address of the inverter that you have set on the fieldbus card using the DIP switches.
7. Assign a name to the inverter in the "General" group. This is the name under which the device is shown in the TIA Portal project.

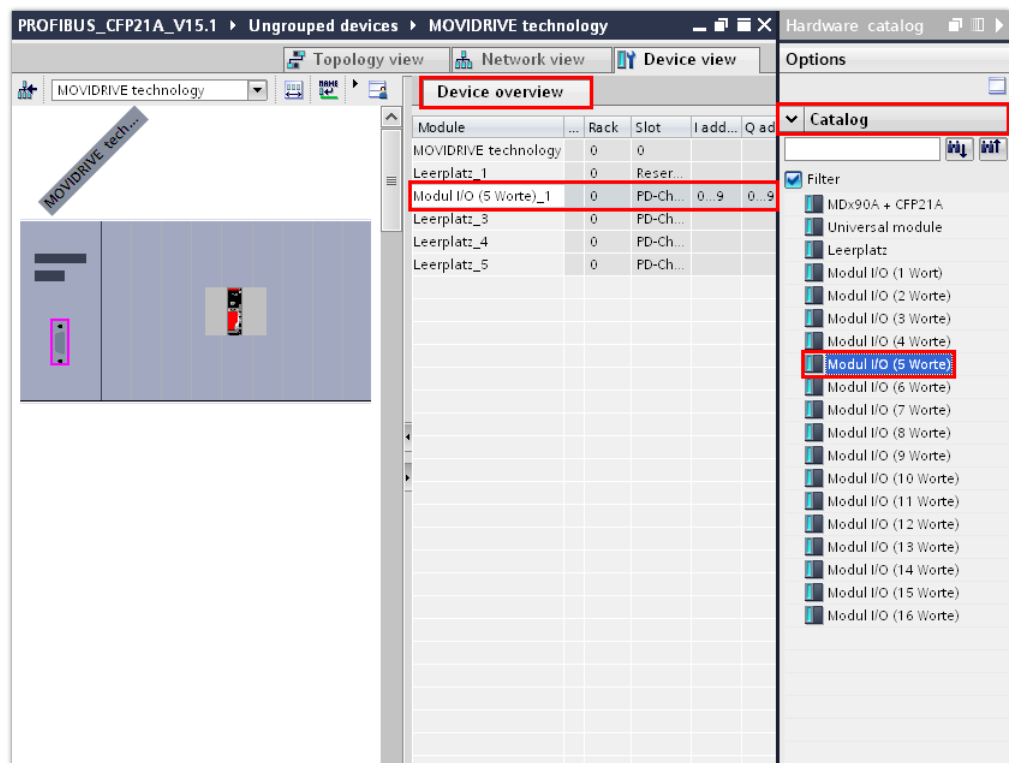
8. In the device overview, right-click to open the context menu of the slot in which you want to insert the inverter (lower-level slave), and delete the existing empty space entry.
9. Add the required number of process data words from the hardware catalog using drag and drop. Instead, you can add the process data words by double-clicking the module in the device overview. They will be inserted at the proper slot automatically.

INFORMATION



Slot 1 is reserved. You can add standard process data words to the device overview to slot 2 and higher.

For the amount of process data words currently set in the inverter, refer to the MOVISUITE® engineering software. For further information on the assignment of process data words, refer to the chapter "Process data configuration" (→ 15).



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10. Load the project to the PLC using the programming interface used.
11. Save the TIA Portal project.

9.2.2 Configuring the inverter in MOVISUITE®

The inverters are configured in several process steps:

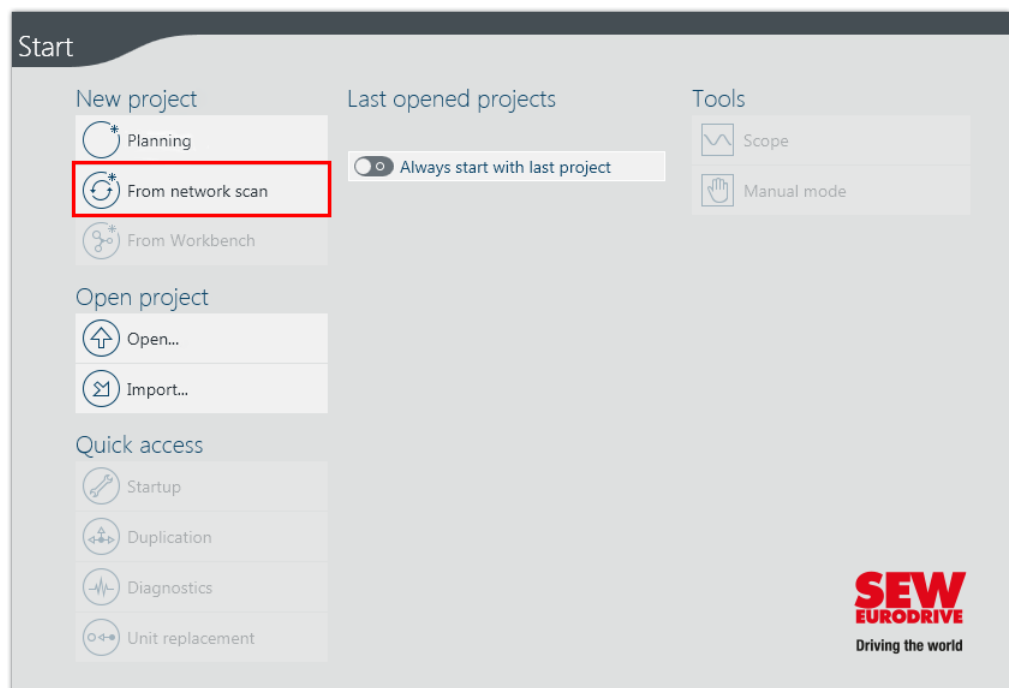
- "Scanning the network for devices" (→ 26)
- "Applying inverter to MOVISUITE®" (→ 28)

Scanning the network for devices

Proceed as follows:

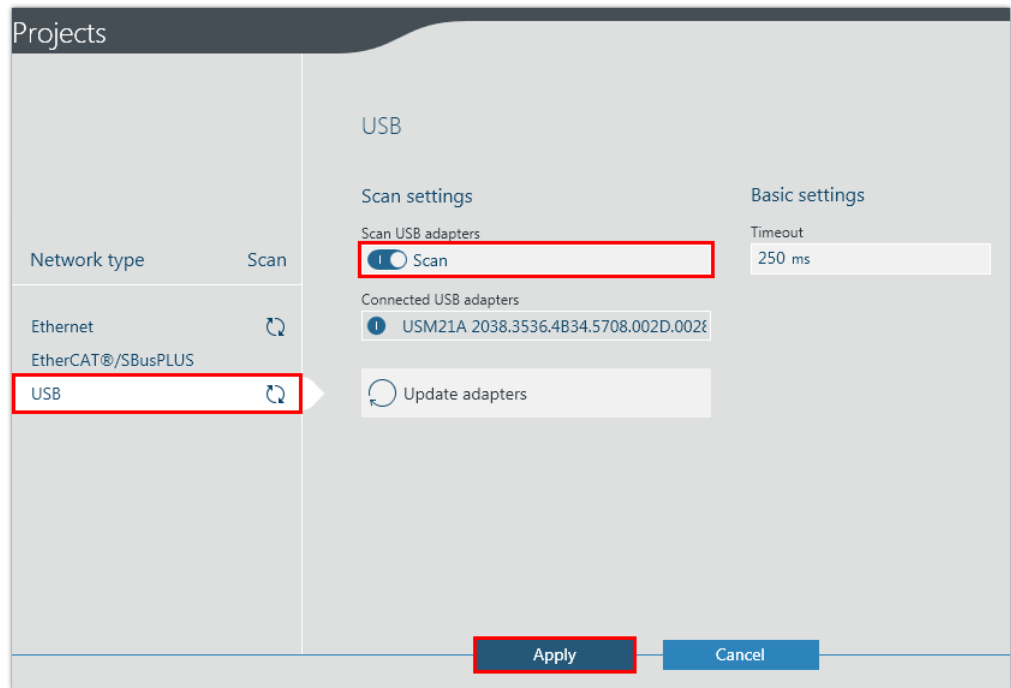
- ✓ The connection between engineering PC and inverter is established using the US-M21A interface adapter.

1. Start MOVISUITE®.
2. Create a new MOVISUITE® project from a network scan.



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3. Activate the network type "USB" and the slide switch "Scan".



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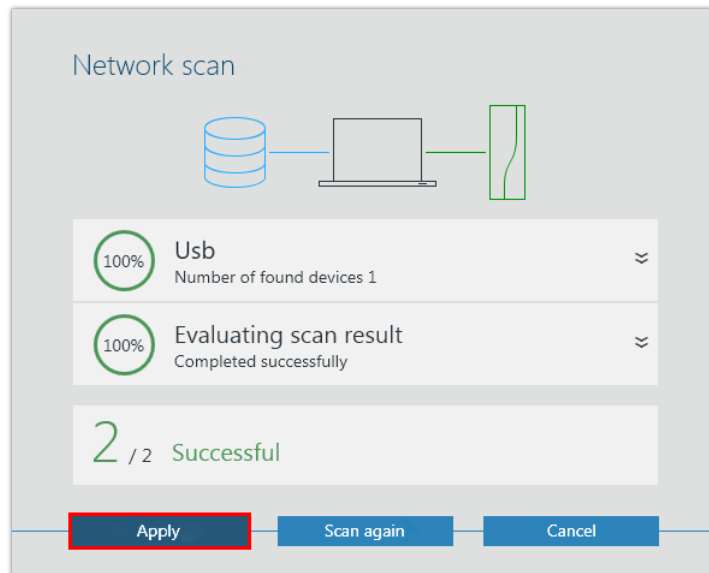
4. Apply the settings and perform the network scan.

Applying inverter to MOVISUITE®

The MOVIDRIVE® technology application inverter is detected during the network scan. Proceed as follows:

✓ You have started a network scan.

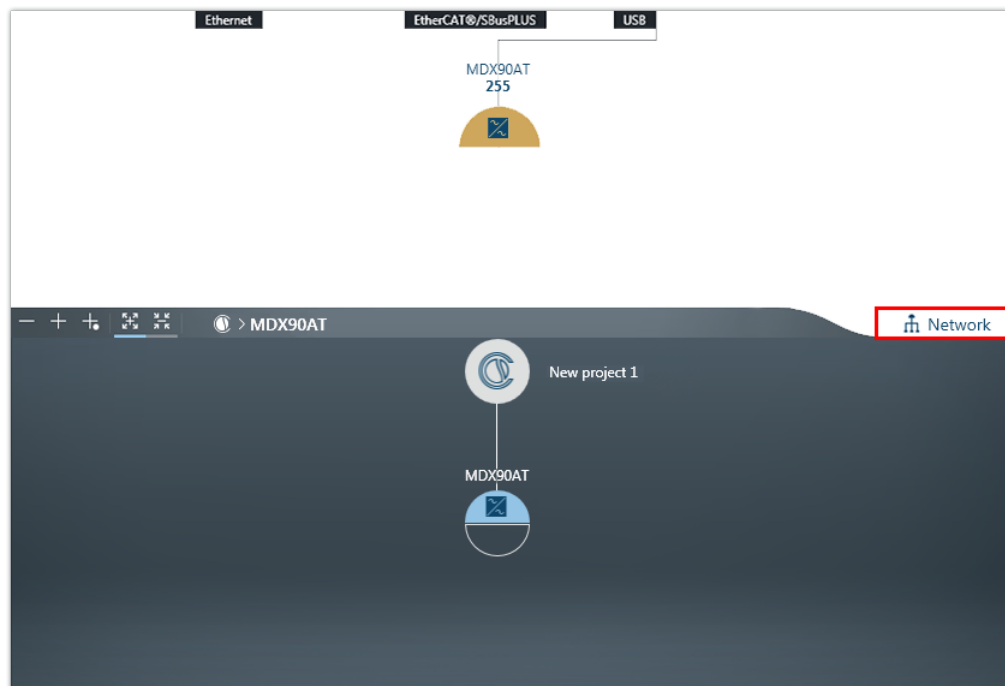
1. Apply the scanned device to MOVISUITE®.



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2. If necessary, load the device data into the MOVISUITE® project. Confirm the message stating that the device data has been successfully transferred.

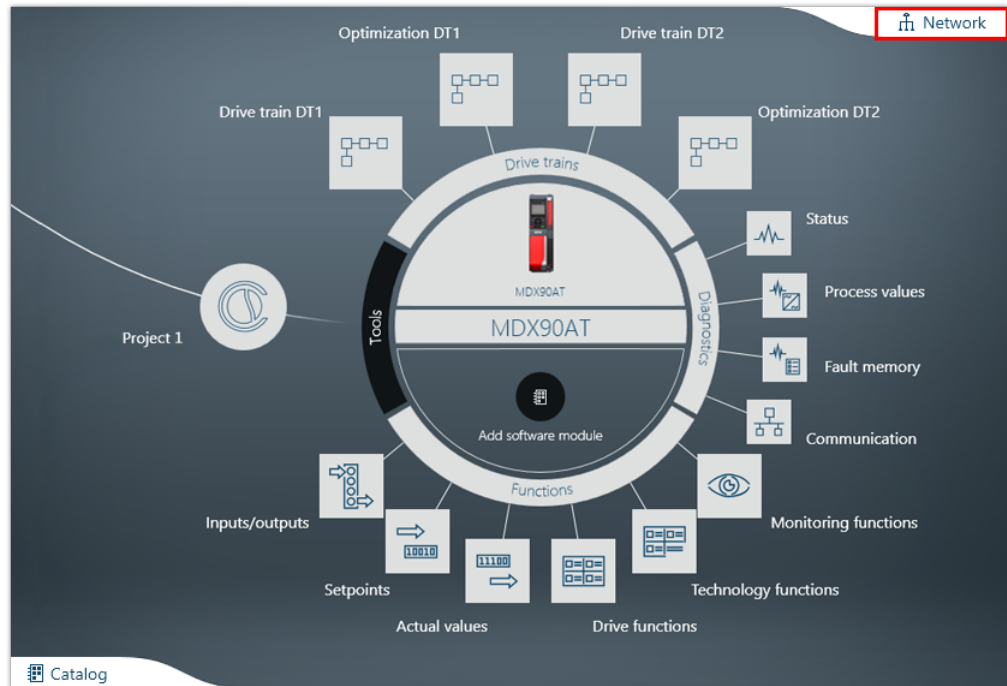
- ⇒ The device is displayed in one of the MOVISUITE® views. The display depends on the view you used when closing MOVISUITE® for the last time:
- ⇒ The combined network and function view shows all connected devices detected during the network scan.



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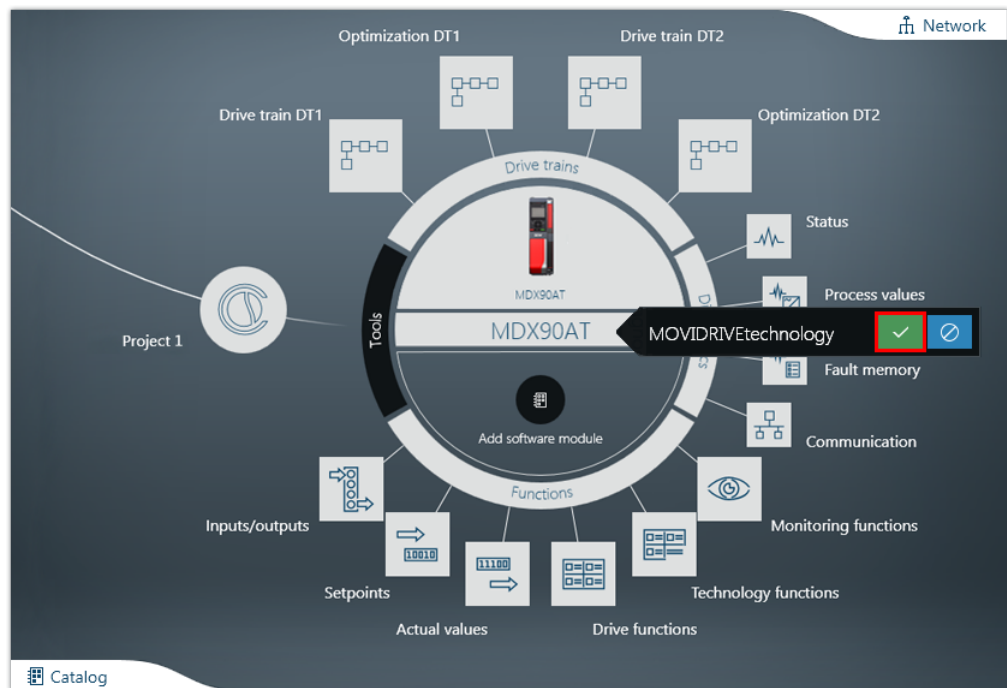
25870734/EN – 11/2020

- ⇒ The function view has 2 views. The tree view shows an overview of the entire project. The circle view shows the current node as a large circle in the center of the workspace.



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3. To toggle between the MOVISUITE® views, click the "Network" tab.
4. If required, you can assign a name to the inverter. The device will then be shown in the MOVISUITE® project under this name.



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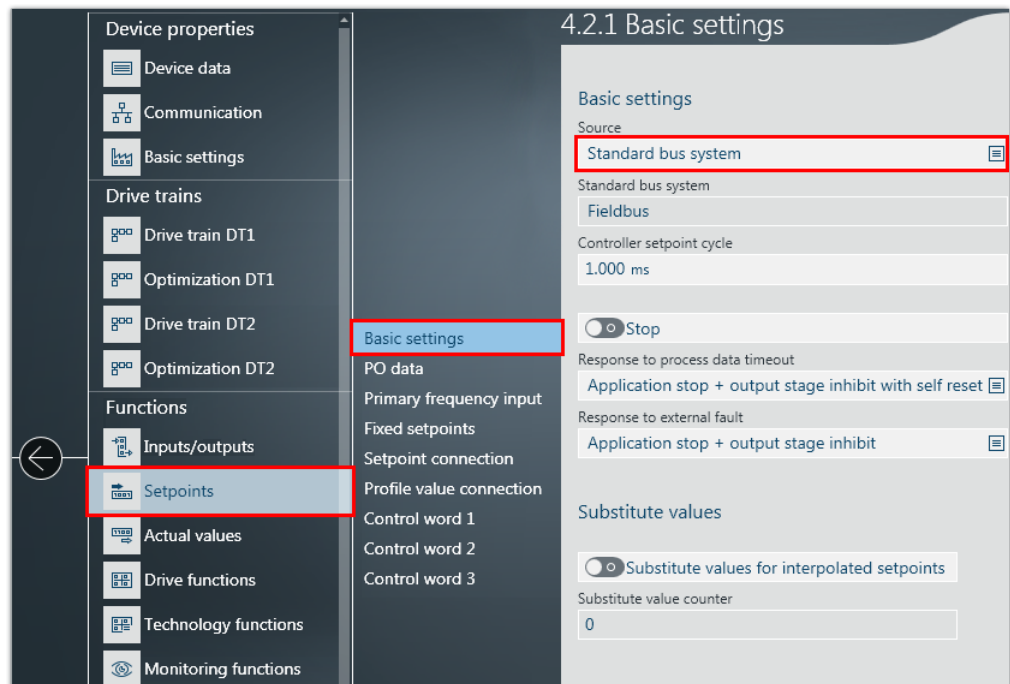
25870734/EN – 11/2020

- SEW-EURODRIVE recommends to use MOVIKIT® software modules. MOVIKIT® software modules contain ready-made and verified drive and application functions that allow for taking into operation all kinds of drive tasks quickly and conveniently. Load the matching MOVIKIT® software module into the inverter.



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- If you do not use a MOVIKIT® software module, you have to configure the process data source and the process data manually. To do so, open the configuration of the inverter and set the process data source.



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- Configure the process data (setpoints and actual values) in the inverter.
- Save the MOVISUITE® project.

9.3 Checking the process data transfer

- If you use a MOVIKIT® software module, you can check the transfer of process data in a MOVIKIT® diagnostic monitor.
"Checking process data in the MOVIKIT® diagnostic monitor" (→ 31)
- If you do not use a software module, you can access the process data buffer of the device in the MOVISUITE® engineering software.
"Checking process data in MOVISUITE®" (→ 33)

9.3.1 Checking process data in the MOVIKIT® diagnostic monitor

All MOVIKIT® software modules are equipped with a diagnostic monitor to allow for quick startup and checking the control as well as the application. In addition to monitor mode, the diagnostic monitor also provides a control mode that can be used to control the functions of the software module in MOVISUITE®.



▲ WARNING

Unexpected device behavior (such as movements of the drive) in control mode or when changing the operating mode due to ineffectiveness of limits or locking specified by the higher-level controller.

Death, severe injuries or damage to property.

- Make sure that the motor cannot be started in an uncontrolled manner in control mode or when changing the operating mode. Inhibit the inverter for this purpose.
- Block access to the potential hazard zone. Use available safety equipment.

Proceed as follows:

1. In MOVISUITE®, open the configuration of the inverter. Next open the "MOVIKIT® diagnostics" menu under "Diagnostics".

MOVIKIT®-diagnostics

PC control

Activate...

Process data overview

PLC	PLC output data	PLC input data	Drive
	>>>>	<<<<	
PO 1: Control word	0x0005 hex	0x0000 hex	PI 1: Status word
PO 2: Setpoint speed	6 Umdr/min	0 Umdr/min	PI 2: Actual speed
PO 3: Acceleration	0 Umdr/(min*s)	0x0000	PI 3: Status/main fault - subfault
PO 4: Deceleration	0 Umdr/(min*s)	0.0 % nominal motor torque	PI 4: Torque
PO 5: ... DIO 02, DIO 01	0000 0000	0000 0000 0000 0000	PI 5: ... DI 13 .. DI 10, DI 07 ... DI 00

Device status

MOVIKIT®
MOVIKIT Velocity Drive

Output stage state
Not ready – output stage inhibited

Current FCB
FCB 00 Default (-> FCB 02)

PO 1: Control word		PI 1: Status word	
Bit	Function	Function state	Function
0	Enable/emergency stop	<input type="radio"/>	Ready
1	Enable/application stop	<input checked="" type="radio"/>	STO inactive
2	Reserved	<input type="radio"/>	Output stage enable
3	Release brake	<input type="radio"/>	Brake/DynaStop® released
4	Reserved	<input type="radio"/>	Motor running
5	Reserved	<input checked="" type="radio"/>	Active drive referenced
6	Reserved	<input type="radio"/>	Setpoints active
7	Start/stop with fieldbus ramp	<input type="radio"/>	"In position" signal active
8	Fault reset	<input type="radio"/>	Fault
9	Reserved	<input type="radio"/>	Warning
10	Activate drive train 2	<input type="radio"/>	Drive train 2 active
11	Reserved	<input checked="" type="radio"/>	"Setpoint/actual speed comparison" signal active
12	Disable SW limit switches	<input checked="" type="radio"/>	SW limit switches inactive

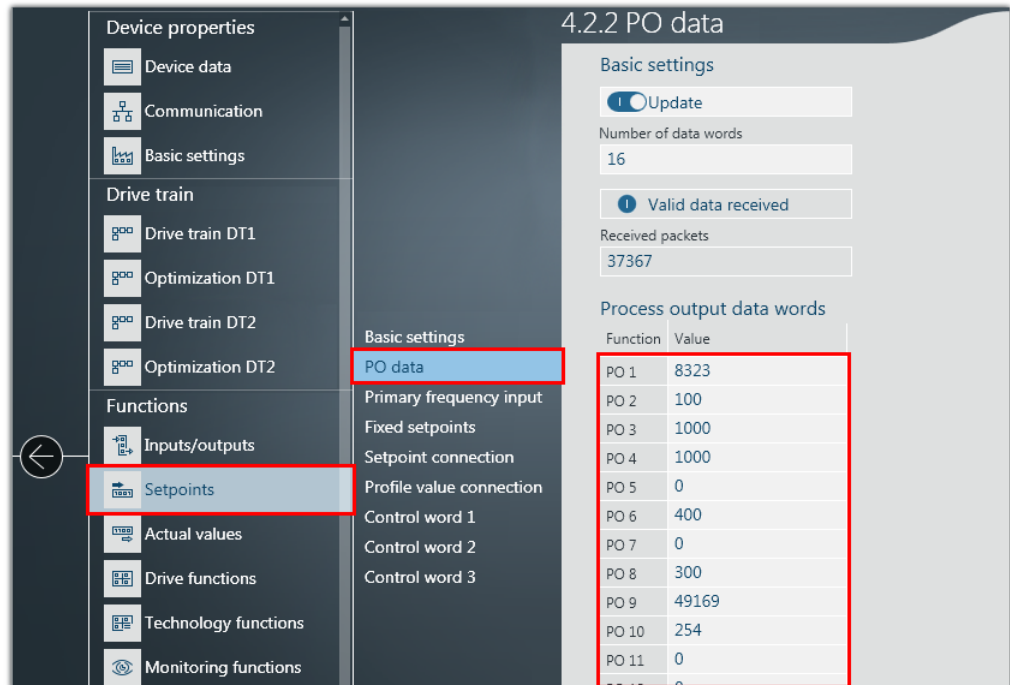
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- ⇒ At the start, diagnostics is in monitor mode.
2. To toggle between control mode and monitor mode, click the [Enable/disable] button.
 - ⇒ In monitor mode, you can monitor the process data of the fieldbus interface.
 - ⇒ In control mode (PC control), the process data via fieldbus interface are disabled which means the process data can be specified using the user interface of MOVIKIT® diagnostics. The data are sent to the inverter automatically and continuously and take effect immediately.

9.3.2 Checking process data in MOVISUITE®

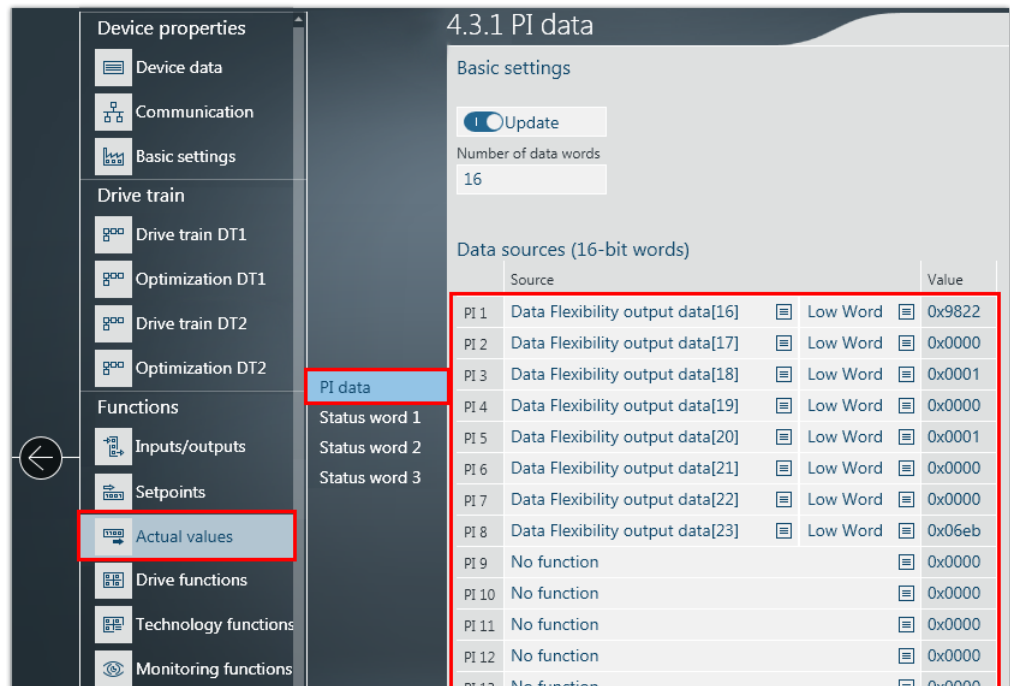
Proceed as follows:

1. In MOVISUITE®, open the configuration of the inverter.
2. Check the setpoint input of the PLC.



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3. Check the actual values of the drive.



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10 Device replacement

10.1 Procedure

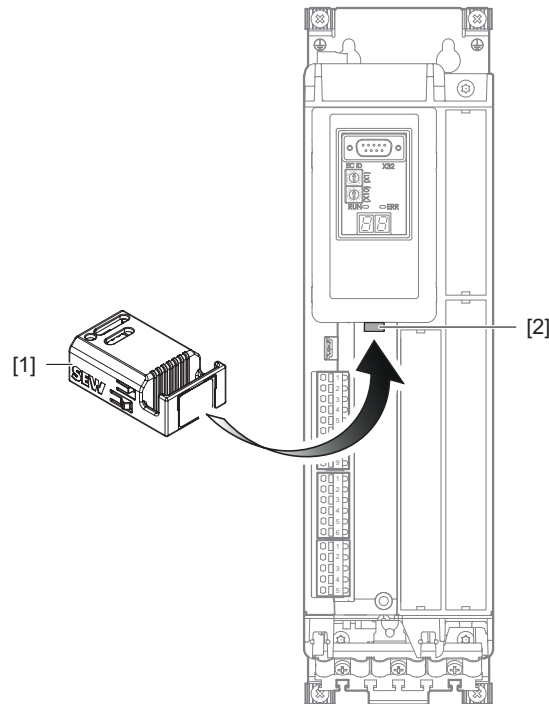
When starting up a device, the following relevant data and settings are stored automatically on the replaceable memory module:

- All drive parameters
- Parameterized device functions
- MOVIKIT® software module with startup settings
- Fieldbus settings
- Address settings

When replacing a device, insert the replaceable memory module in the new device of the same design. After restarting the device, the data and settings are taken over from the memory module. The PLC detects the device without additional measures.

10.2 MOVIDRIVE® technology application inverter

The following figure shows the position of the replaceable memory module in a MOVIDRIVE® technology application inverter:



27835546379

- [1] Replaceable memory module
 [2] Memory module slot

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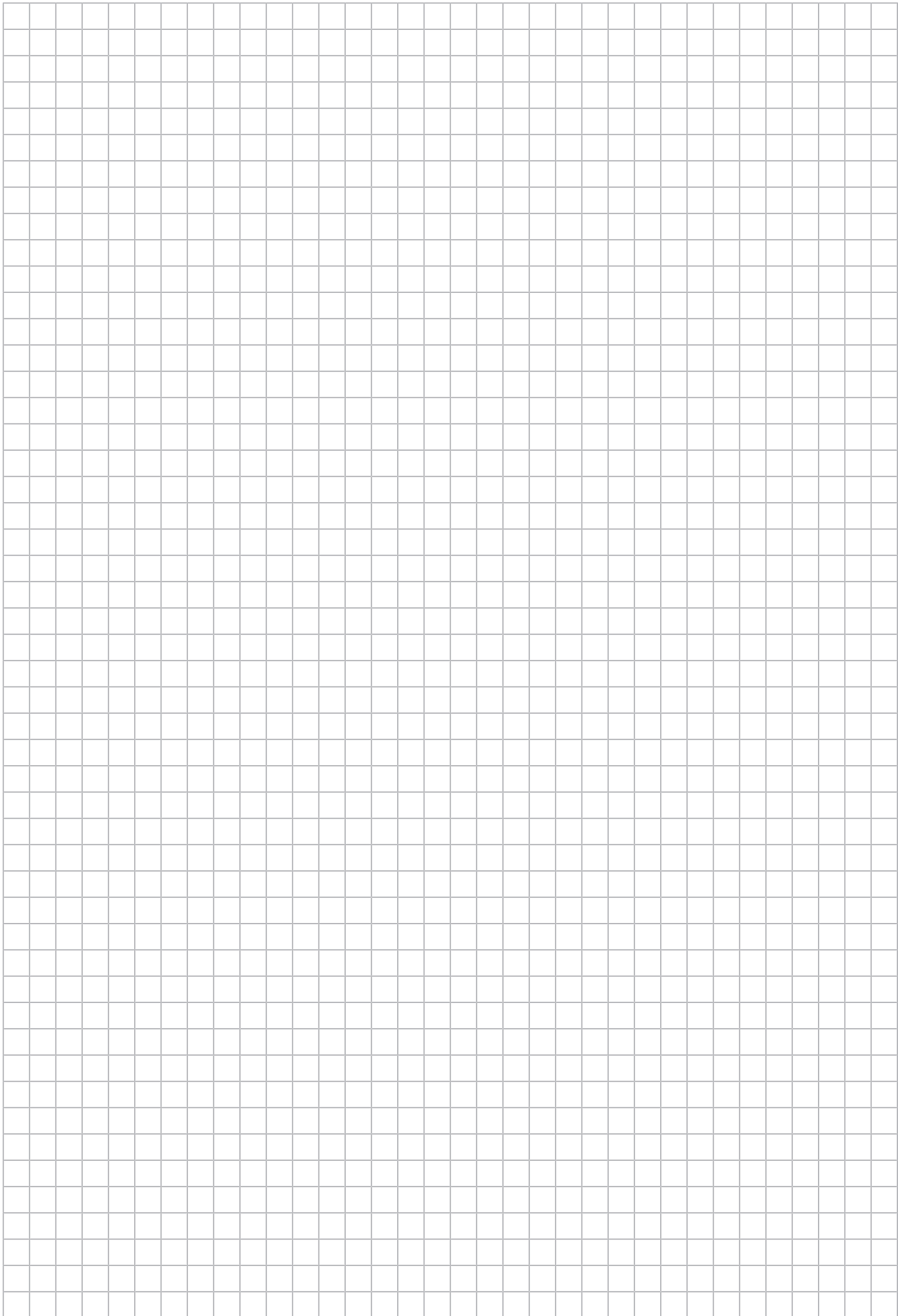
Safety notes

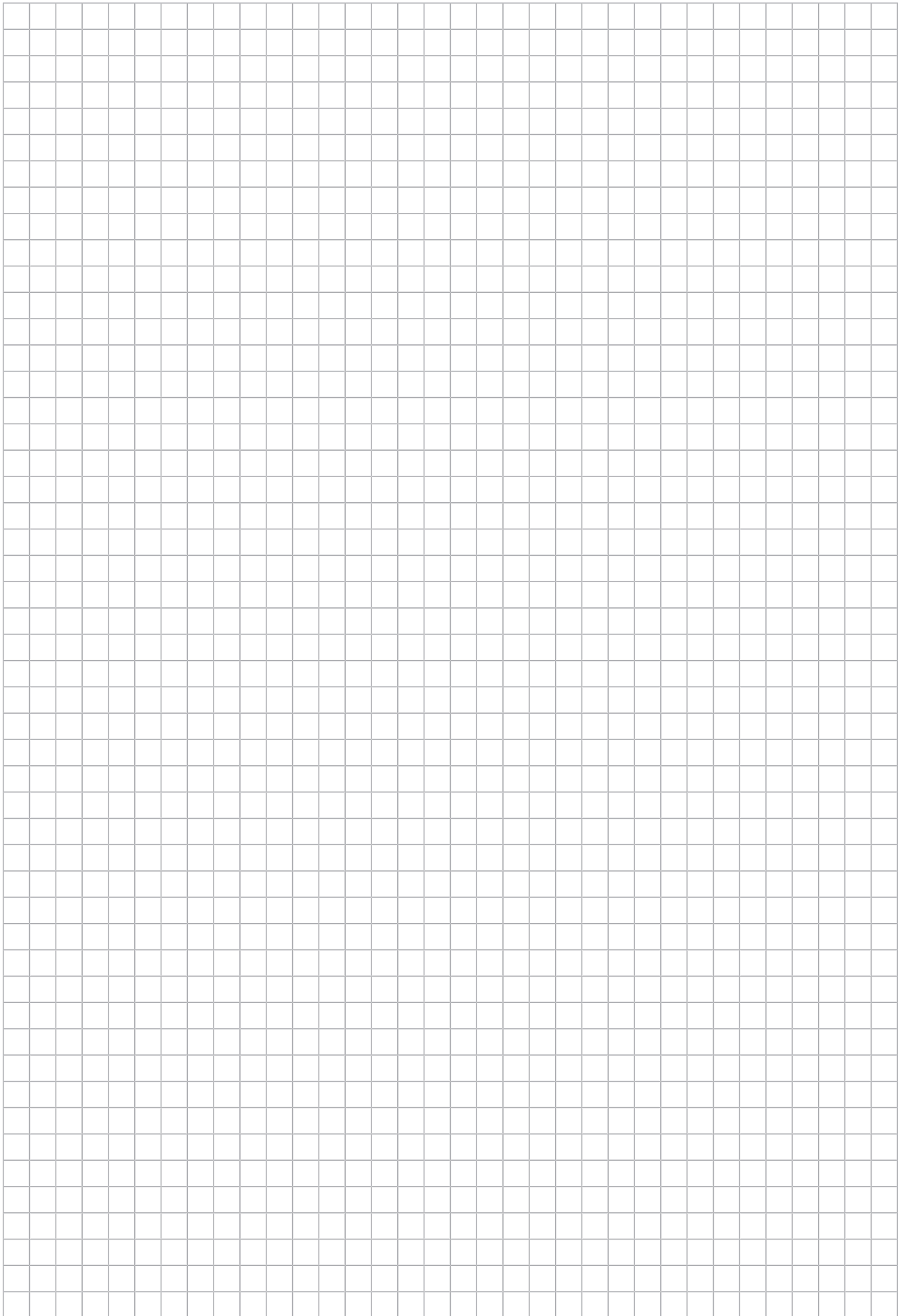
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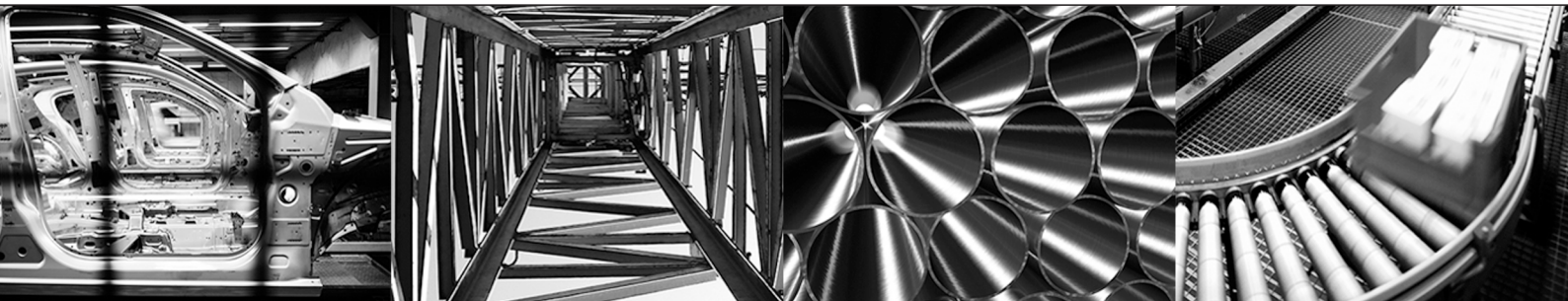
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SEW
EURODRIVE

SEW-EURODRIVE GmbH & Co KG
Ernst-Blickle-Str. 42
76646 BRUCHSAL
GERMANY
Tel. +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com