SEW EURODRIVE

Manual

MOVI-C® CONTROLLER power with Fieldbus Interface PROFIBUS

Edition 07/2016

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1 General information

1.1 About this documentation

The documentation is part of the product and contains important information. The documentation is for everyone who works with this product.

The documentation must be accessible and legible. Make sure that persons responsible for the system and its operation as well as persons who work independently with the software and the connected units of SEW-EURODRIVE have read through the manual carefully and understood it. If you are unclear about any of the information in this documentation or if you require further information, please contact SEW-EURODRIVE.

1.2 Structure of the warning 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.

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Meaning of the hazard symbols

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

Hazard symbol	Meaning
	General hazard
	Warning of dangerous electrical voltage
	Warning of hot surfaces
	Warning of risk of crushing
	Warning of suspended load
	Warning of automatic restart

1.2.3 Structure of embedded safety notes

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

This is the formal structure of an embedded safety note:

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

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1.3 Right to claim under warranty

A requirement of fault-free operation and fulfillment of any rights to claim under limited warranty is that you adhere to the information in the documentation at hand. Therefore, read the documentation before you start working with the software and the connected devices from SEW-EURODRIVE.

Make sure that the documentation is available to persons responsible for the machinery and its operation as well as to persons who work independently on the devices. You must also ensure that the documentation is legible.

1.4 Exclusion of liability

Please observe this documentation as well as the documentation for the software used and the SEW-EURODRIVE devices connected. This documentation must be observed to ensure that the devices operate safely and that the specified product properties and performance characteristics are achieved.

SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of the documentation. In such cases, SEW-EURODRIVE assumes no liability for defects.

1.5 Other applicable documentation

Observe the following applicable documents:

- "MOVI-C® CONTROLLER power UHX85A and power eco UHX84A" manual
- "MOVIDRIVE® modular Application Inverters" operating instructions
- "MOVIDRIVE® system Application Inverters" operating instructions
- "First Steps MOVISUITE® standard Engineering Software" brief instruction

1.6 Product names and trademarks

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

1.7 Copyright notice

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2 Safety notes

2.1 General

The following basic safety notes are intended 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 machinery and its operation as well as persons who work 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, please contact SEW-EURODRIVE.

The following safety notes refer to the use of the software. Also observe the supplementary safety notes in this documentation and in the documentation for the connected units from SEW-EURODRIVE.

This document does not replace the detailed documentation for the connected units. This documentation assumes that the user has access to and is familiar with the documentation for all connected units from SEW-EURODRIVE.

Never install or operate damaged products. Report any damage to the shipping company immediately.

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

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

2.2 Target group

Work with the software in this solution may only be performed by adequately qualified personnel. Qualified personnel in this context are persons who have the following qualifications:

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

All mechanical work on connected units is to be performed exclusively by adequately qualified personnel. Qualified personnel in the context of this documentation are persons familiar with the design, mechanical installation, troubleshooting and servicing of the product, who possess the following qualifications:

- Training in mechanical engineering, e.g. as a mechanic or mechatronics technician (final examinations must have been passed).
- Knowledge of this documentation and other applicable documentation.

All electrical work on connected units is to be performed exclusively by adequately qualified electricians. Qualified electricians in the context of this documentation are persons familiar with electrical installation, startup, troubleshooting and servicing of the product, who possess the following qualifications:

- Training in electrical engineering, e.g. as an electrician or mechatronics technician (final examinations must have been passed).
- Knowledge of this documentation and other applicable documentation.

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- Knowledge of the relevant safety regulations and laws.
- Knowledge of all other standards, directives and laws named in this documentation.

The above-mentioned persons must have the express authorization of the company to operate, program, configure, label and ground units, systems and circuits in accordance with the standards of safety technology.

All work in the areas of transportation, storage, operation and waste disposal must be carried out by persons who are trained appropriately.

2.3 Bus systems

A bus system makes it possible to adapt electronic drive 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.

Especially in Ethernet-based networked systems and with engineering interfaces, make sure that unauthorized access is prevented.

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

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3 Introduction

3.1 Content of this documentation

This documentation describes how to integrate MOVI-C® CONTROLLER power in an industrial communication network via the following fieldbus systems: PROFIBUS.

3.2 Short designation in the documentation

The following short designations are used in this documentation.

Type designation	Short designation
MOVI-C® CONTROLLER power	MOVI-C® CONTROLLER
Higher-level controller	PLC
MOVISUITE® standard	MOVISUITE®

3.3 MOVI-C® CONTROLLER power

The MOVI-C® CONTROLLER power allows for realizing complex automation tasks: It is suited as a module controller for complex motion functions such as electronic cams and robotics, as well as for the complete automation of machines and systems.

3.3.1 Connection to the communication network

The MOVI-C® CONTROLLER has various communication interfaces:

- Due to its universal fieldbus interfaces, MOVI-C® CONTROLLER can be connected to higher-level automation systems. The following fieldbus interfaces are integrated:
  - PROFIBUS
  - PROFINET IO
  - EtherNet/IP™
  - Modbus/TCP
- The following drives and I/O module from SEW-EURODRIVE can be connected to MOVI-C® CONTROLLER via the EtherCAT®/SBus$^{PLUS\ system\ bus}$:
  - MOVIDRIVE® modular application inverter
  - MOVIDRIVE® system application inverter
  - MOVI-PLC® I/O system C
- For engineering of the MOVI-C® CONTROLLER, a connection to an engineering PC must be established via an Ethernet communication interface. Engineering is carried out using the MOVISUITE® engineering software.

3.3.2 Device designs

The MOVI-C® CONTROLLER is available in book-size format with the following fieldbus interfaces for control cabinet installation:

Device design	Fieldbus interface
UHX85A	MOVI-C® CONTROLLER without fieldbus interface

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Device design	Fieldbus interface
UHX85A-P	MOVI-C® CONTROLLER with PROFIBUS
UHX85A-R	MOVI-C® CONTROLLER with PROFINET IO, EtherNet/IP™ or Modbus/TCP

3.4 MOVISUITE® engineering software

The new MOVISUITE® engineering software is a platform for operating the devices of the modular MOVI-C® automation system from SEW-EURODRIVE.

The following MOVI-C® devices are currently supported by MOVISUITE®:

- MOVI-C® CONTROLLER power
- MOVIDRIVE® modular application inverter, single-axis module and double-axis module
- MOVIDRIVE® system application inverter

You can conveniently perform the following engineering tasks using MOVISUITE®:

- Project planning
- Startup
- Parameterization
- Programming
- Diagnostics

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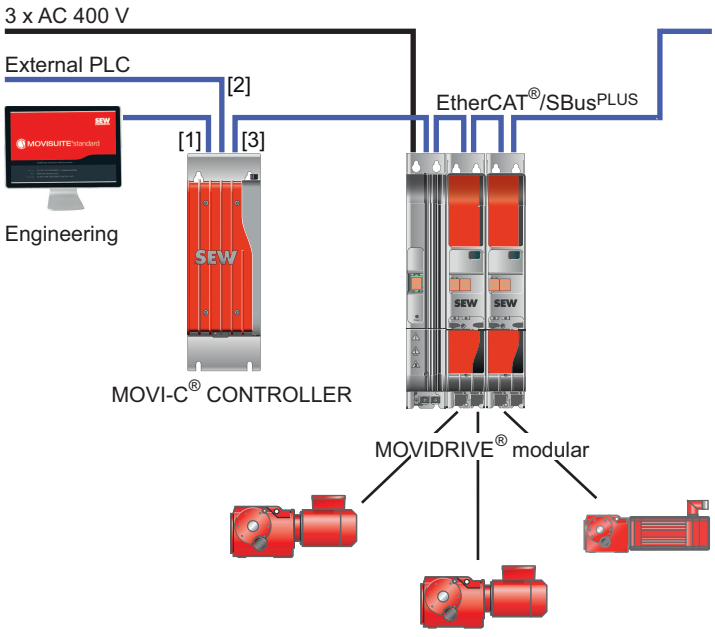
4 Connecting the MOVI-C® CONTROLLER to the PROFIBUS network

This examples explains how to connect a MOVI-C® CONTROLLER to a PROFIBUS network. The following device topology was used in the example:

- SIMATIC S7-300 higher-level controller with CPU 315F-2 PN/DP
- MOVI-C® CONTROLLER power, device design UHX85A-P
- MOVIDRIVE® modular application inverter, MDD90A double-axis module
- MOVIDRIVE® modular application inverter, MDA90A single-axis module



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[1] Engineering interface LAN 3
[2] Fieldbus interface X24 (PROFIBUS)
[3] EtherCAT®/SBus^{PLUS} interface LAN 2

The PLC communicates with a lower-level MOVI-C® CONTROLLER via the fieldbus interface PROFIBUS [2]. The MOVI-C® CONTROLLER communicates with the lower-level application inverter via the EtherCAT®/SBus^{PLUS} system bus [3]. The connection between the MOVI-C® CONTROLLER and the engineering PC is realized via the engineering interface [1].

For configuration and startup of the devices, the following engineering software is used:

- MOVISUITE® for the MOVI-C® devices from SEW-EURODRIVE

  MOVISUITE® has an integrated IEC editor to configure the MOVI-C® CONTROLLER.
- TIA Portal (SIMATIC STEP 7) from Siemens for the PLC

To connect the MOVI-C® CONTROLLER to the PROFIBUS network, perform the following steps:

1. "Configuration of the EtherCAT®/SBusPLUS stations" (→ 🗎 12)
2. "Configuration of the fieldbus stations" (→ 🗎 25)
3. "Checking the process data communication" (→ 🗎 42)

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4.1 Configuration of the EtherCAT®/SBus^{PLUS} stations

In the project example, the following devices are EtherCAT®/SBus^{PLUS} stations:

- The MOVI-C® CONTROLLER serves as EtherCAT®/SBus^{PLUS} master.
- The application inverters serve as EtherCAT®/SBus^{PLUS} slaves.

The devices are configured and started up in the MOVISUITE® engineering software and the integrated IEC editor.

The EtherCAT®/SBus^{PLUS} stations are configured in several process steps:

1. "Establishing a connection between engineering PC and MOVI-C® CONTROLLER" (→ 🗎 12)
2. "Creating a project in MOVISUITE®" (→ 🗎 14)
3. "Including the MOVI-C® CONTROLLER in MOVISUITE®" (→ 🗎 15)
4. "Configuring devices in the IEC Editor" (→ 🗎 16)
5. "Including the application inverter in MOVISUITE®" (→ 🗎 23)

4.1.1 Establish connection between engineering PC and MOVI-C® CONTROLLER

For the engineering PC and the MOVI-C® CONTROLLER to communicate via Ethernet, they have to be connected to the same local network. For this purpose, the IP address parameters of the engineering PC must be set to the local network.

INFORMATION

In delivery state, the control section of the MOVI-C® CONTROLLER has the following IP address parameters: Standard IP address 192.168.10.4, subnet mask 255.255.255.0

Proceed as follows:

1. Select the network settings in the Windows control panel.
2. Double-click on the adapter that is physically connected to the engineering interface LAN 3 of the MOVI-C® CONTROLLER.

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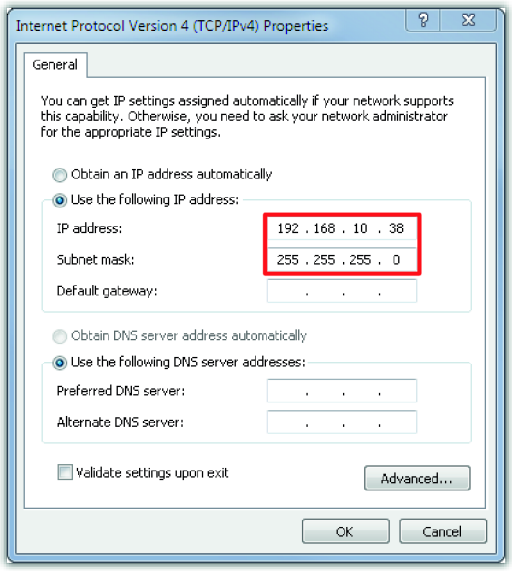
3. Select the internet protocol version 4 "TCP/IPv4" in the adapter properties.
4. Enter the IP address parameters of the engineering PC in the internet protocol properties. Note that the IP address of the engineering PC is different from the IP address of all other network stations and thus is unique. The network address (here the first 3 address blocks) for all network stations must be identical and the station address (here the last address block) must be different for all network stations.



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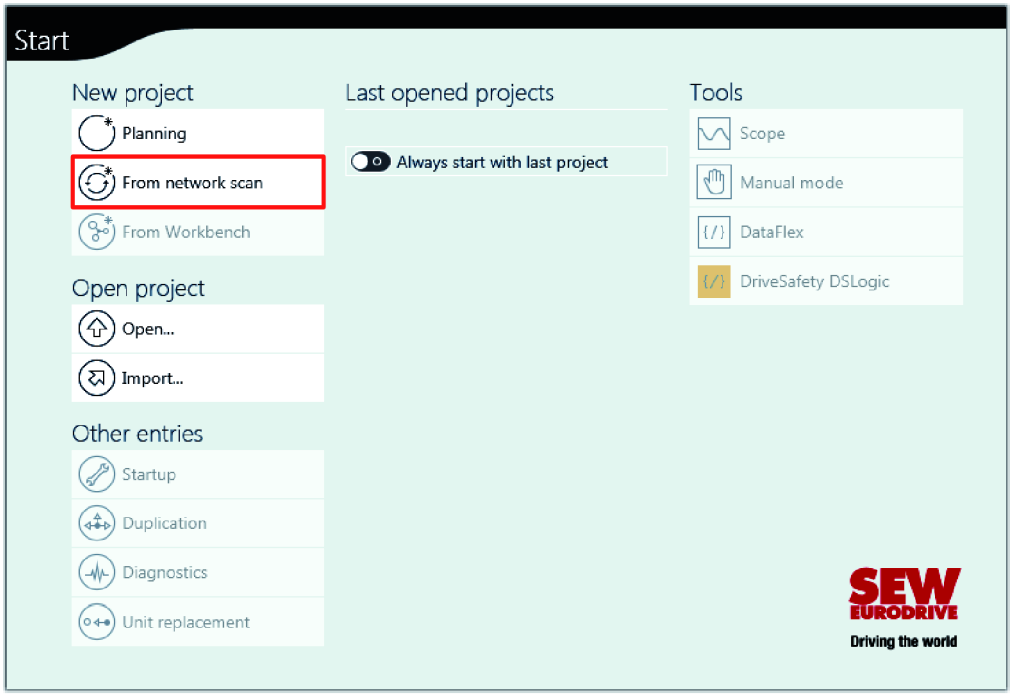
⇨ In this example, the IP address of the engineering PC is 192.168.10.38

4.1.2 Creating a project in MOVISUITE®

Proceed as follows:

1. Start MOVISUITE®.
2. Create a new MOVISUITE® project by choosing "From network scan".



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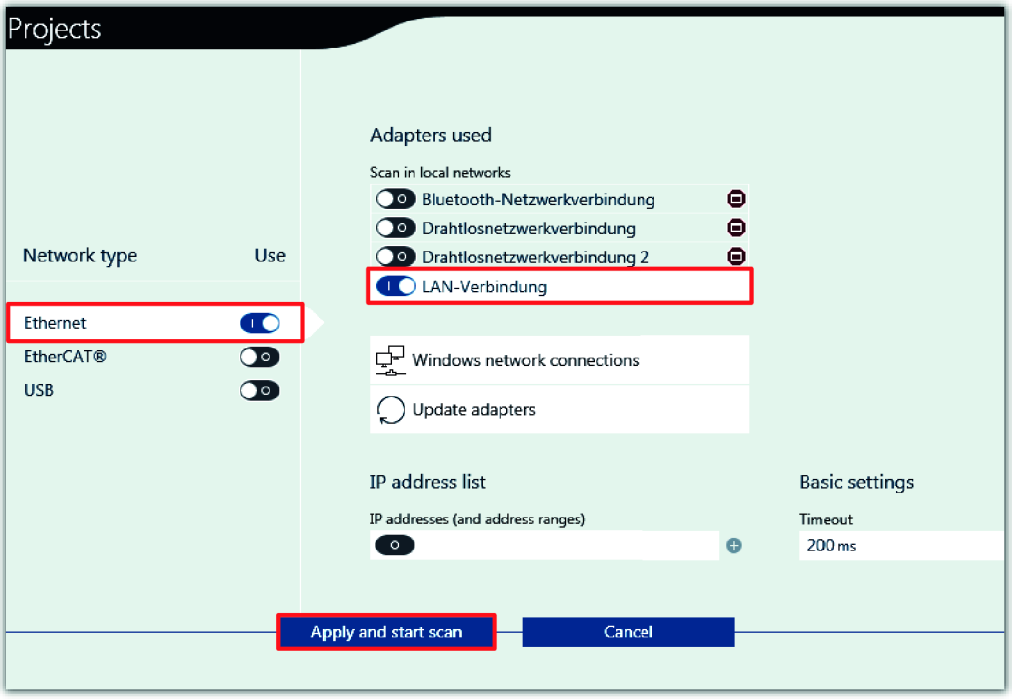
3. Activate the network type (Ethernet) and the configured adapter (LAN connection). Apply the settings and scan the network by clicking the "Apply and start scan" button.



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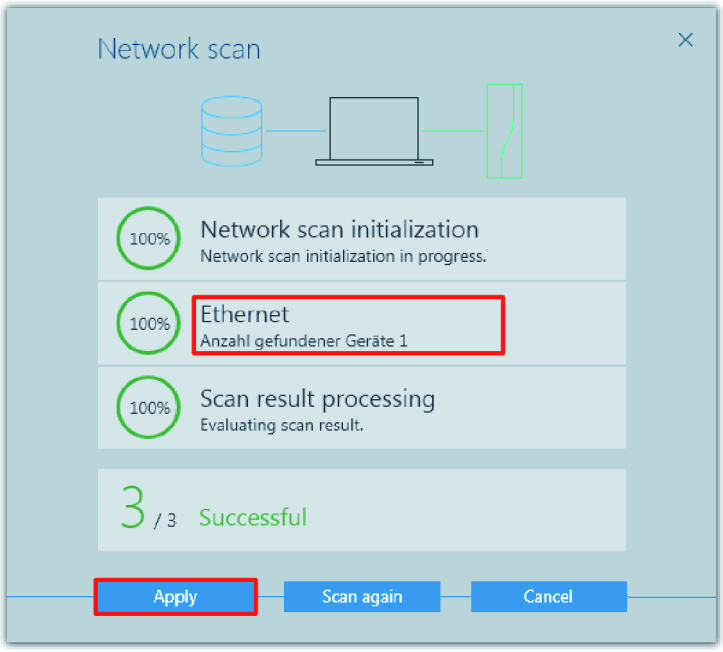
4.1.3 Including the MOVI-C® CONTROLLER in your MOVISUITE® project

The MOVI-C® CONTROLLER is detected during the network scan.

Proceed as follows:

1. Click "Apply" to include the scanned device in your MOVISUITE® project.



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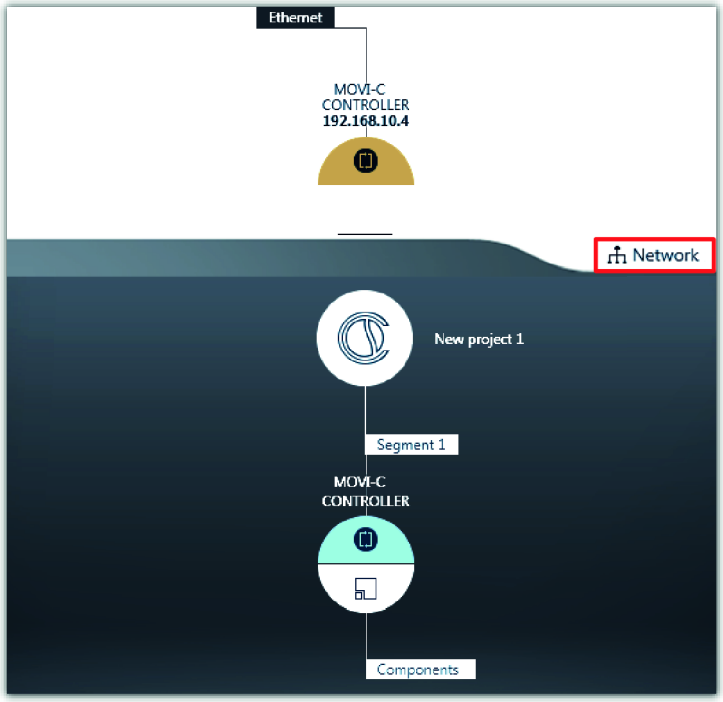
⇨ The device is displayed in the network view.

2. To go to the function view of MOVISUITE®, click the "Network" tab.



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⇨ Tree navigation is displayed.

4.1.4 Configuring devices in the IEC Editor

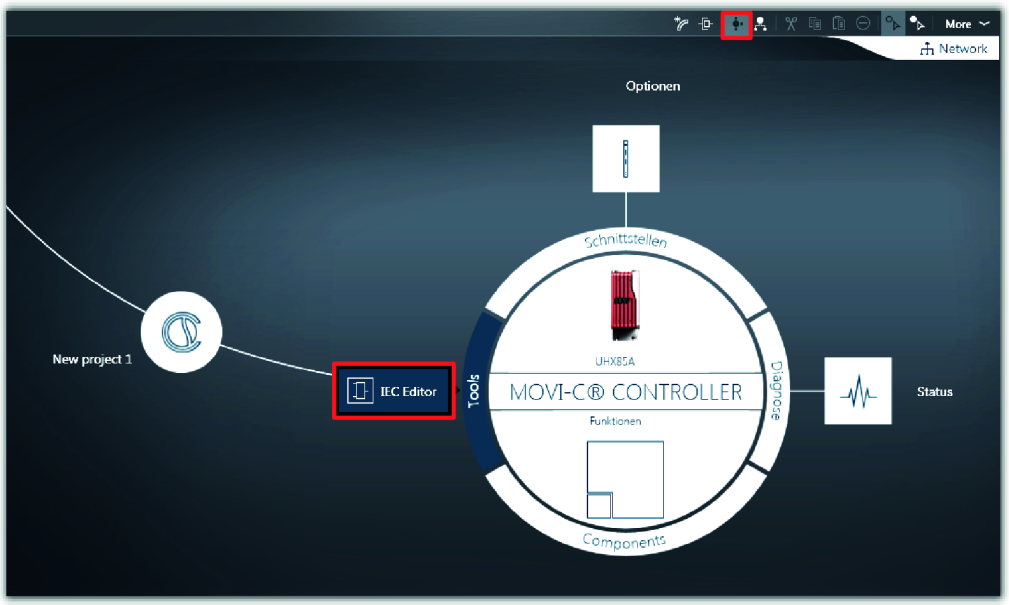
The devices that are subordinate to the MOVI-C® CONTROLLER must first be manually configured in the IEC editor. Only then they are detected during a network scan and can be added to the MOVISUITE® project.

INFORMATION

Number and arrangement of the devices and modules in the IEC editor project must match the real hardware topology.

Proceed as follows:

1. Switch to circle navigation and start the IEC editor.



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⇨ A message on the used compiler version is displayed.

2. Keep the current compiler version. Click the [Cancel] button in the message window.

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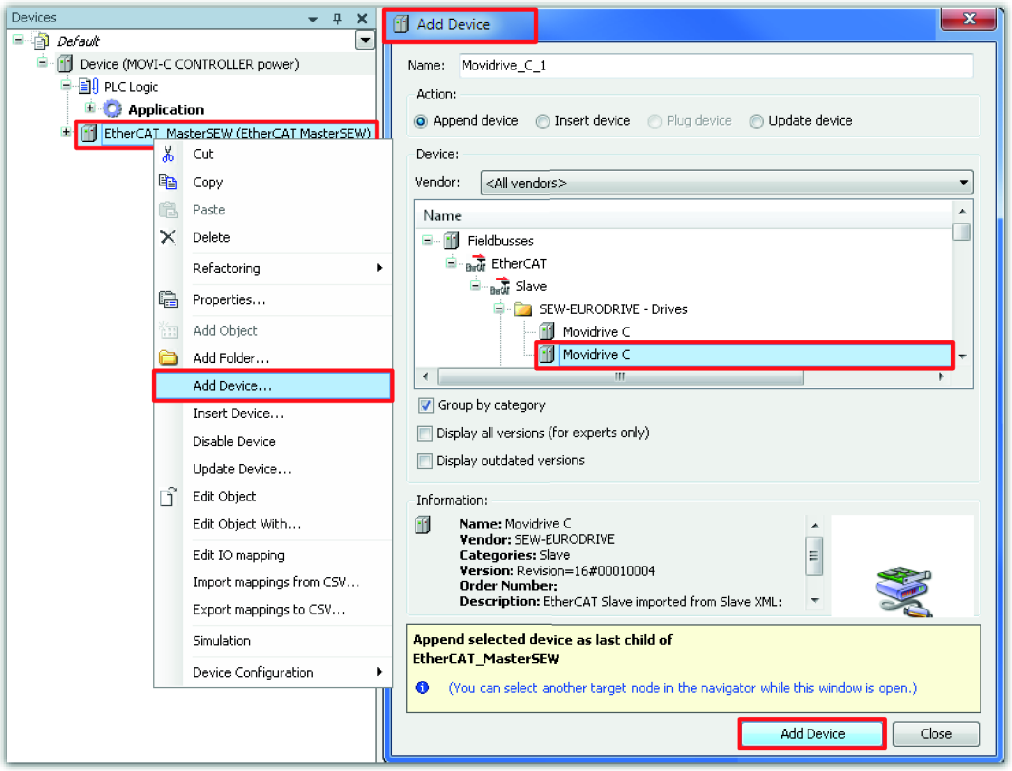
3. A lower-level device must be added below the EtherCAT®/SBus^{PLUS} master in the device tree. Open the context menu of the master by right-clicking and select the required device from the device list in the "Add device" window.



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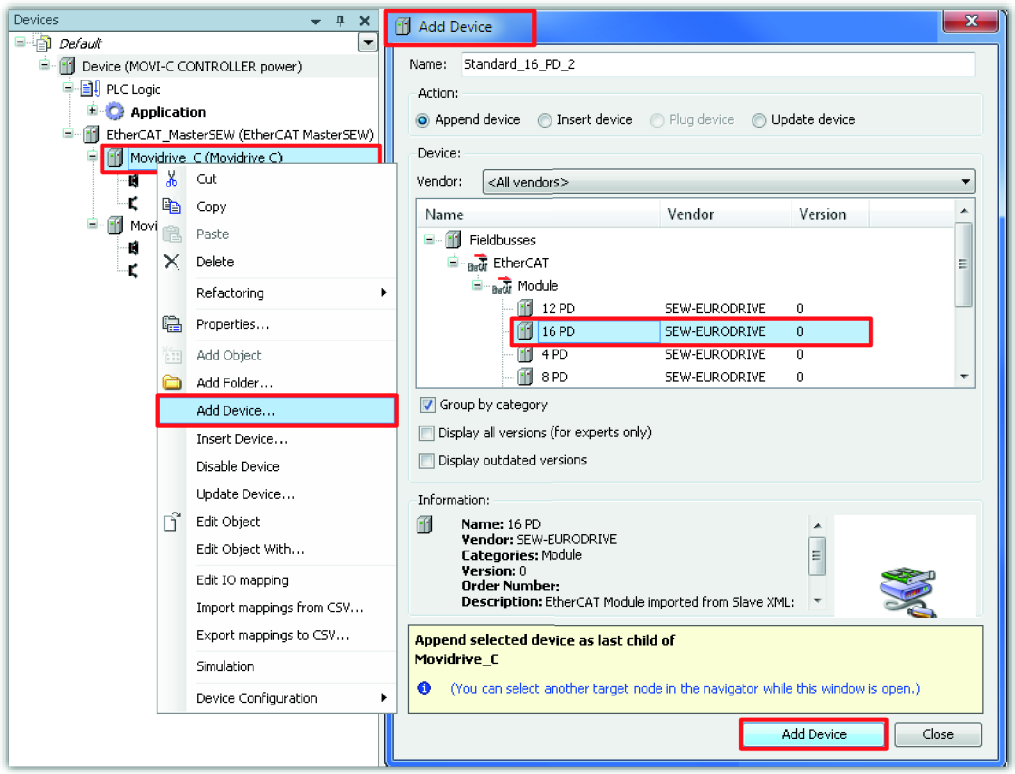
⇨ In this example, the MOVIDRIVE® modular application inverters are lower-level devices.

4. The MDD90A double-axis module is displayed in the IEC editor project with additional process data. Open the context menu of the respective application inverter by right-clicking and select the required number of process data words from the device list in the "Add device" window.



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⇨ In this example, each module communicates with the MOVI-C® CONTROLLER with 16 process data words.

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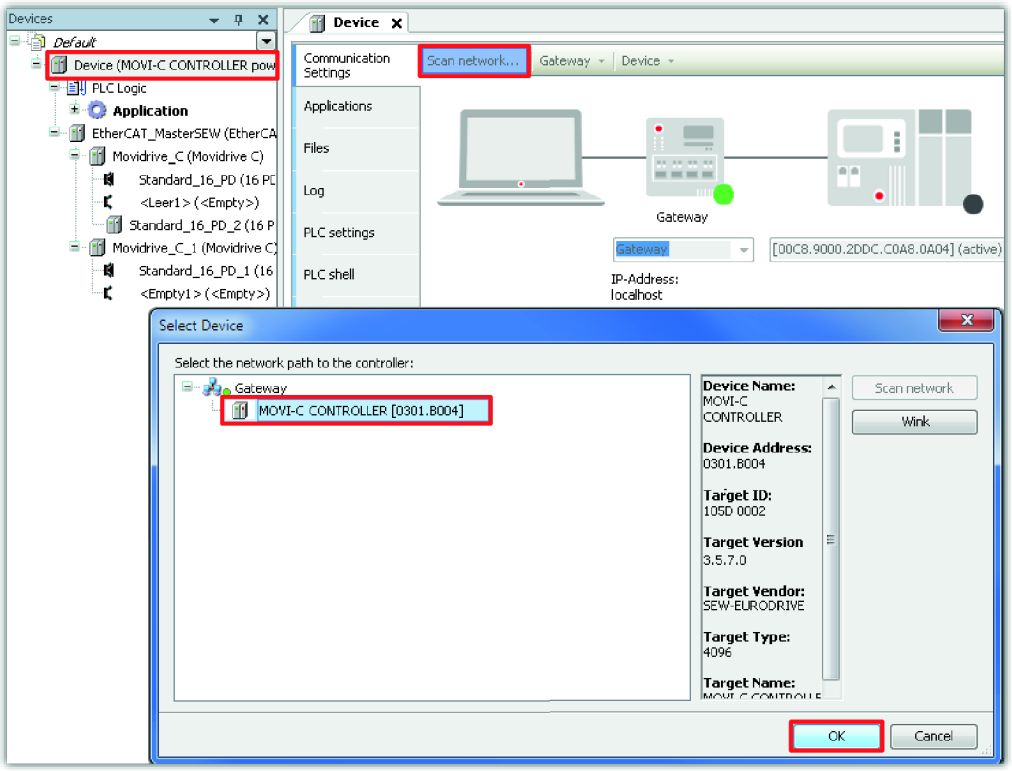
5. To establish a connection from the IEC editor project to the MOVI-C® CONTROLLER, double-click on the MOVI-C® CONTROLLER (device) in the device tree and scan the network. Add the found device.



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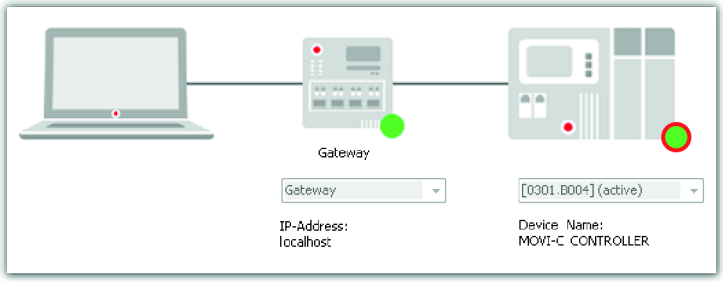
⇨ If the connection is established, the LED of the MOVI-C® CONTROLLER lights up green.



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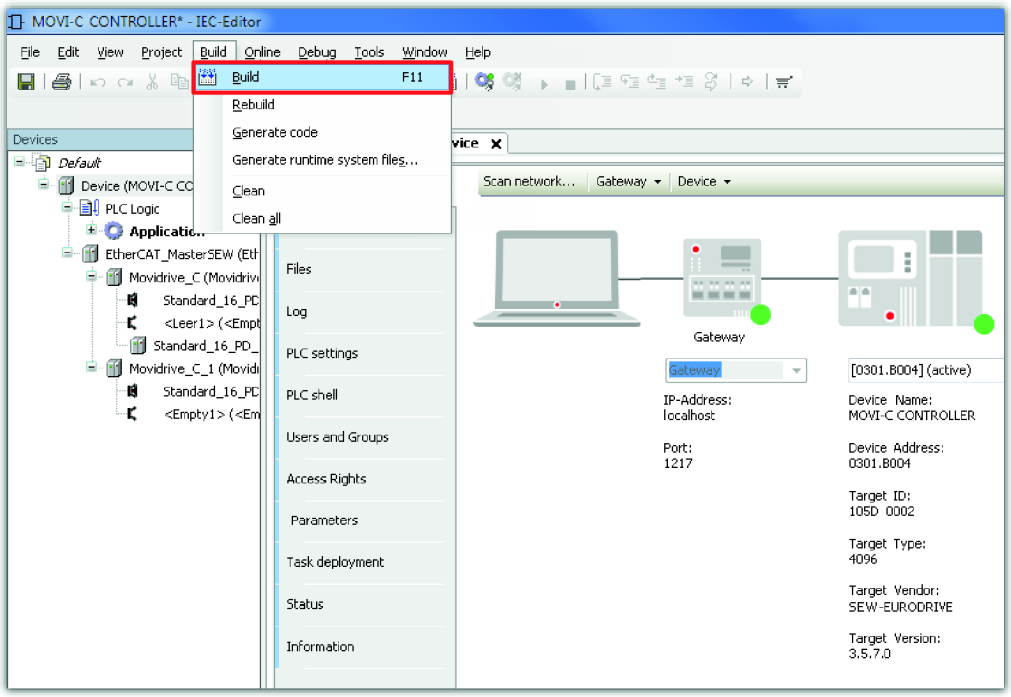
6. Build the IEC program in the machine code of the MOVI-C® CONTROLLER.



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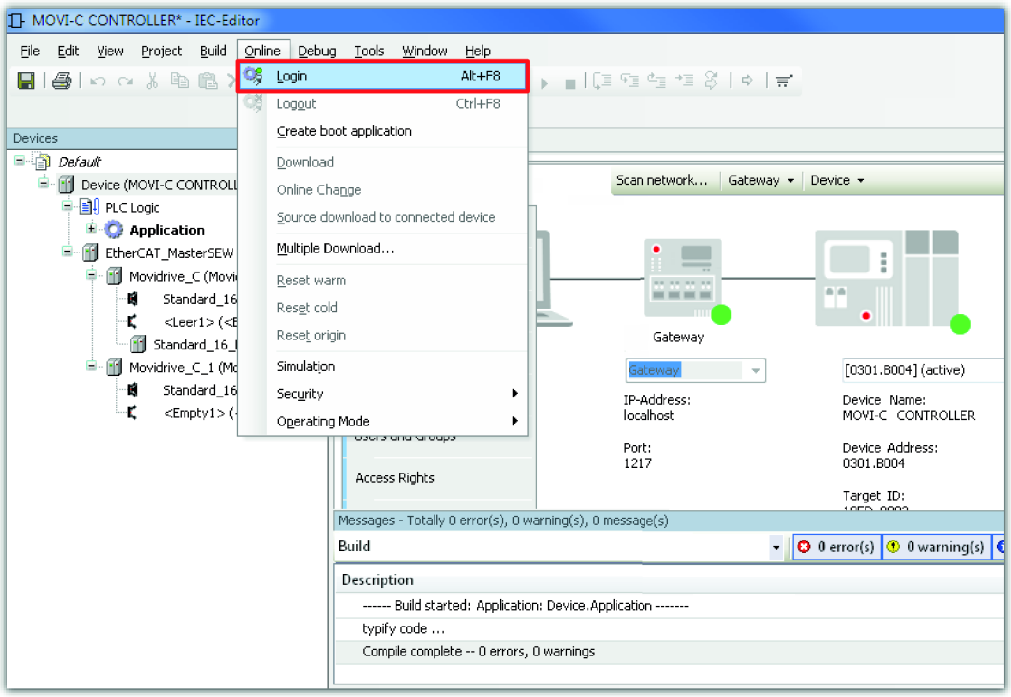
7. If the build of the IEC program was successful, the program can be transferred to the MOVI-C® CONTROLLER. For this purpose, log on to the network.



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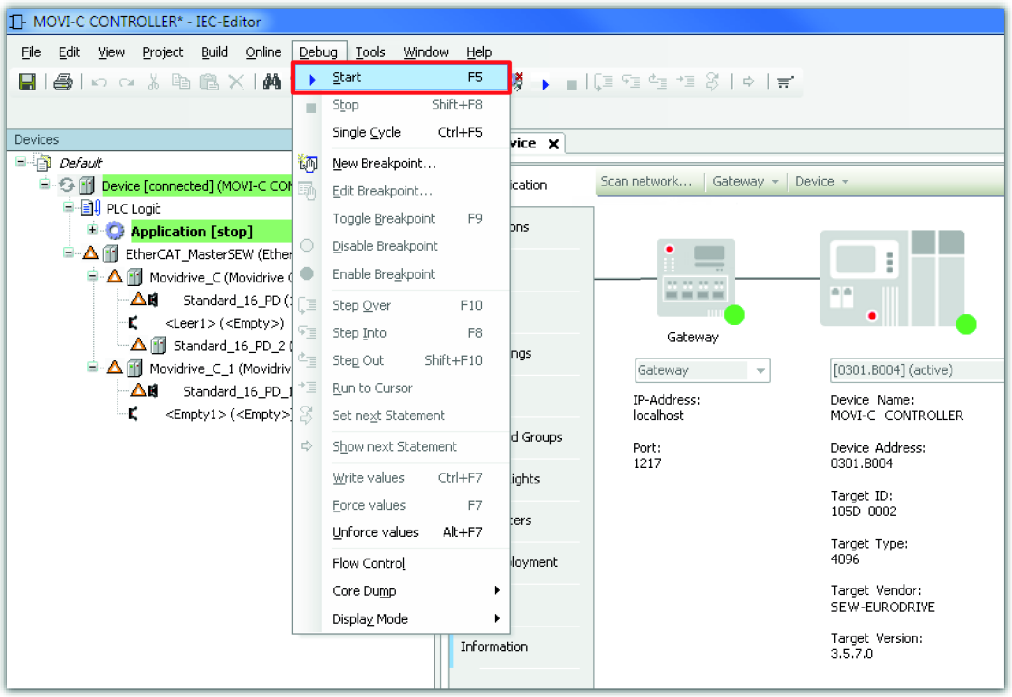
⇨ A message is displayed that the IEC program (application) from the IEC editor program has been created and loaded to the MOVI-C® CONTROLLER.

8. Confirm this message.

9. Start the IEC program.



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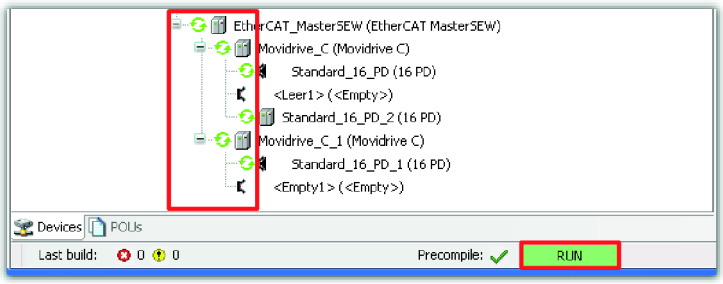
⇨ The MOVI-C® CONTROLLER starts. The message "RUN" is displayed in the status bar of the IEC editor.

⇨ If communication with the lower-level devices is established, the devices are marked with a green circle in the device tree.



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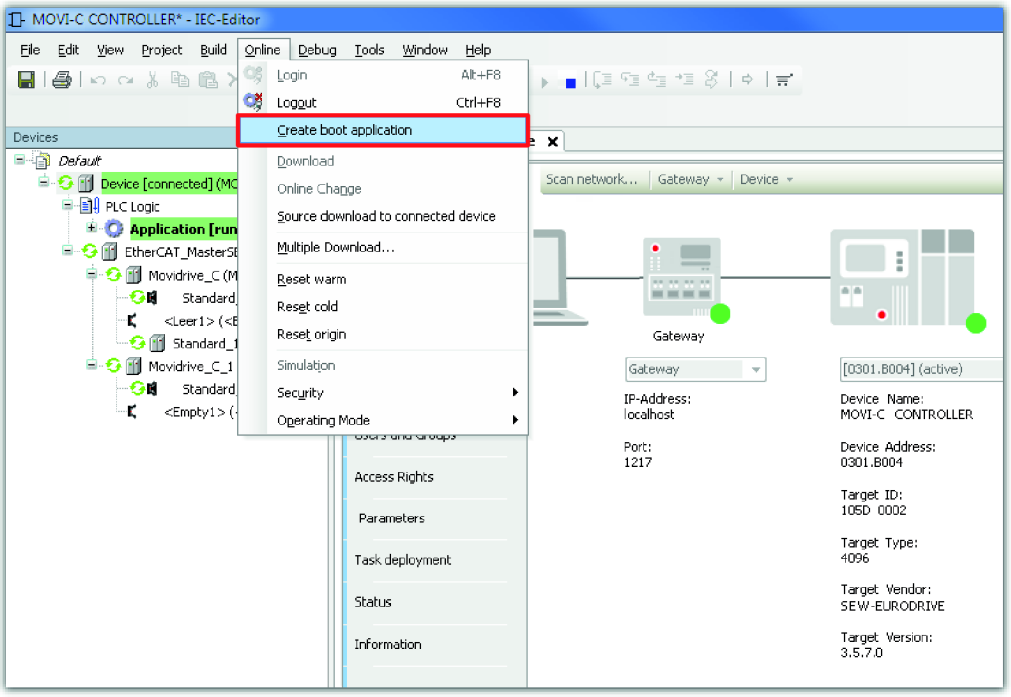
10. Create a boot project. This way, the IEC editor project is stored on the CFast memory card of the MOVI-C® CONTROLLER and is still available after a restart of the MOVI-C® CONTROLLER.



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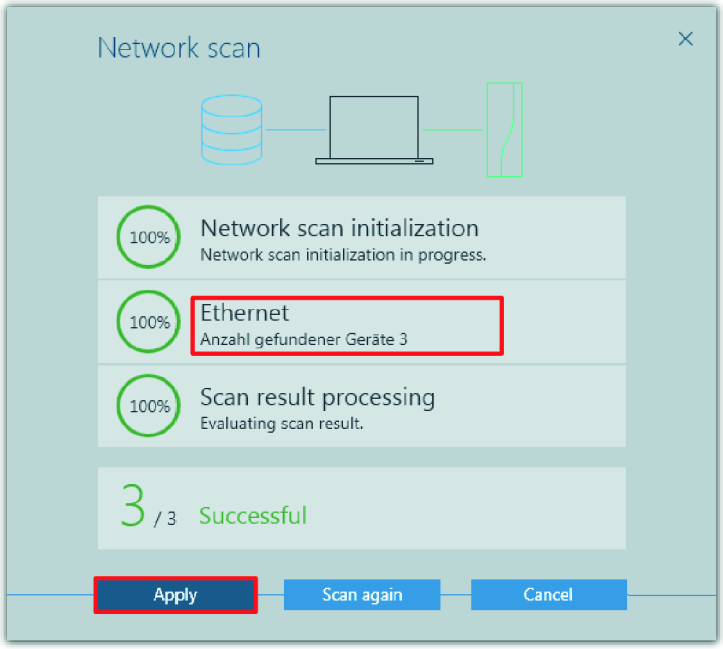
11. Close the IEC editor and confirm the message.

4.1.5 Including the application inverter in MOVISUITE®

Proceed as follows:

1. Go to MOVISUITE®.
2. Perform a network scan again.
   ⇨ Now not only the MOVI-C® CONTROLLER is scanned but also the application inverters you have added in the IEC Editor.
3. Click "Apply" to include the scanned devices in your MOVISUITE® project.



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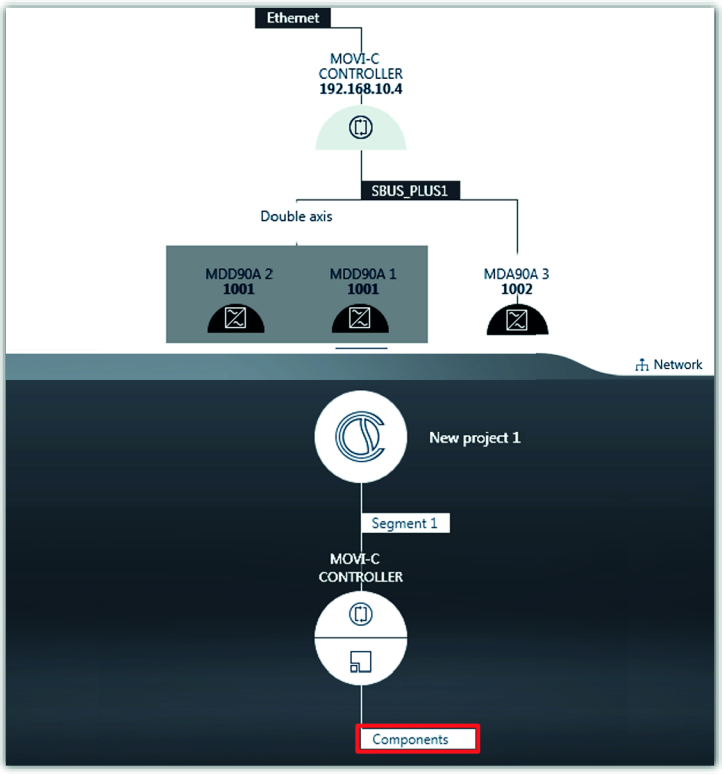
⇨ The devices are displayed in the network view.

4. To include the application inverters in the MOVISUITE® project, move them individually from the network view on "Components" using drag and drop.



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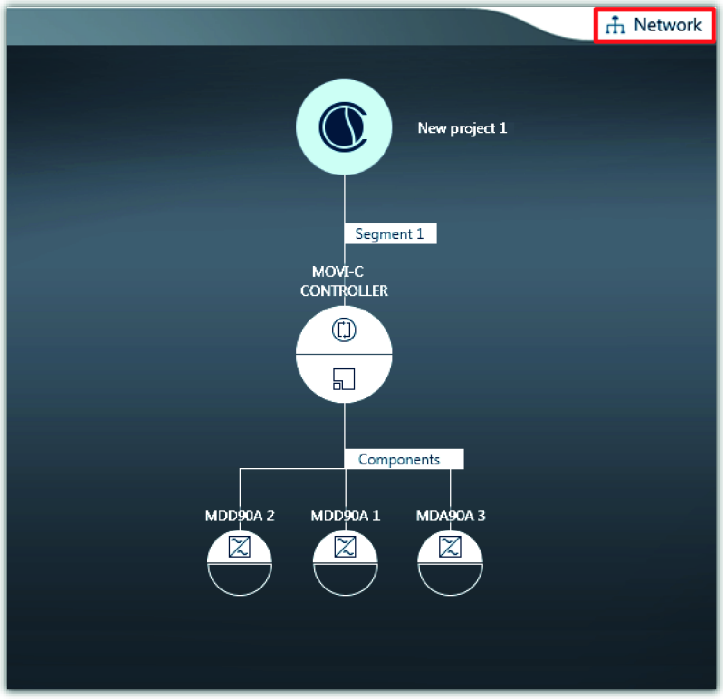
5. To go to the function view of MOVISUITE®, click the "Network" tab.
   ⇨ Tree navigation is displayed.



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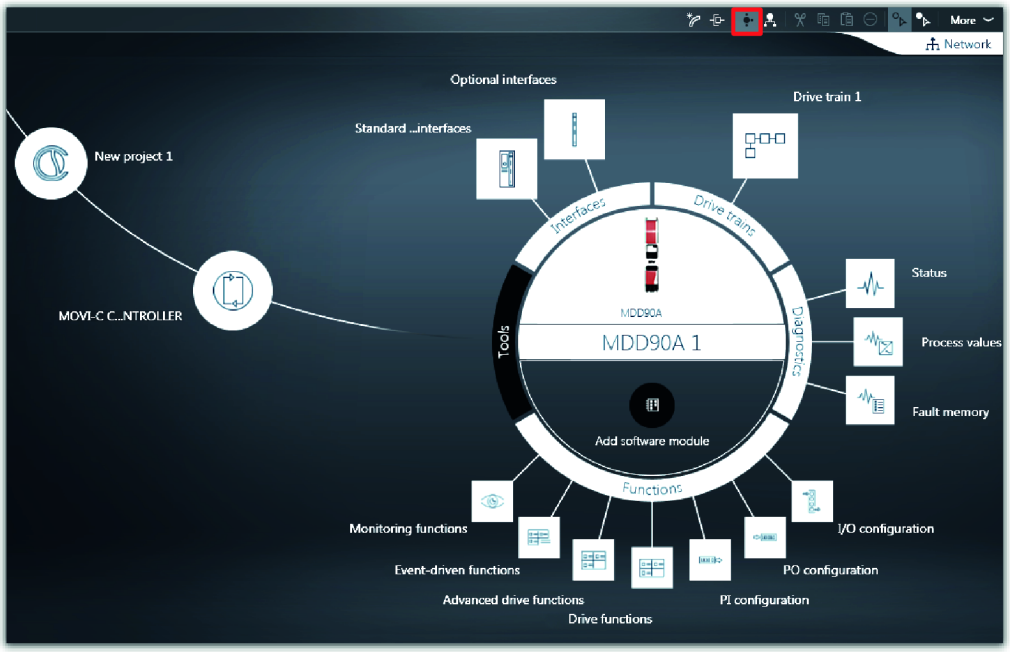
6. Switch to circle navigation and configure the individual devices as required for your application.



16927492235

4.2 Configuration of the fieldbus stations

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

- The PLC serves as fieldbus master.
- The MOVI-C® CONTROLLER serves as fieldbus slave.

Configuration and startup of the devices is performed in the following software:

- IEC editor (integrated in MOVISUITE®)
- TIA Portal, version V13

INFORMATION

The MOVI-C® CONTROLLER in delivery state cannot be integrated in the PROFIBUS network. Only if the fieldbus option is integrated in the IEC program of the MOVI-C® CONTROLLER, the MOVI-C® CONTROLLER can be configured as fieldbus station.

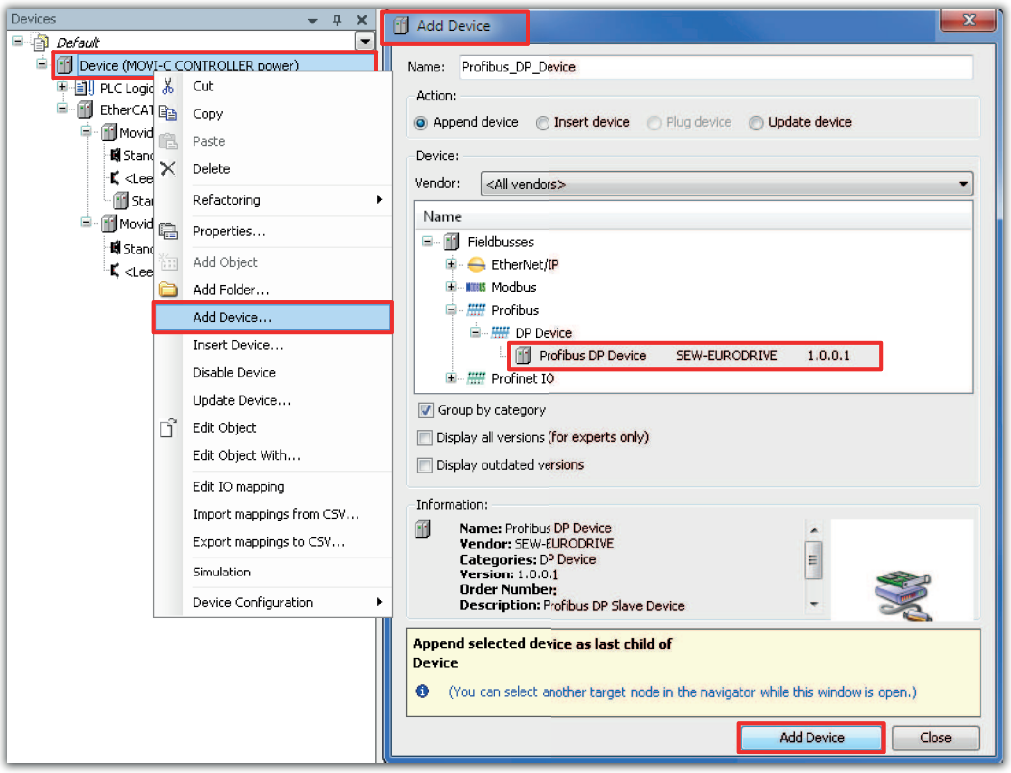
The fieldbus stations are configured in several process steps:

1. "Integrating and configuring the fieldbus option in the IEC program of the MOVI-C® CONTROLLER" (→ 🗎 26)
2. "Installing device description file of the MOVI-C® CONTROLLER" (→ 🗎 30)
3. "Creating a project in TIA portal" (→ 🗎 31)
4. "Configuring PLC in TIA portal" (→ 🗎 33)
5. "Integrating and configuring MOVI-C® CONTROLLER in PROFIBUS network" (→ 🗎 34)
6. "Loading the project to the PLC" (→ 🗎 40)

4.2.1 Integrating and configuring the fieldbus option in the IEC program of the MOVI-C® CONTROLLER

Proceed as follows:

1. Start the IEC editor.
   ⇨ The boot project of the CFast memory card of the MOVI-C® CONTROLLER is loaded automatically.
2. Open the context menu of the MOVI-C® CONTROLLER (device) by right-clicking and select the required PROFIBUS device from the device list in the "Add device" window.



18279992843

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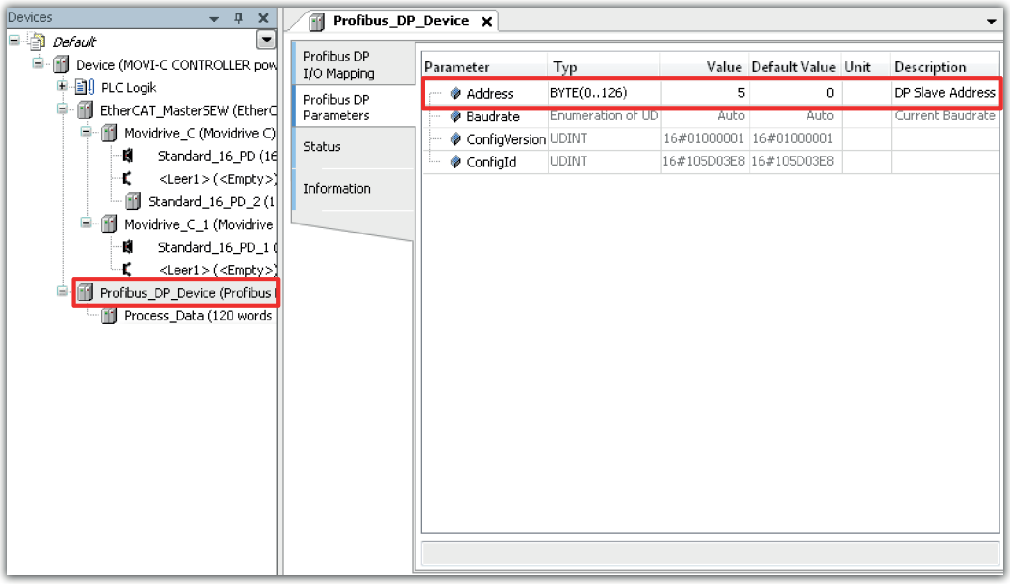
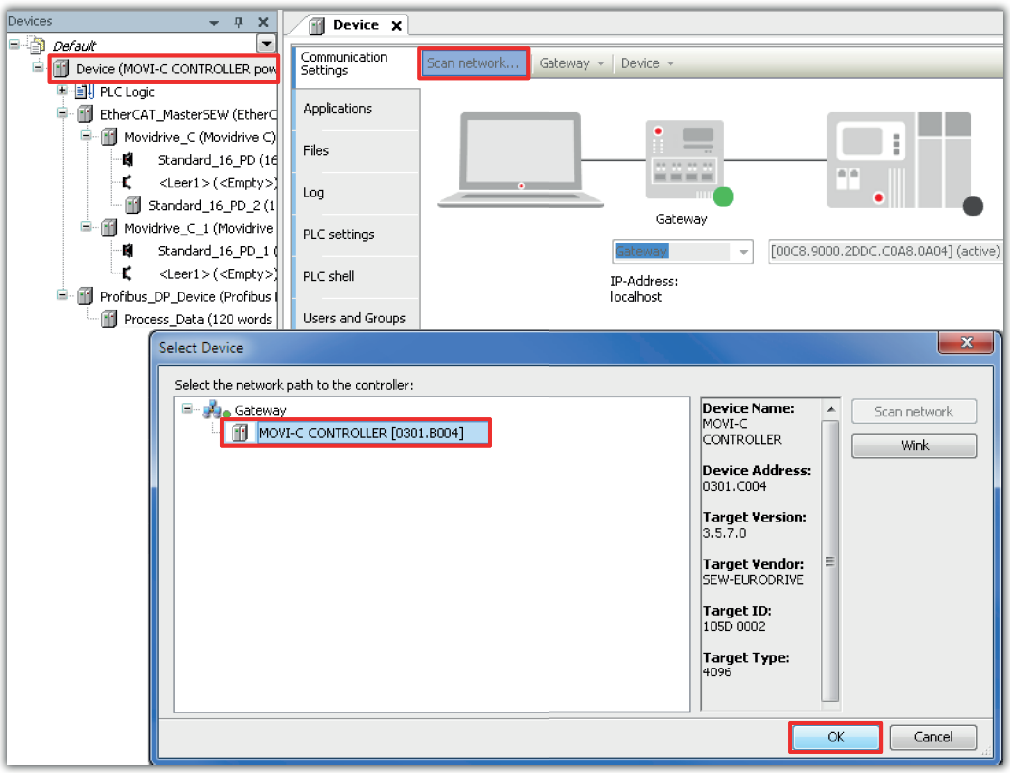
3. Double-click the PROFIBUS device. Enter the PROFIBUS address in the "PROFIBUS DP parameter" tab.



18285131787

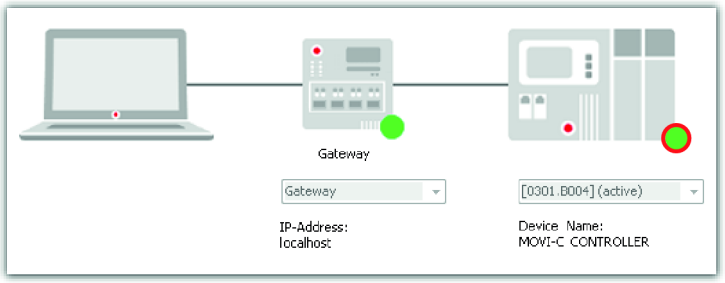
⇨ In this example, the PROFIBUS address is 5.

4. To establish a connection from the IEC editor project to the MOVI-C® CONTROLLER, double-click on the MOVI-C® CONTROLLER (device) in the device tree and scan the network. Add the found device.



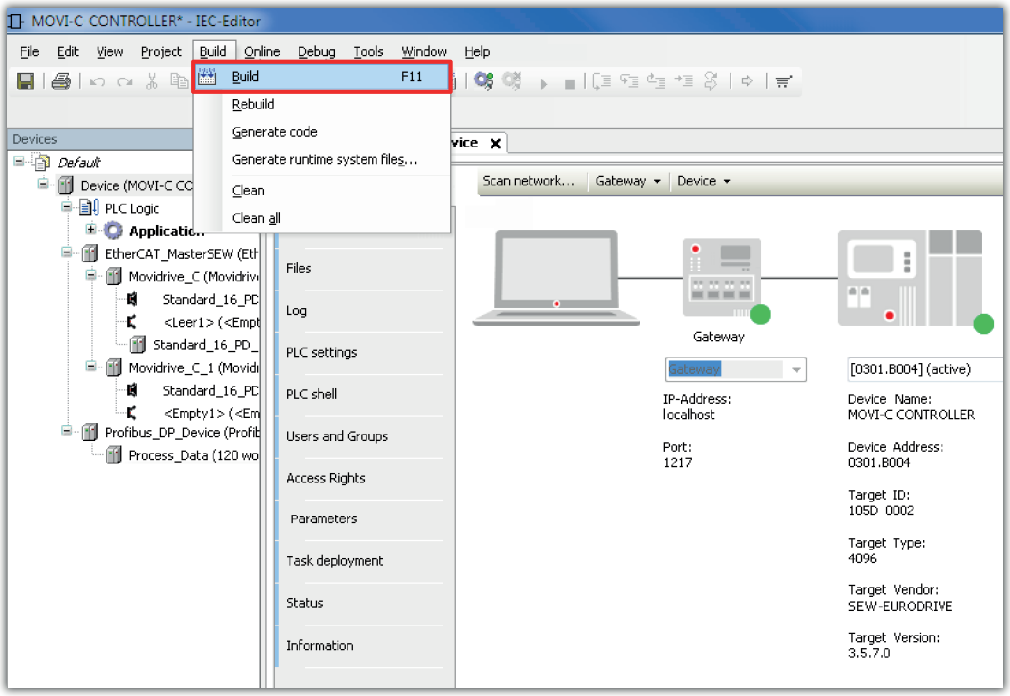
18279997963

⇨ If the connection is established, the LED of the MOVI-C® CONTROLLER lights up green.



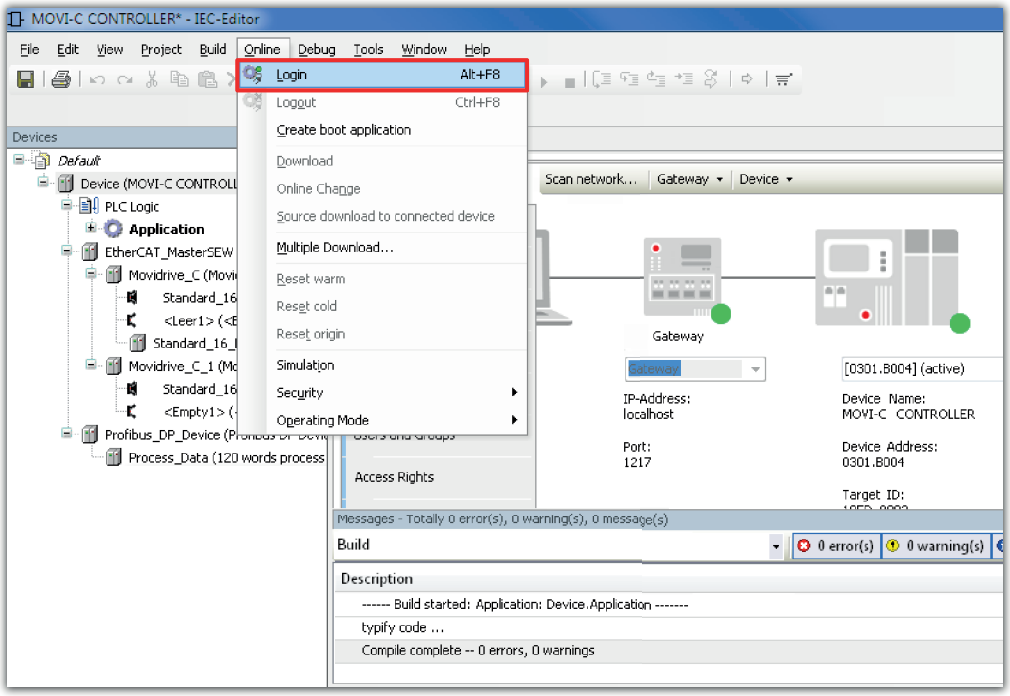
17415038859

5. Build the IEC program in the machine code of the MOVI-C® CONTROLLER.



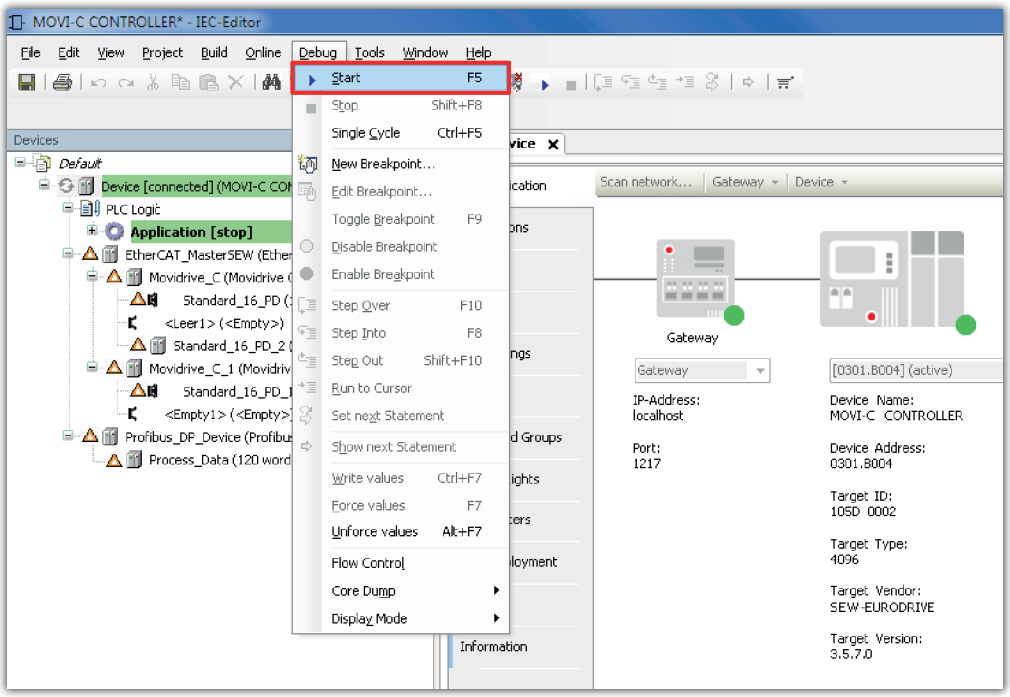
18280923403

6. If the build of the IEC program was successful, the program can be transferred to the MOVI-C® CONTROLLER. For this purpose, log on to the network.



18280927243

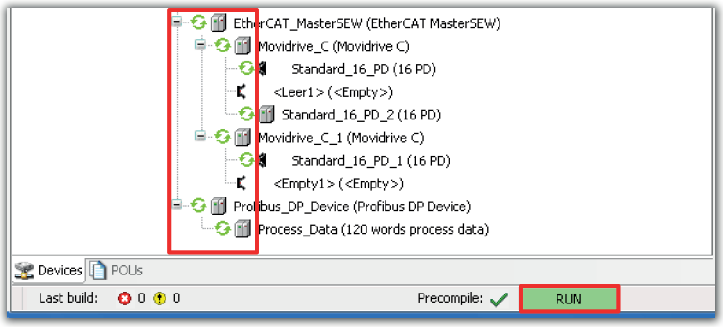
7. Start the IEC program.



18280931339

⇨ The MOVI-C® CONTROLLER starts. The message "RUN" is displayed in the status bar of the IEC editor.

⇨ The devices in the device tree get a green circle. The green circle indicates fault-free function of the fieldbus option but does not indicate the state of communication between MOVI-C® CONTROLLER and PLC.



18281242379

⇨ The MOVI-C® CONTROLLER can only be integrated in a PROFIBUS network.

4.2.2 Installing device description file of the MOVI-C® CONTROLLER

NOTICE

Damage to the device due to malfunction due to a modified device description file.

Damages to 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.

For correct installation of the MOVI-C® CONTROLLER with fieldbus interface PROFIBUS, the device description file (GSD-Datei) must be installed in the TIA portal. The file contains all relevant data for the engineering and data exchange of the MOVI-C® CONTROLLER.

The latest version of the device description file for the MOVI-C® CONTROLLER with fieldbus interface PROFIBUS can be downloaded from the SEW-EURODRIVE homepage → **www.sew-eurodrive.com**.

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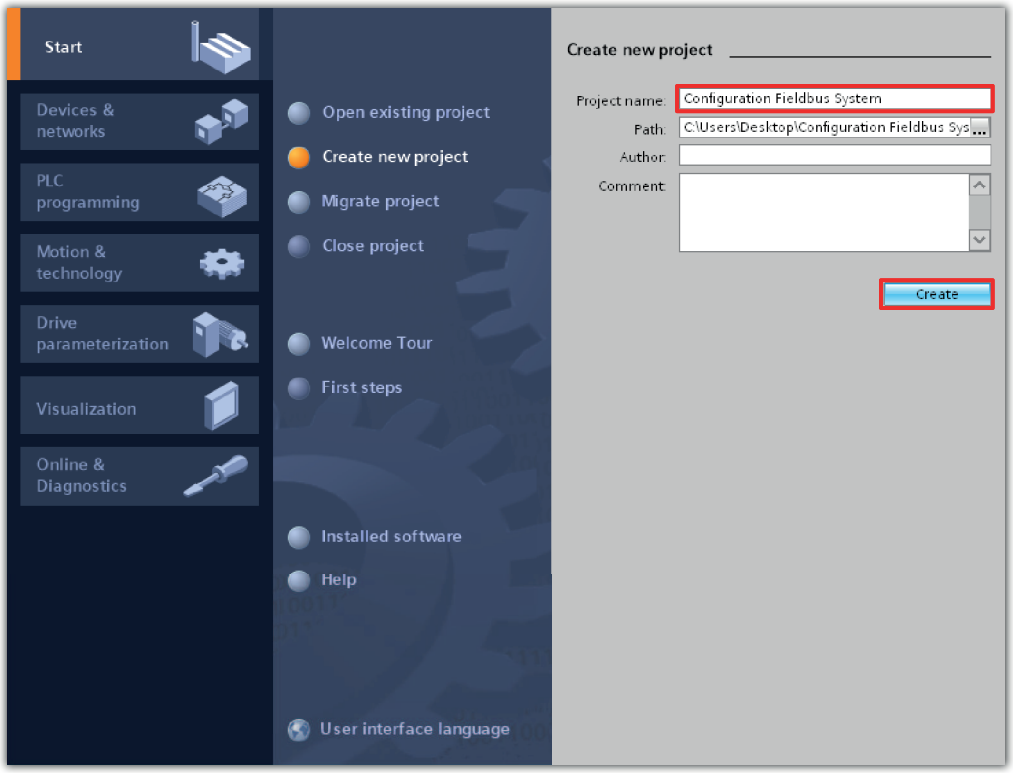
4.2.3 Creating a project in TIA portal

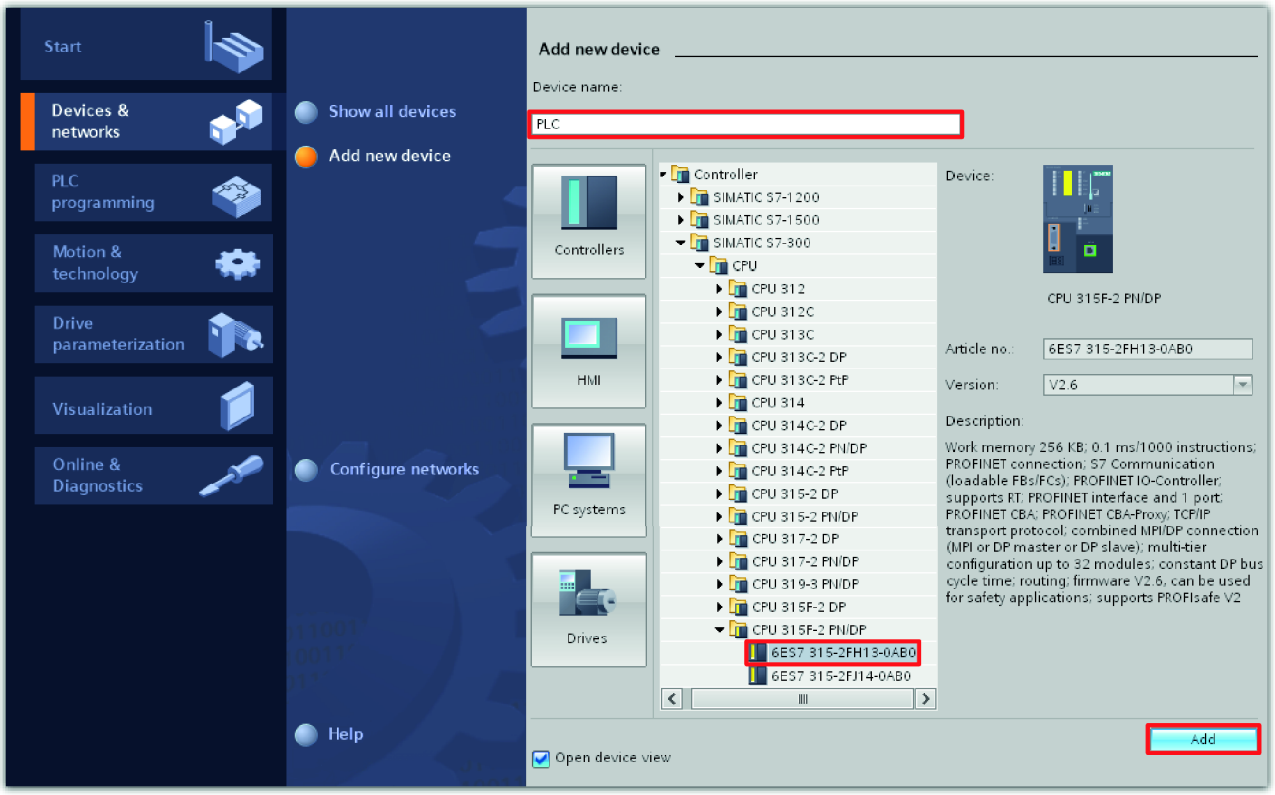
Proceed as follows:

1. Start the TIA portal.
2. Create a new TIA portal project. Enter a project name and determine the storage location of the project.



17189496075

3. Add the PLC to the project in the "Devices and networks" portal. Enter a device name.



17189505291

⇨ In this example, the device SIMATIC S7-300 with CPU 315F-2 PN/DP has the device name "PLC".

4. To configure the PLC, activate the "Open device view" check box.

⇨ The project is created and displayed in the project overview.

⇨ In the hardware and network editor (right section of the screen), the profile rail of the PLC is displayed.

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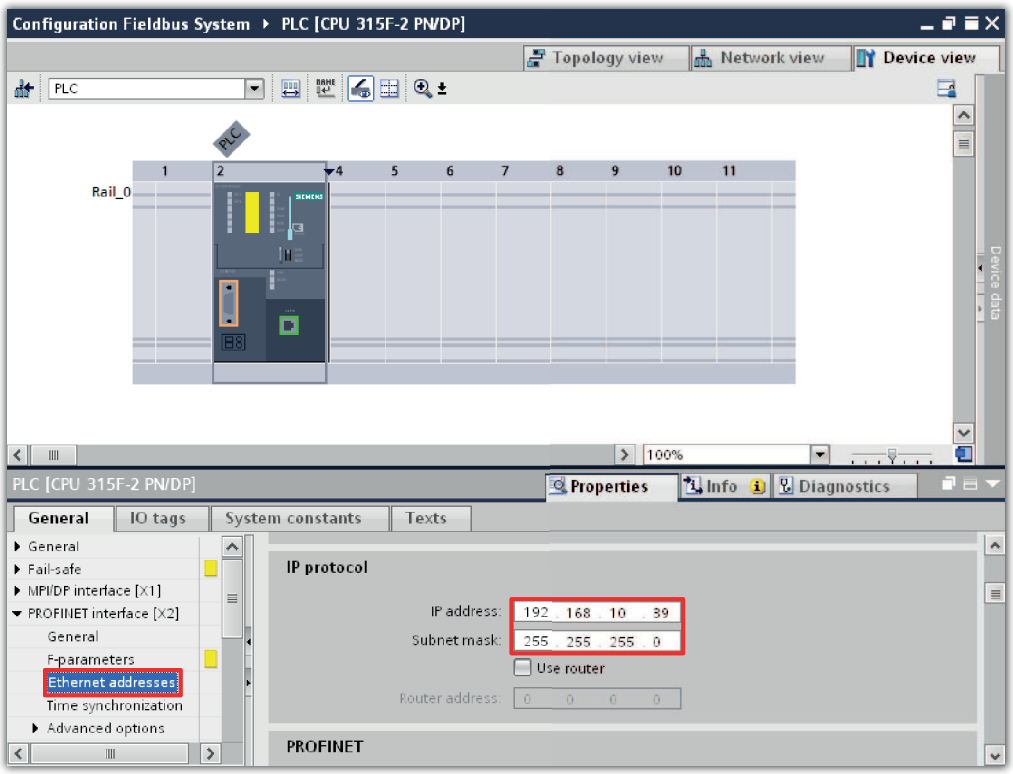
4.2.4 Configuring PLC in TIA portal

The properties and parameters of a device can be edited in the hardware and network editor in the inspector window (lower section of the editor).

Proceed as follows:

1. Enter the IP address parameters of the PLC in the "Ethernet addresses" tab. Note that the IP address of thePLC is different from the IP address of all other network stations and thus is unique. The network address (here the first 3 address blocks) for all network stations must be identical and the station address (here the last address block) must be different for all network stations.



17189527563

⇨ In this example, the IP address of the PLC is 192.168.10.39

4.2.5 Integrating and configuring MOVI-C® CONTROLLER in PROFIBUS network

The MOVI-C® CONTROLLER must also be added to the TIA portal project, connected to the PLC and configured.

During configuration, the MOVI-C® CONTROLLER is assigned a PROFIBUS address and process data with addresses.

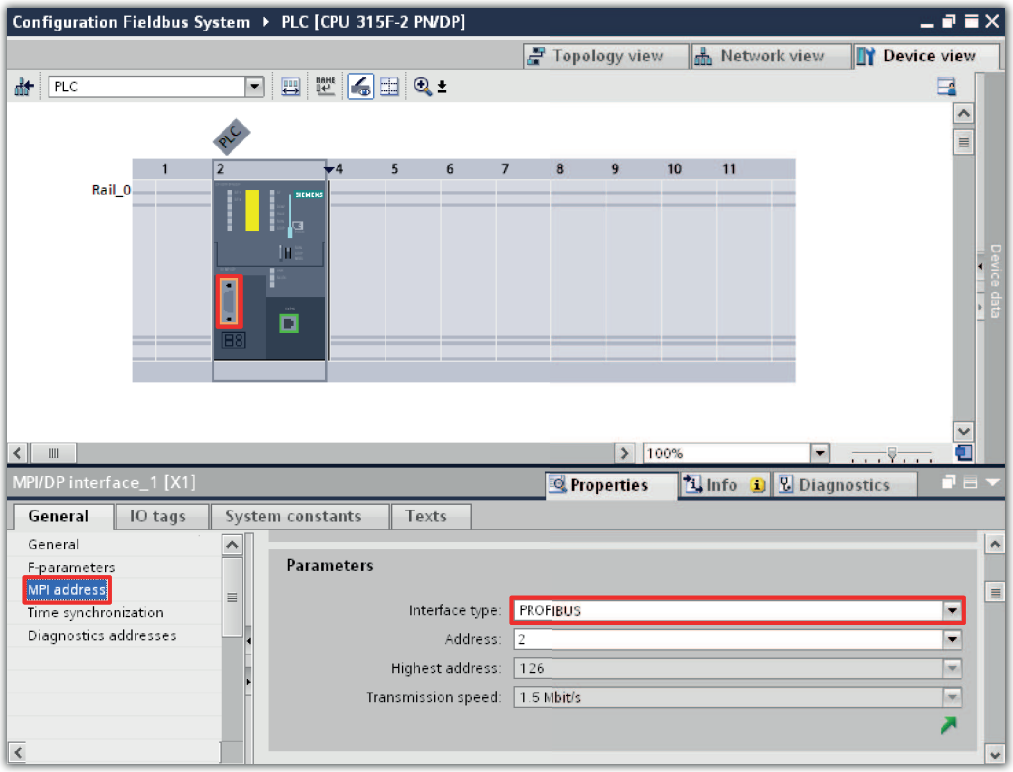
Proceed as follows:

✓ You already downloaded the device description file (GSD-Datei) of the MOVI-C® CONTROLLER from the SEW-EURODRIVE homepage → **www.sew-eurodrive.com** and saved it on your computer (see chapter "Installing device description file of the MOVI-C® CONTROLLER" (→ 🗎 30)).

1. Double-click the MPI/DP interface (orange colored).

   ⇨ The interface properties are displayed in the inspector window (lower screen section).

2. Select the PROFIBUS interface from the "Interface type" drop-down list in the "MPI address" group.



18287692555

3. Switch to network view in the hardware and network editor.

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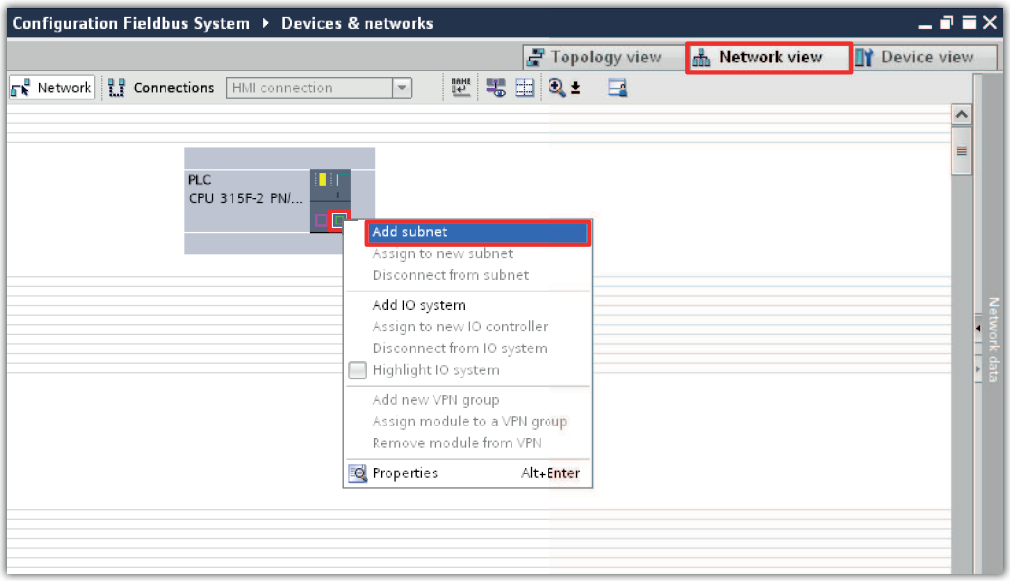
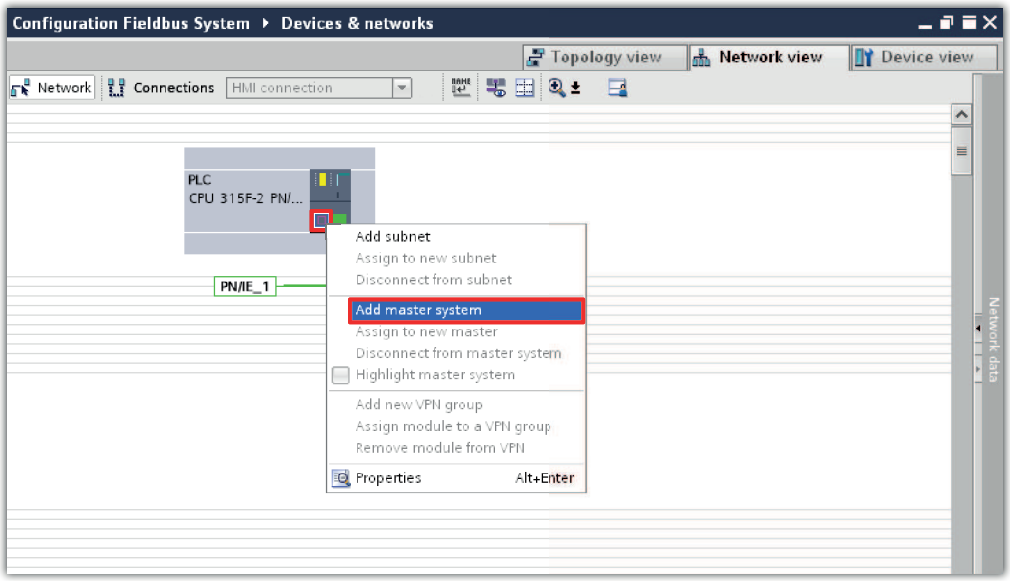
4. Open the Ethernet interface context menu by right-clicking and add a subnetwork. The Ethernet interface is the connection between the MOVI-C® CONTROLLER and the engineering PC.



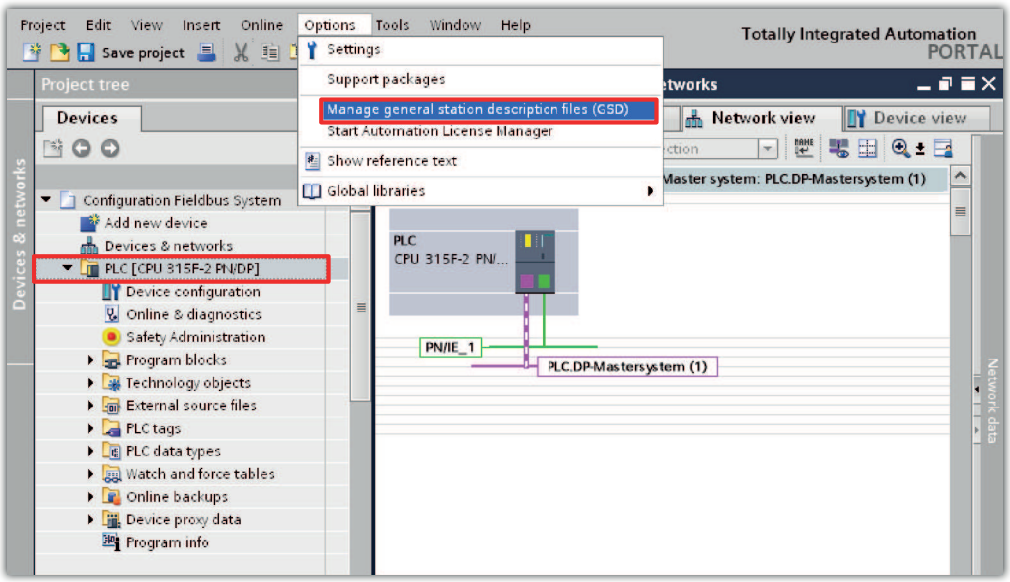
18287709323

5. Open the PROFIBUS interface (purple colored) context menu by right-clicking and add the master system.



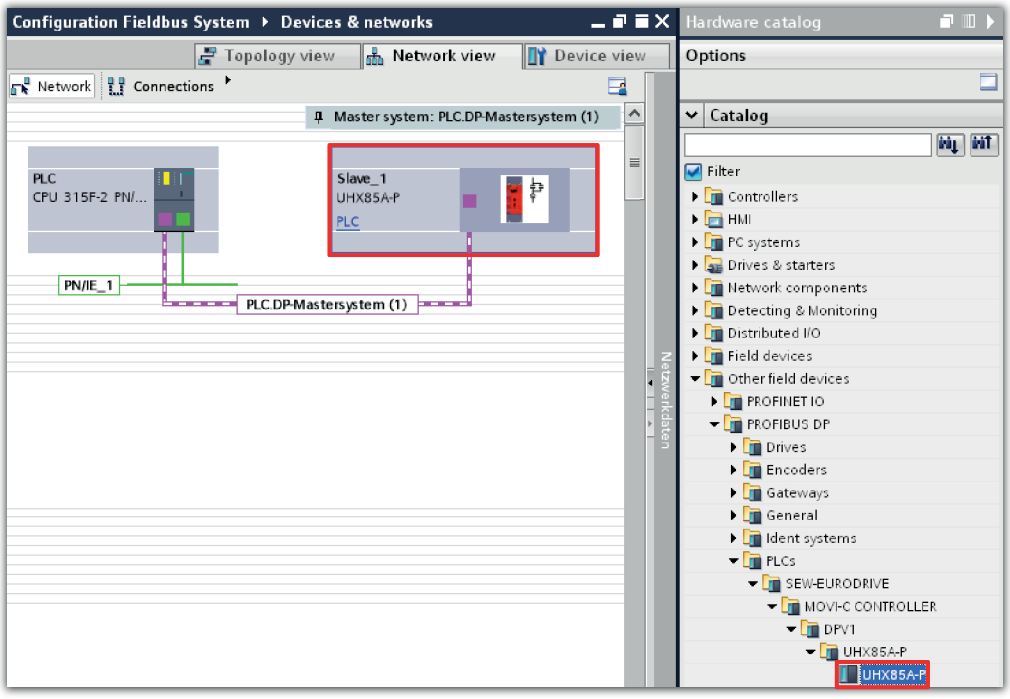
18289061515

6. Load the device description file to the TIA portal project.



18289406475

7. Open the hardware catalog in the bar at the right side of the screen. Select the MOVI-C® CONTROLLER from the catalog and insert it at the end of the PROFIBUS branch using the drag-and-drop function. Assign the device to the suitable controller.



18289433739

⇨ In this example, the MOVI-C® CONTROLLER in UHX85A-P device design is used and assigned to the controller with the device name "PLC".

8. To configure the MOVI-C® CONTROLLER, double-click on the device.

⇨ The device view is displayed.

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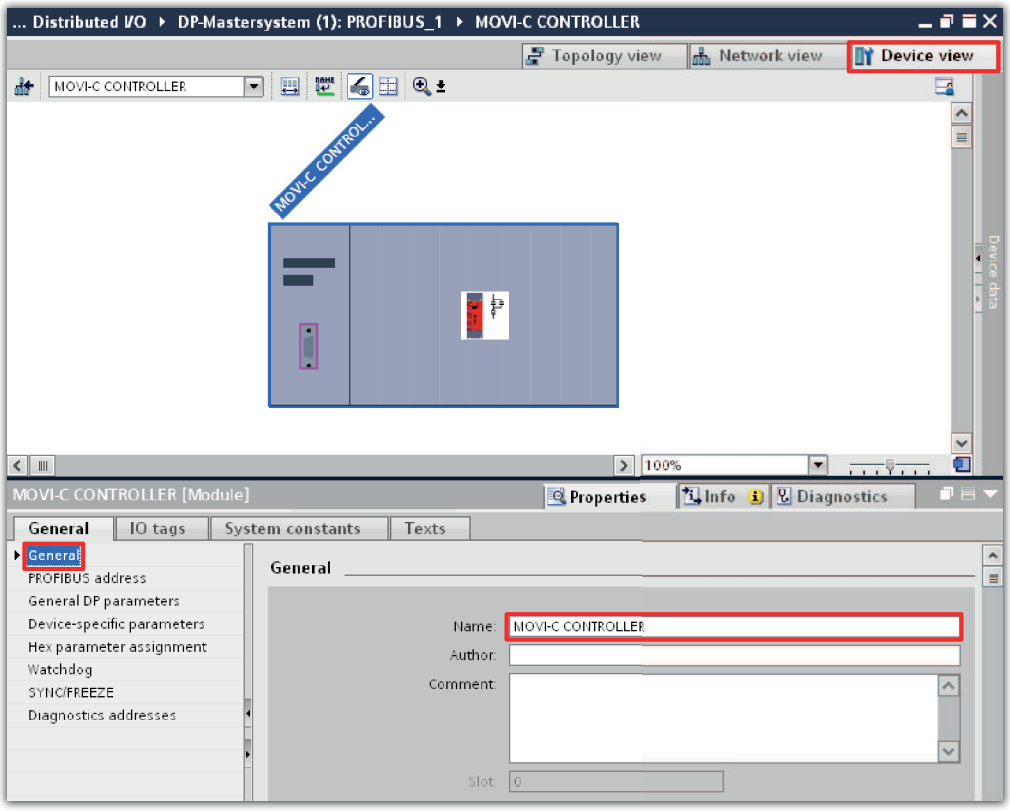
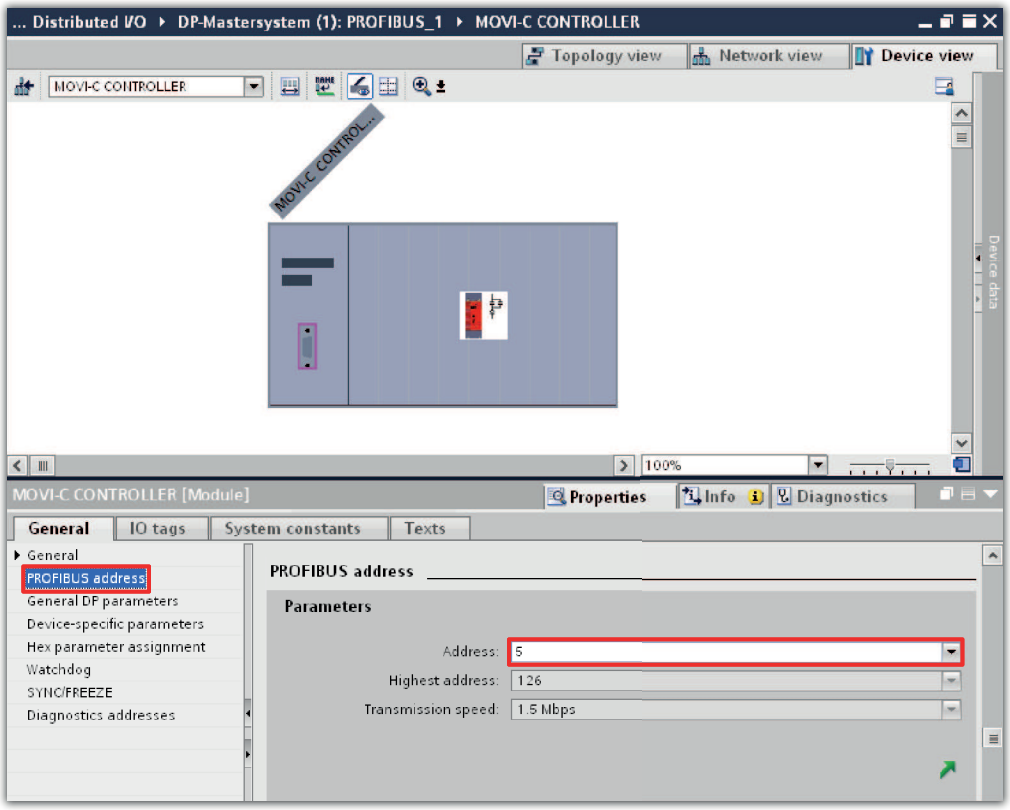
9. Enter a name for the MOVI-C® CONTROLLER in the inspector window (lower editor section) in the "General" tab. The device is shown in the TIA portal project under this name.



18290408587

⇨ In this example, the project name "MOVI-C CONTROLLER" is used for the MOVI-C® CONTROLLER.

10. Select the PROFIBUS address of the MOVI-C® CONTROLLER from the "Address" drop-down list in the "PROFIBUS address" group.



18290414987

⇨ In this example, the PROFIBUS address of the MOVI-C® CONTROLLER is 5.

11. Expand the device overview on the right side of the device view tab. Right-click to open the context menu of the slot in which you want to insert the lower-level slave and delete the existing entry.

INFORMATION

The first 2 slots are reserved for future safety applications.

You can add process data words to the device overview only to slot 3 and higher.

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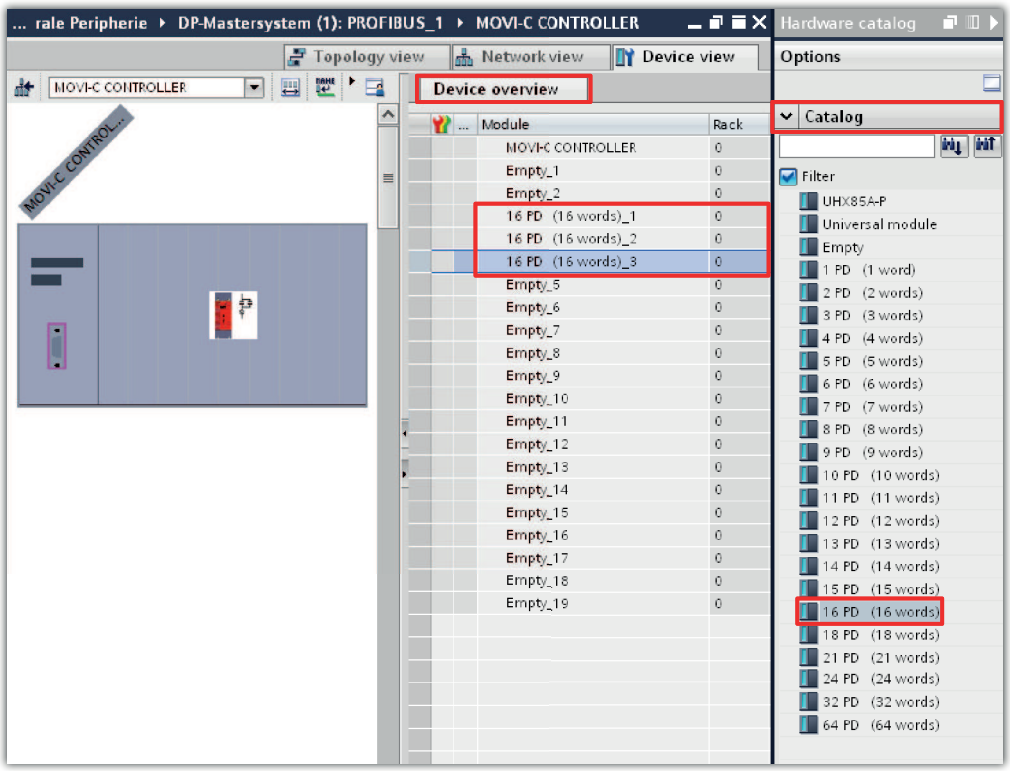
12. Open the hardware catalog in the bar at the right side of the screen. Select the number of process data words that are to be used for communication with lower-level slaves and add them to the device overview using the drag-and-drop function.



18290420747

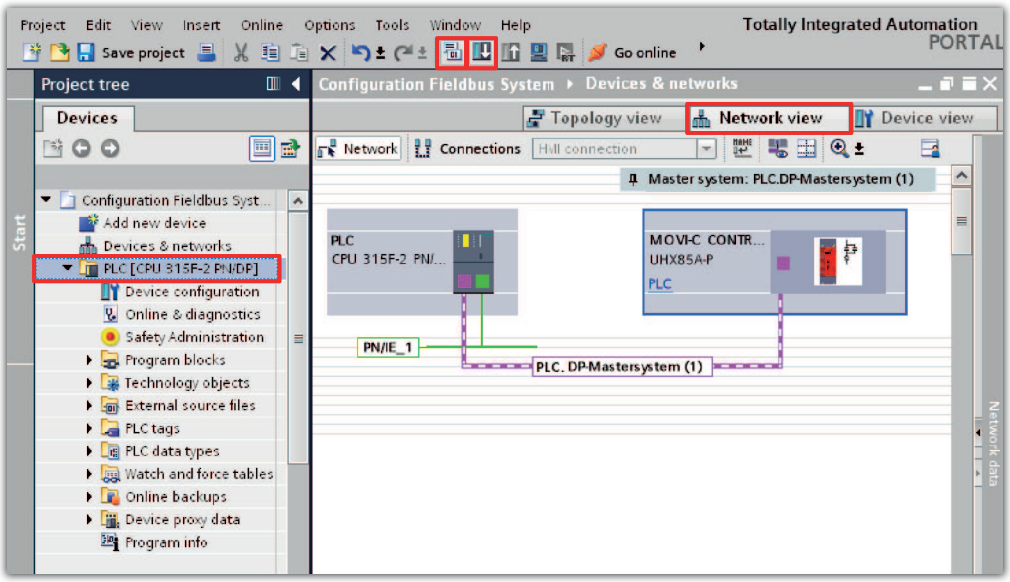
⇨ In this example, 16 process data words are assigned to the each application inverter module (slaves of MOVI-C® CONTROLLER) for communication.

4.2.6 Loading the project to the PLC

Data (PROFIBUS address, process data) that have been assigned to the fieldbus stations during configuration are first only defined in the TIA portal project on the engineering PC. Only of the project is loaded to the PLC, the data is transferred to the PLC and activated.

Proceed as follows:

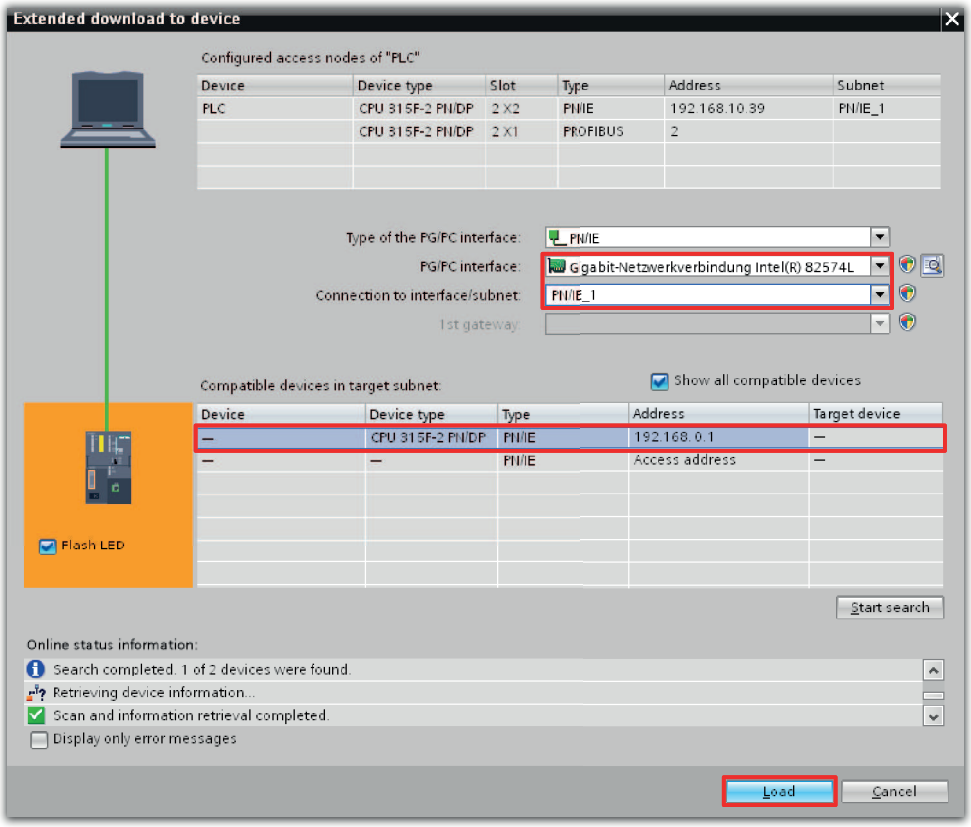
1. Switch to network view in the hardware and network editor.
2. Click on the corresponding icons to build the TIA portal project in machine code of the PLC and load the project to the PLC.



18317134987

⇨ A window with settings regarding loading is displayed.

3. Set the used programming interface of the configured PLC and search for compatible stations in the PROFIBUS network.



18317140747

4. Mark the found PLC and add it to the TIA portal project.
   ⇨ The project view is displayed again.
5. Save the TIA portal project.

⇨ Correct process data transfer between PLC and MOVI-C® CONTROLLER can be tested.

4.3 Checking the process data communication

During successful communication between PLC and the MOVI-C® CONTROLLER, process data words are transferred between the devices without faults.

The process data communication check via the fieldbus interface is performed in several steps:

1. "Integrating I/O image of fieldbus option in IEC program" (→ 🗎 42)
2. "Creating a watch table" (→ 🗎 45)

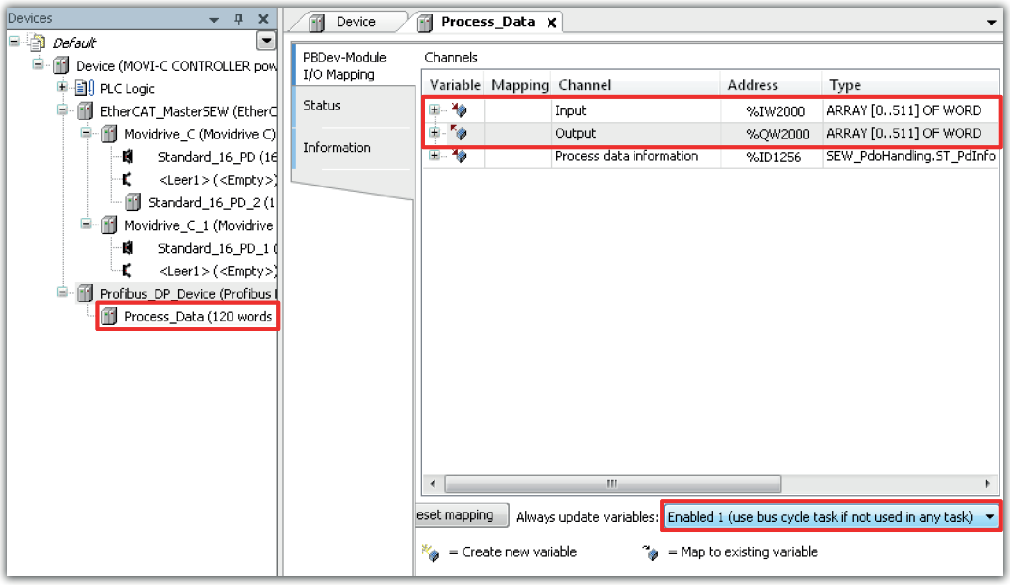
4.3.1 Integrating I/O image of fieldbus option in IEC program

In order to monitor the process data transfer in the IEC editor, an I/O image of the fieldbus option must be integrated in the IEC program. This means:

1. A variable for the process data exchange is added to the IEC program that runs on the MOVI-C® CONTROLLER as standard.
2. The variable is linked with the input and output channels of the MOVI-C® CONTROLLER.
3. The task configuration is assigned. The task configuration defines which IEC program is activated by which task with which settings.
4. The IEC program is loaded on the memory card of the MOVI-C® CONTROLLER. This way, the boot project is updated.

Proceed as follows:

1. Check the address of the input and output channels of the MOVI-C® CONTROLLER. Double-click on the process data of the PROFIBUS device in the device tree and read the assigned addresses of the input and output channels from the "Address" column.



18319010315

⇨ In this example, the input and output channels have the addresses "%IW2000" and "QW2000".

2. Select the setting "Enable 1" from the "Always update variables" drop-down list. This way it is ensured that all values of the declared variable are displayed if communication was established successfully.

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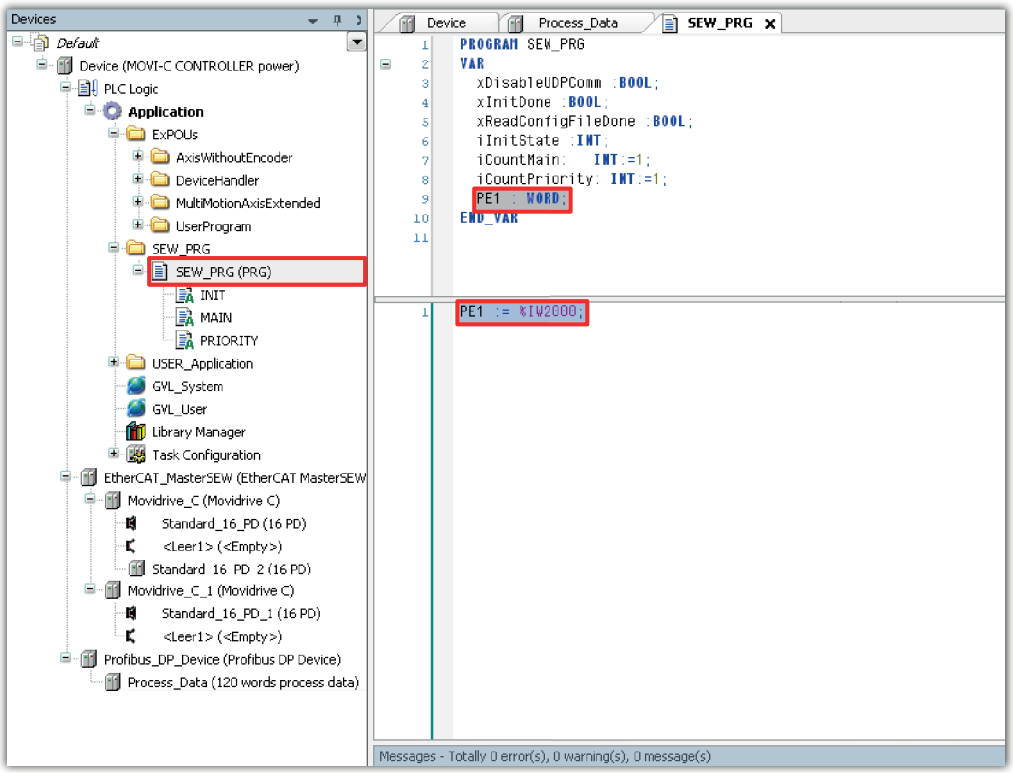
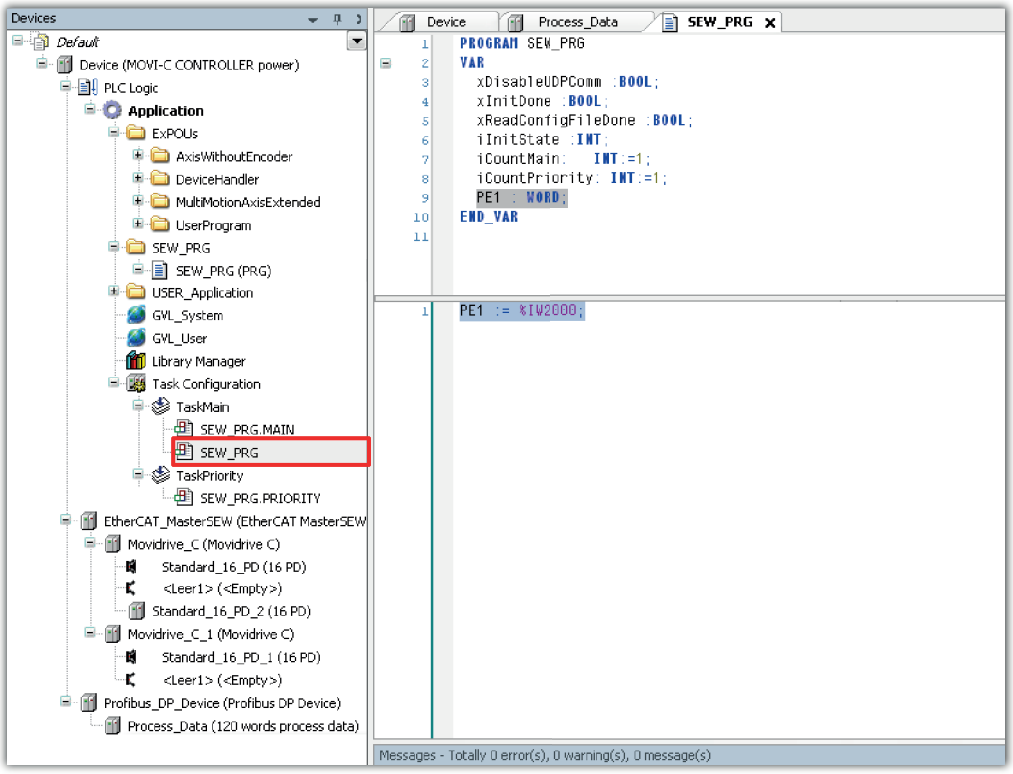
3. Double-click on the IEC program "SEW_PRG (PRG)" in the device tree. Declare a variable with which you access the process input data words of the MOVI-C® CONTROLLER from the IEC program. In the lower window section, enter the variable value in program code.



18319006219

⇨ In this example, the variable "PE1" is declared. The variable value "%IW2000" defines the address of the input channel. This way, the variable of the IEC program is linked to the input channel of the MOVI-C® CONTROLLER.

4. Add the changed application program to the task configuration using the drag-and-drop function.



18319014411

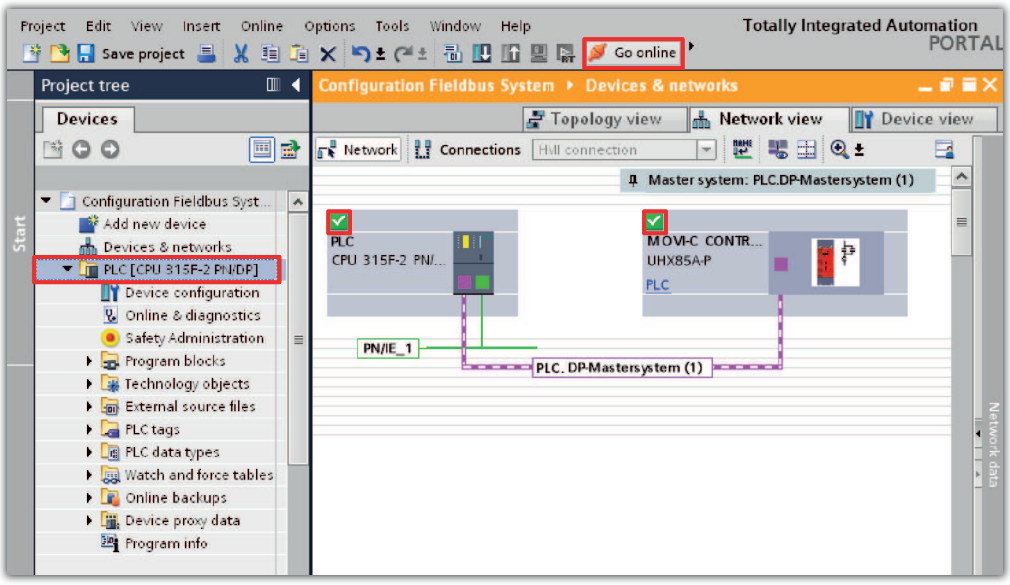
5. Log into the network and start the IEC editor project.

4.3.2 Creating a watch table

Watch tables allow for monitoring and controlling the process data exchange.

Proceed as follows:

1. Switch to the TIA portal.
2. Establish an online connection between the PLC and the MOVI-C® CONTROLLER. Click on the "Go online" icon.

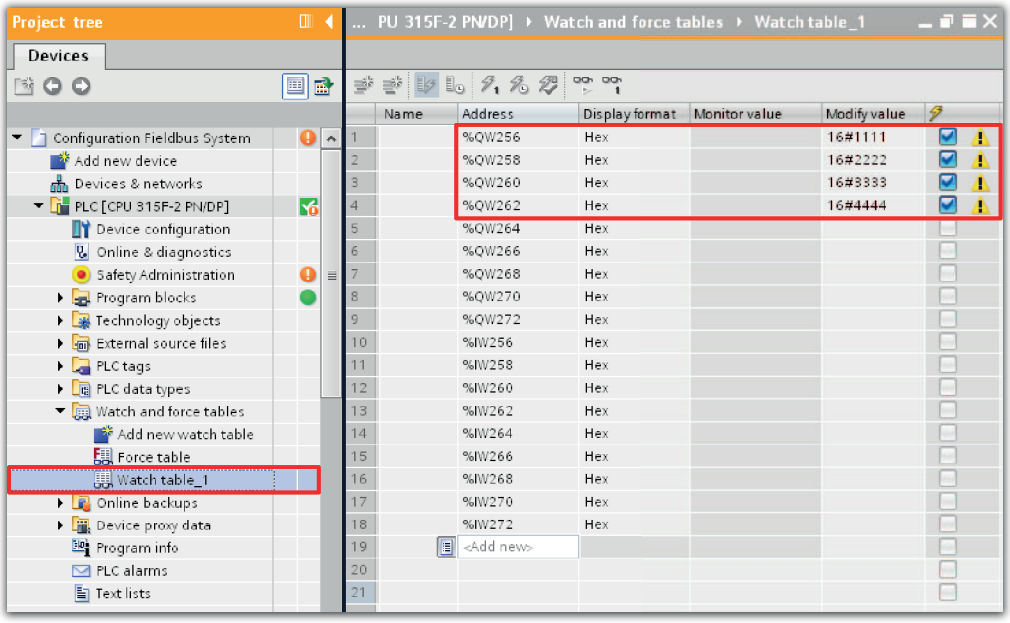


18319174539

⇨ In the network view and device view, all addressed stations are shown with a green check mark.

3. Add a new watch table in the "Watch and force tables" subfolder of the PLC.
4. Enter the addresses of the process data words in the "address" column. The input and output addresses define which process data word is used to address a station. Make sure that the process data words are in the address range of the stations and that the address ranges for input and output process data words are identical.

5. Enter test values for some process output data words in the "Modify value" column. The values are sent to the MOVI-C® CONTROLLER if communication has been established successfully.

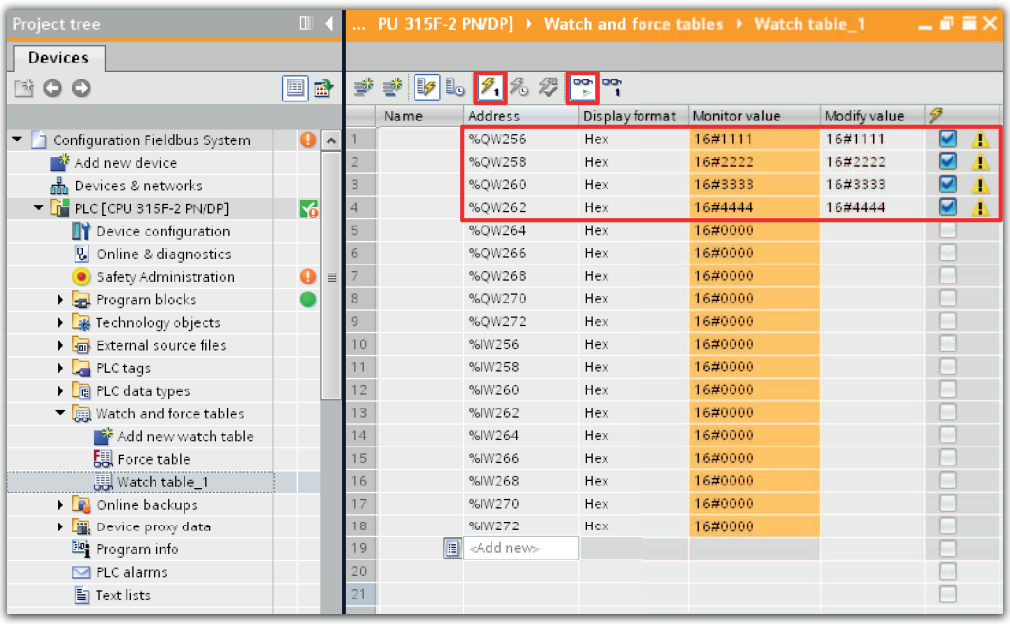


17471659019

⇨ In this example, test values are entered for the first 4 process output data words.

6. Click the respective icons in the toolbar to first start variable monitoring (glasses icon) and then to control the active variables (flash icon).

⇨ The set test values of the process output data words are transferred to the "Monitor value" column. The PLC sent the process output data words to the MOVI-C® CONTROLLER.



17471663627

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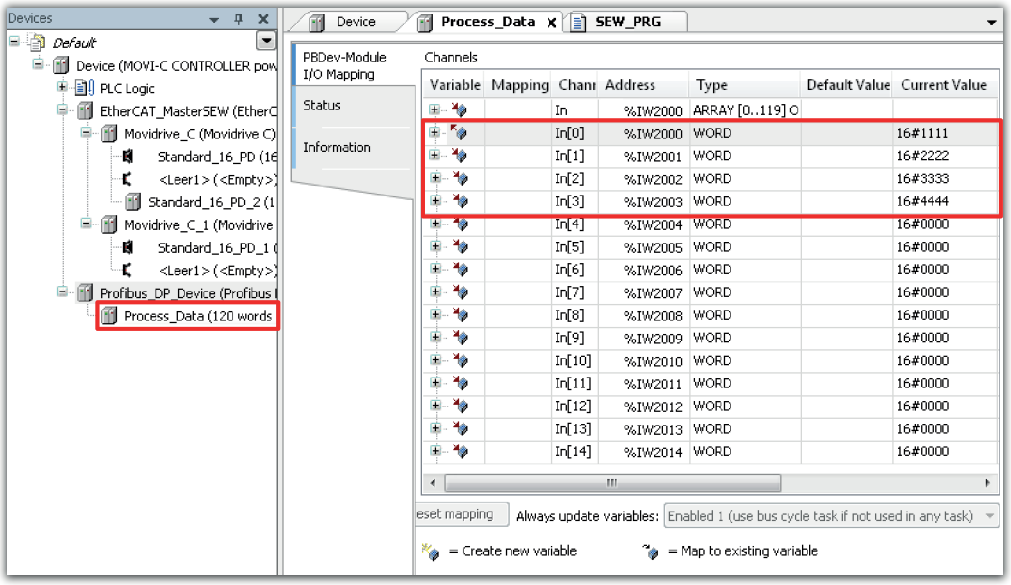
7. Switch to the IEC editor.
8. Check if the values of the process input data words of the MOVI-C® CONTROLLER are identical to the sent test values.



18319056907

⇨ If the test values sent by the PLC arrived at the MOVI-C® CONTROLLER, the communication has been established successfully.

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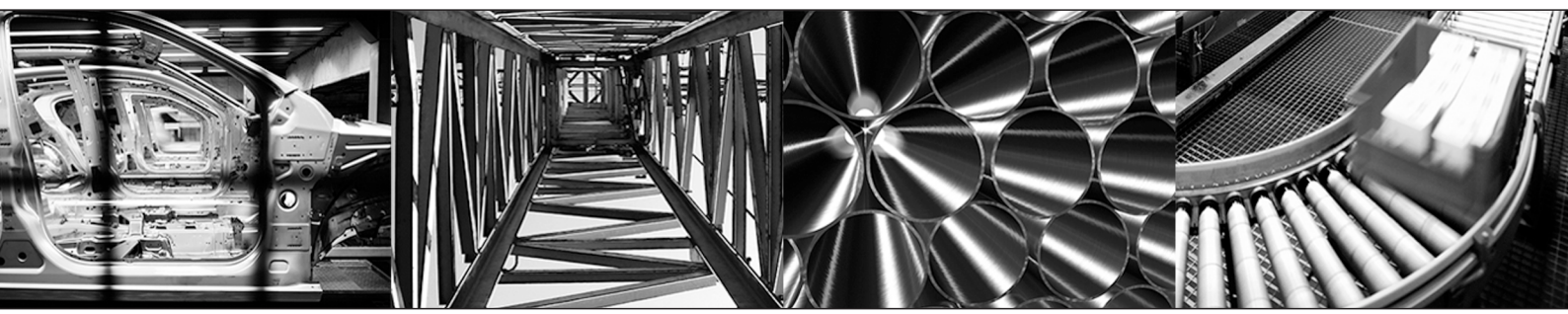

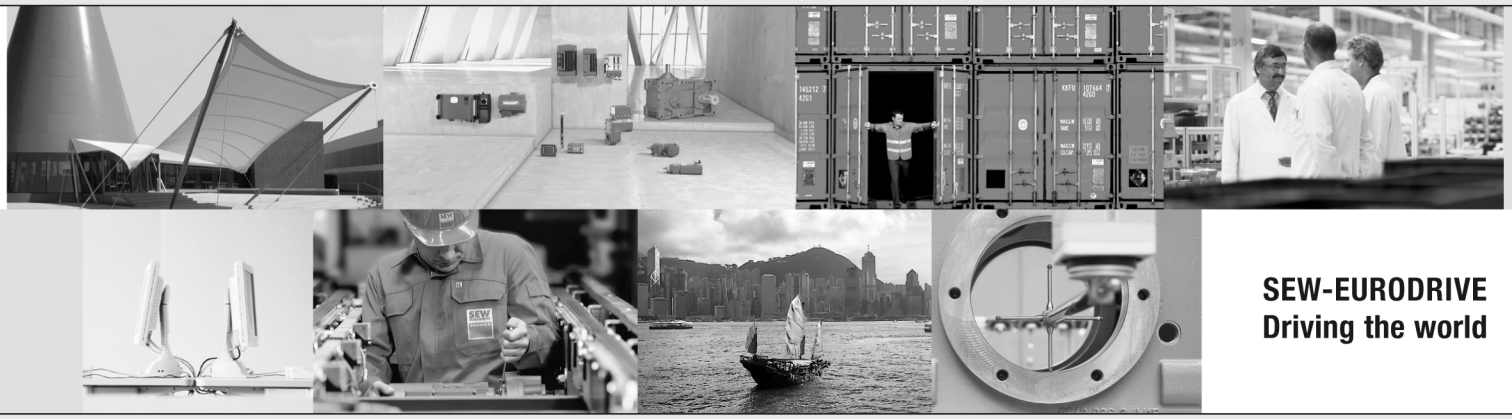

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