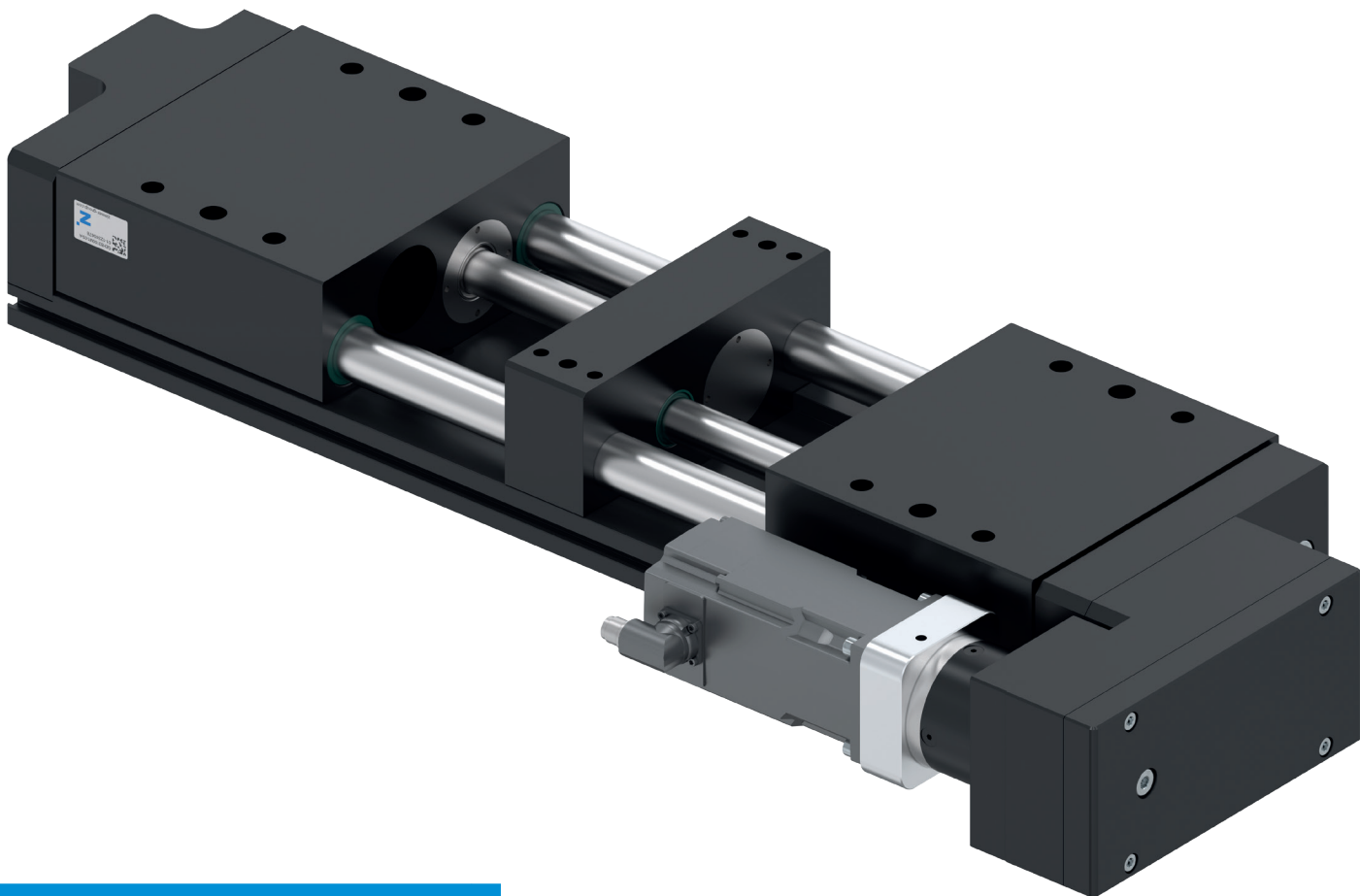




INSTALLATION AND OPERATING INSTRUCTIONS

2-jaw parallel gripper
GEH8000

DDOC02413

THE KNOW-HOW FACTORY

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1 Introduction

1.1 Supporting documents

NOTICE



Read through the instructions before installing or working with the product.

The instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.



The documents listed below are available for download on our website www.zimmer-group.com.

- Instructions
 - Catalogs, drawings, CAD data, performance data
 - Information on accessories
 - Technical data sheets
 - General Terms and Conditions, including warranty information.
- ⇒ Only those documents currently available on the website are valid.

In these instructions, "product" refers to the product designation on the title page!

1.2 Notices and graphics in the instructions

DANGER



This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

WARNING



This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

CAUTION



This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

NOTICE



This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

- ▶ You absolutely must comply with the described measures for avoiding these dangers!
- ⇒ The warning symbols are assigned according to the type of danger.

INFORMATION



This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

CAUTION



Risk of injury and material damage in case of non-compliance

The product is state-of-the-art.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.
- ▶ The product may only be used in accordance with these instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:
 - Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
 - Additional drilled holes or threads
- ⇒ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.
- ▶ Make sure that the power supply is disconnected before you mount, adjust, modify, maintain or repair the product.
- ▶ Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.
- ▶ Perform maintenance tasks, renovation work or attachment work outside of the machine's danger zone when possible.
- ▶ Do not reach into the operational range of the product.
- ▶ Observe the specified maintenance intervals and specifications regarding the quality of the operating material.
- ▶ When using the product under extreme conditions, adjust the maintenance interval according to the degree of contamination.
- ▶ Check the completeness and tightening torques of all mounting screws.

CAUTION



Notes and handling regulations for electrostatically sensitive components

Electrostatically sensitive components are individual components, integrated circuits or assemblies that can be damaged by electrostatic fields or electrostatic discharge.

- ▶ When handling electrostatic components, make sure that persons, the work area and packaging are all fully grounded.
- ▶ Touch electronic components only in appropriately identified areas with conductive flooring and only if:
 - You are grounded by means of special bracelets.
 - You wear shoes that are suitable and approved for the discharge of electrostatic charges.
- ▶ Do not bring electronic assemblies into contact with plastics and parts of clothing that have plastic content.
- ▶ Store electronic assemblies on conductive underlays only.
- ▶ Do not install electronic assemblies in the vicinity of data back-up devices or monitors (monitor distance > 100 mm).
- ▶ Perform measurements on electronic assemblies only if:
 - The measuring instrument is grounded (e.g. via a ground conductor).
 - The measuring head is momentarily discharged before measuring with a floating measuring instrument.

3 Proper use

NOTICE



Material damage and malfunction in case of non-compliance

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated instructions.
 - ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ⇒ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

- The product is to be used as intended in enclosed rooms for temporary gripping, handling and holding.
- The product is intended for industrial use.
- The product is not suited for use in a potentially explosive atmosphere.
- Direct contact with perishable goods/food is not permitted.
- The product must always be mounted on materials that dissipate heat.
- The product is not suitable for clamping workpieces during a machining process.

4 Personnel qualification

WARNING



Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

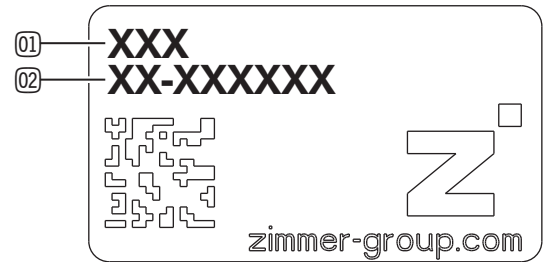
Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

5 Product description

5.1 Type plate

A type plate is attached to the product.

- 01 Article number
- 02 Confirmation number



5.2 Product variants and compatibility

INFORMATION



- You can find information about product variants and their compatibility on our website.
- Please contact Customer Service if you have any questions.

6 Functional description

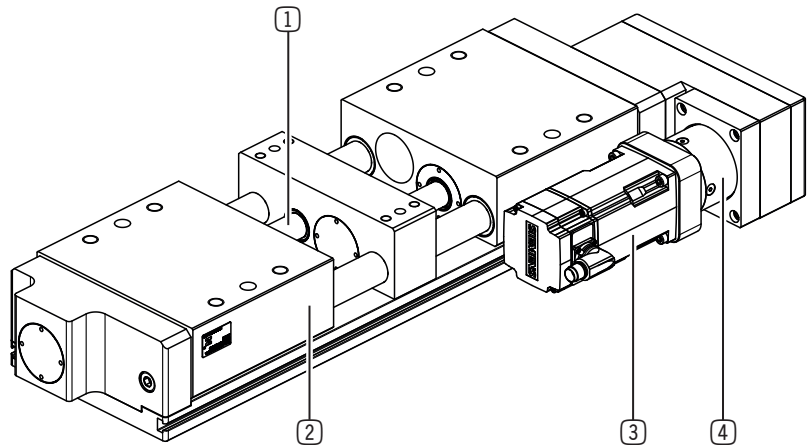
The motor's torque is transmitted to the spindles via a gearbox.

The gripper jaws are attached to nuts that move along the spindles and, as a result, perform a linear motion.

The GEH8xxxxM1-xx-A models are shipped with the motor already installed.

The GEH8xxxxMx-63-A models feature an integrated safety clamping mechanism to maintain gripping force.

- ① Spindle
- ② Gripper jaw
- ③ Motor
- ④ Gearbox



7 Technical data

INFORMATION



- You can find the information in the technical data sheet on our website.
- This data varies within the series, depending on the specific design.

7.1 Selecting a motor

NOTICE



Non-compliance may result in material damage.

- For product variants that do not include a motor, please note the following values when selecting a motor.

Technical data

Max. motor torque [Nm]	1.15
Max. motor speed [RPM]	2500
Gear ratio	9:1
Spindle pitch [mm]	18
Max. acceleration [mm/s ²]	2000
Holding torque of the safety clamp [Nm]	9

8 Accessories/scope of delivery

INFORMATION



If any accessories not sold or authorized by Zimmer Group GmbH are used, the function of the product cannot be guaranteed. Zimmer Group GmbH accessories are specifically tailored to the individual products.

- For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

- Transport and storage of the product must be done only with the original packaging.
- If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.
 - Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.
- If the product is stored for an extended period, the following points are to be observed:
 - Keep the storage location as dust-free and dry as possible.
 - Avoid temperature fluctuations.
 - Avoid wind/drafts/water condensation formation.
 - Pack the product and do not expose it to direct sunlight during storage.
- Clean all components. There must be no soiling left on the components.
- Visually inspect all components.
- Remove all foreign substances.
- Properly remove potential corrosion spots.
- Close electrical connections using suitable covers.

10 Installation

DANGER

**Risk of fatal injury due to unsuitable lifting equipment**

There is a very high risk of injury during overhead assembly or removal of products if the dead weight exceeds 3 kg.

- Use suitable lifting equipment or racks.

WARNING

**Risk of injury due to uncontrolled movements**

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- Switch off the energy supply of the machine before any work.
- Secure the power supply against being switched on unintentionally.
- Check the machine for any residual energy that may be present.

WARNING

**Risk of injury from crushing**

Injuries can be caused by crushing and clamping during the gripping process on the product or between the product and the workpiece.

- Always keep an adequate safety distance.

CAUTION

**Risk of injury due to uncontrolled movements**

Risk of injury in the event of uncontrolled movement of the product when the power supply is connected.

- Switch off the power supply to the machine before carrying out any work.
- Secure the power supply against being switched on unintentionally.
- Check the machine for any residual energy that may be present.

CAUTION

**Risk of injury from impact**

Injuries can result from being caught or from impacts during the process of gripping the product.

- Always keep an adequate safety distance.

Assembly requirements

Permissible flatness tolerance [mm/m]	0.15
Strength class of the mounting screws	8.8

INFORMATION



Further installation information:

- The mounting screws are not included in the scope of delivery.

- ▶ Install the product on an appropriate mounting surface in accordance with the flatness specifications.
- ▶ Make sure that the mounting piece is sufficiently rigid.
- ▶ Ensure the cleanliness of the connection surfaces.
- ▶ Please note the permitted tightening torques of the mounting screws at www.zimmer-group.com/en/td.

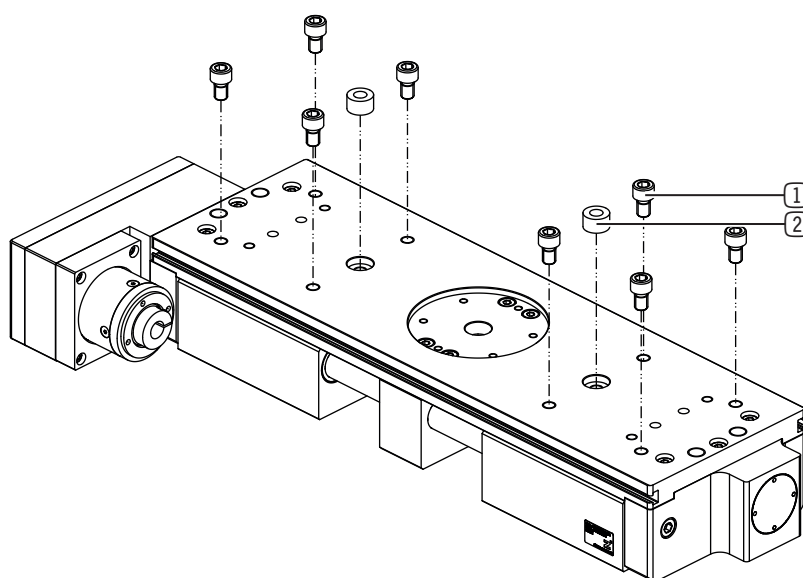
10.1 Installing the product

INFORMATION



- ▶ Use an adapter plate if necessary.
- ▶ For information on optional accessories and those included in the scope of delivery, refer to our website.

- ▶ Insert the centering sleeves into the provided fits on the product.
- ▶ Position the product on the mounting piece using centering sleeves.
- ▶ Mount the product on the mounting piece using the appropriate mounting screws.
- ▶ Use threadlocker.



- ① Mounting screw
- ② Centering sleeve

10.2 Installing the drive

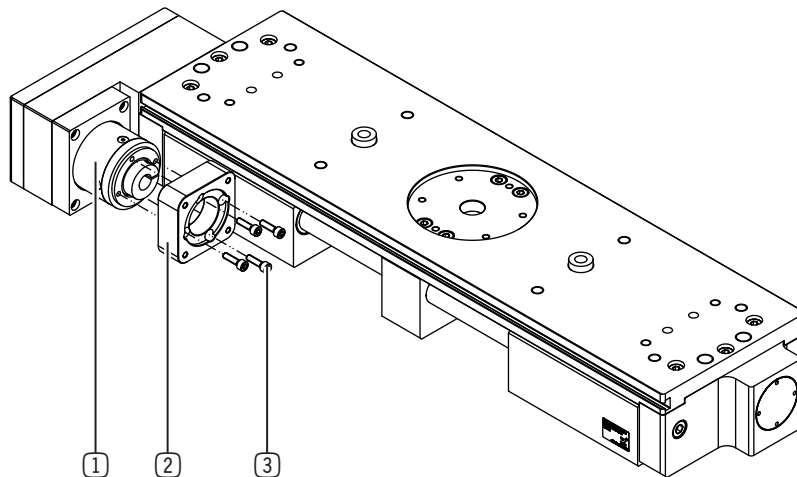
INFORMATION



The following sections depict examples of product variants.

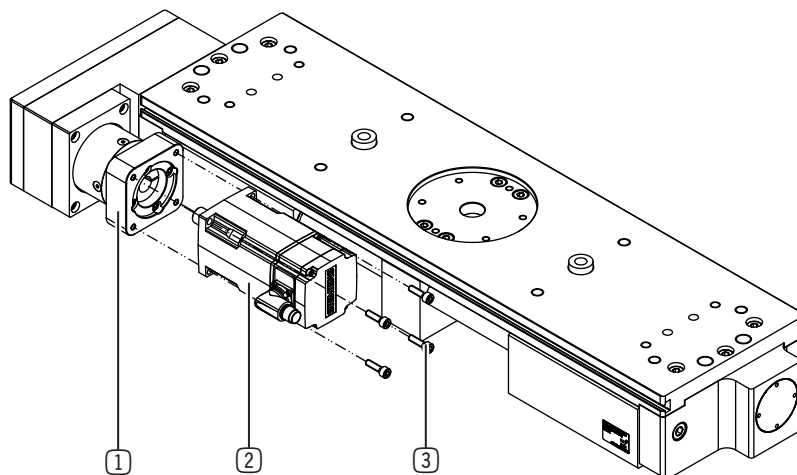
- Position the motor adapter plate on the gearbox so that the holes are aligned.
- Install the adapter plate by using the mounting screws.

- ① Gearbox
- ② Adapter plate
- ③ Mounting screw



- Position the motor on the motor adapter plate.
- Mount the motor to the motor adapter plate in accordance with the manufacturer's instructions.

- ① Adapter plate
- ② Motor
- ③ Mounting screw



10.3 Installing the energy supply

10.3.1 Installing the electronics

NOTICE



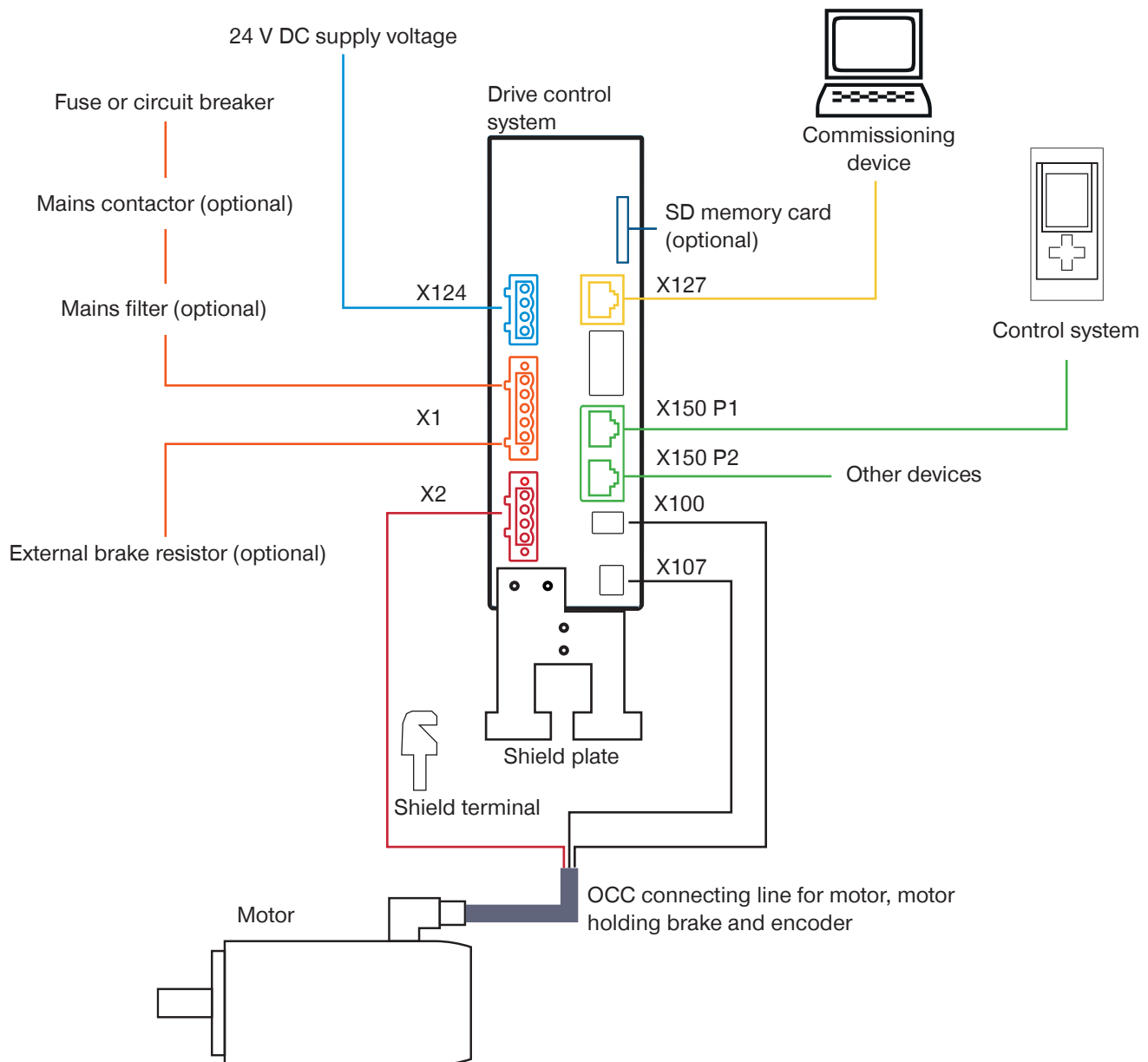
Material damage and malfunction in case of non-compliance

The cable mounted on the product can be subjected to a torsional angle of $+50^\circ$.

- Do not route the cable so that it is strained.
- You must meet the minimum bending radius of 10x the outer diameter.
- Secure free-hanging cables to prevent excessive motion loads or pinching.
- The contacts of the energy supply must be dry, clean and undamaged at all times.

- Connect the connecting line for the motor to the drive control system, including the power supply, motor holding brake and position encoder.

10.3.1.1 Supply with alternating current



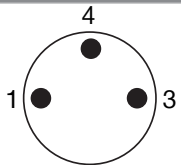
10.3.2 Installing the power supply for the safety clamp

Technical data	
Rated voltage [V DC]	24
Rated power [W]	9

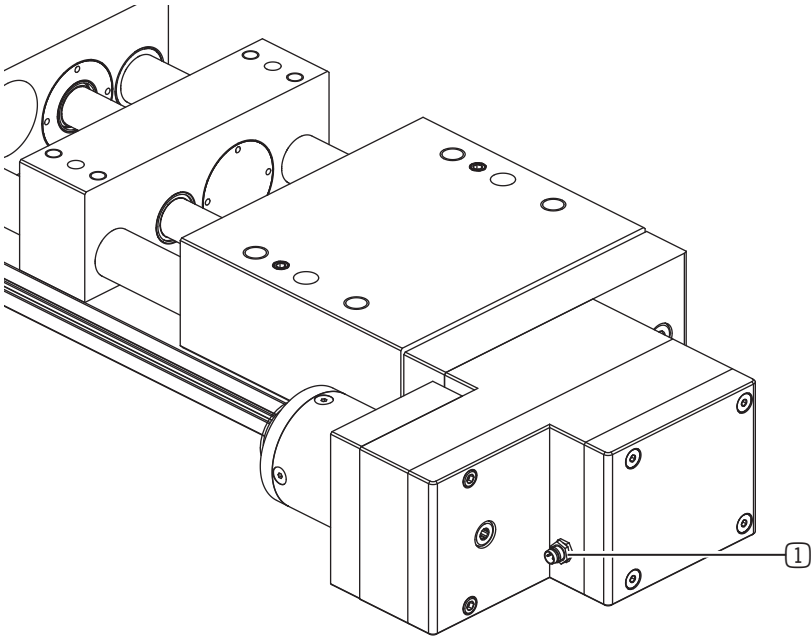
INFORMATION



► For additional performance data on the safety clamp, please refer to the manufacturer’s data sheet.

Pin	Color	Function	Explanation	Male connector, M8
1	Brown	PWR actuator	Rated voltage of the actuator: 24 V DC	
3	Blue	GND actuator	Rated voltage of the actuator: 0 V DC	
4	Black	-	-	

- Attach the power supply to the male connector.



① Male connector

10.4 Installing accessories

NOTICE



Non-compliance may result in material damage.

► Before installing an accessory, make sure it is suitable for use with the selected variant.

► You can find information on our website.

► Please contact Customer Service if you have any questions.

11 Commissioning

WARNING

**Suspended loads can cause injury**

Falling loads can cause severe injuries.

- ▶ Always keep an adequate safety distance from suspended loads.

WARNING

**Risk of injury due to uncontrolled movements**

Injuries can result from being caught or wound up during the motion sequence.

- ▶ Ensure that no persons are within the movement range of the product.

WARNING

**Risk of injury from crushing**

Injuries can be caused by crushing and clamping during the gripping process on the product or between the product and the workpiece.

- ▶ Always keep an adequate safety distance.

CAUTION

**Risk of injury from impact**

Injuries can result from being caught or from impacts during the process of gripping the product.

- ▶ Always keep an adequate safety distance.

INFORMATION



- ▶ For more information about the drive control system, refer to the documentation of the manufacturer.

11.1 Checking operational readiness

- ▶ Check that all components and connections are installed correctly.
- ▶ Check the energy supply.
- ▶ Check all mounting screws for the prescribed tightening torque.

11.2 Commissioning product variants with safety clamping

NOTICE



Increased wear if not observed

If the safety clamp engages frequently, for example, as a result of an emergency stop, while the gripper jaws are moving, the brake pads will wear out prematurely.

- ▶ Set the emergency stop (SS1) so that the holding brake and the safety clamp engage after the drive has come to a stop.
- ▶ Always perform a brake test after an emergency stop.

NOTICE



Material damage and malfunction in case of non-compliance

- ▶ When commissioning products with built-in safety clamps, be sure to follow the manufacturer's instructions.
 - www.kendrion.com

Variant	Manufacturer's name	Manufacturer part number
GEH83xxxx-63-A	Permanent magnet brake	86 61106K00-0001

INFORMATION



The degree to which the gripping force is maintained is influenced by various factors, including the stiffness and length of the gripper fingers, the length of the gripper and the position of the gripper jaws.

In all cases tested, the retention rate was greater than 80% of the applied gripping force.

- ▶ Use a load cell to determine the gripping force retention level for your application.

11.3 Preparing for commissioning

INFORMATION



- For information on drive control system commissioning, refer to the documentation of the manufacturer.
 - https://cache.industry.siemens.com/dl/files/329/109754329/att_1122014/v1/S210_QIG_230V_0321-en-US.pdf

INFORMATION

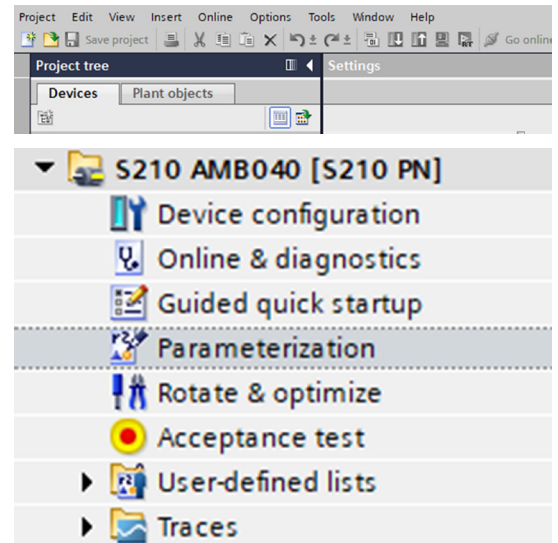


- The devices can only be put into operation once they have been configured.
- Before configuration, disconnect the PROFINET cables from the devices.

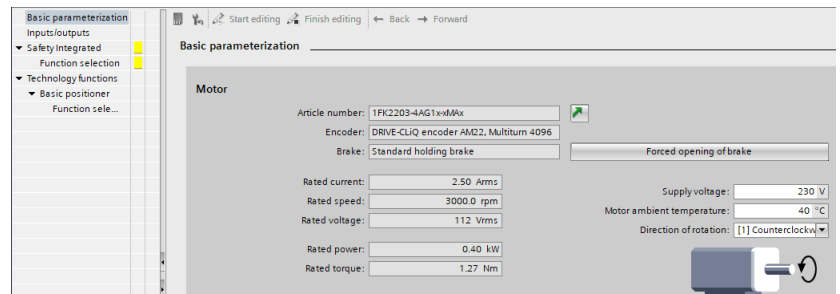
- Click *Load device as new station (hardware and software)* in the *Online* menu to integrate the drive control system into the Simatic TIA project.

⇒ The drive control system was loaded to the project.

- In Project navigation, click *Configuration*.
- Check the settings of the drive control system, motor and, if applicable, the holding brake.



- Select the direction of rotation so that when the gripper jaws are closed they are at the negative end of the travel range.



INFORMATION

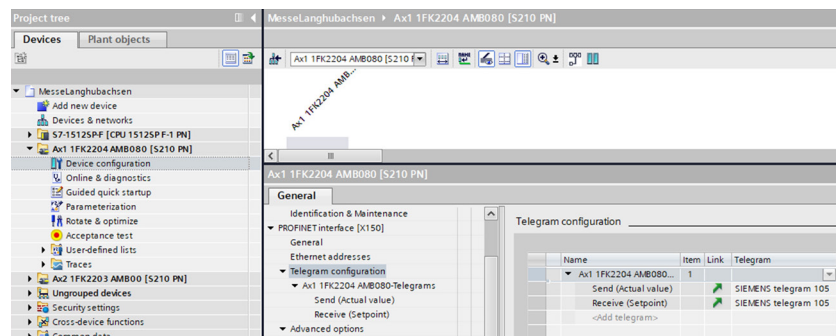


- Compare the *part number* with the data on the type plate of the motor and drive control system in the *Motor* and *Encoder* menus.
- If the part numbers do not match, delete the drive control system by clicking the *Factory settings* icon.
- Then reload the drive control system to the project.

11.3.1 Device configuration

► Click *Device configuration* in Project navigation under the drive control system.

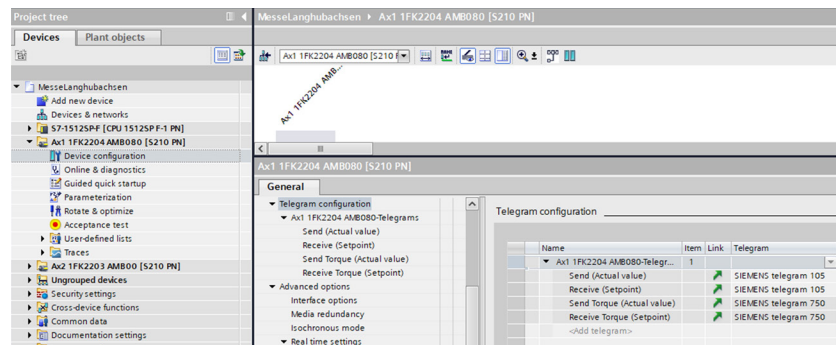
► Click *<Add telegram>* in *Telegram project planning*.



► Select the *<Add additional telegram torque>* option in the window.

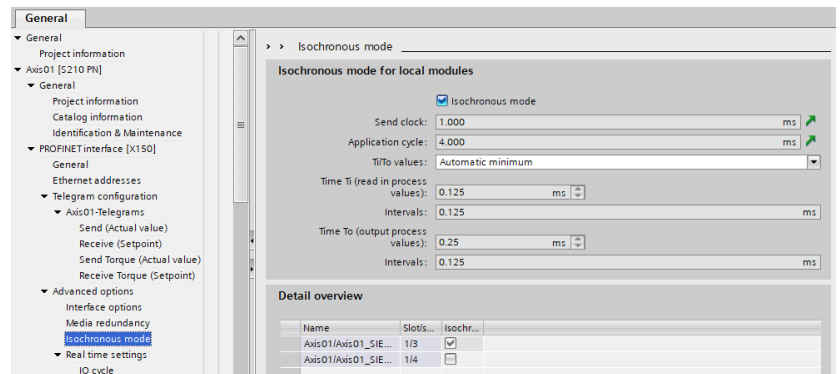
⇒ The *Send torque (actual value)* telegram was added.

⇒ The *Receive torque (target value)* telegram was added.



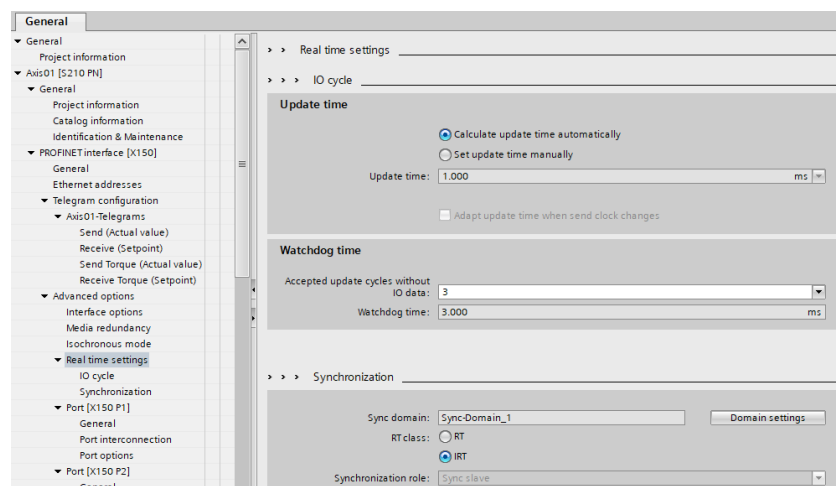
► Click *Cycle synchronization* in the *More options* window.

► Activate the *Cycle-synchronous operation* checkbox.



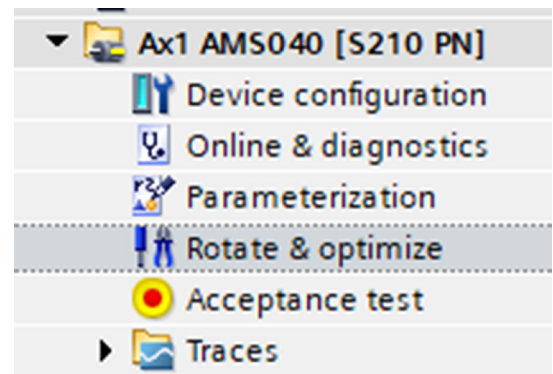
► Click *Real time settings* in the menu.

► Enter the desired synchronization settings.



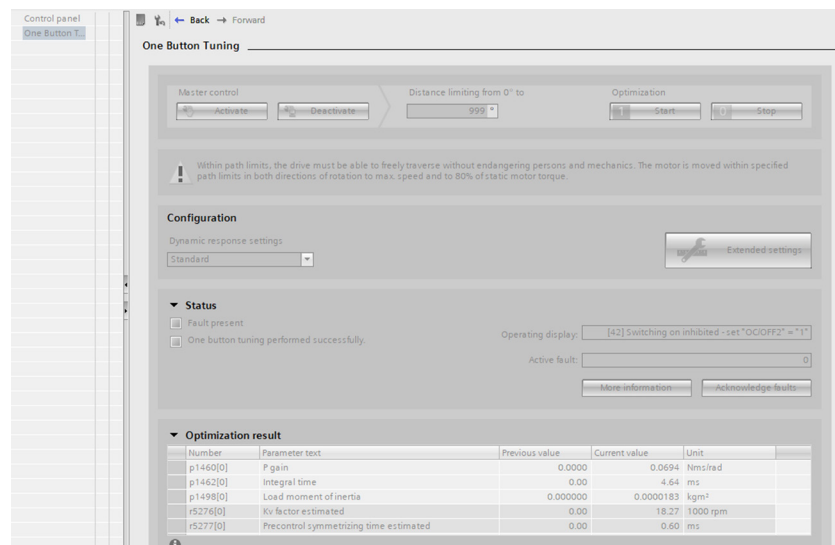
11.3.2 Configuring the drive control system

- In Project navigation, click *Turning & Optimization*.

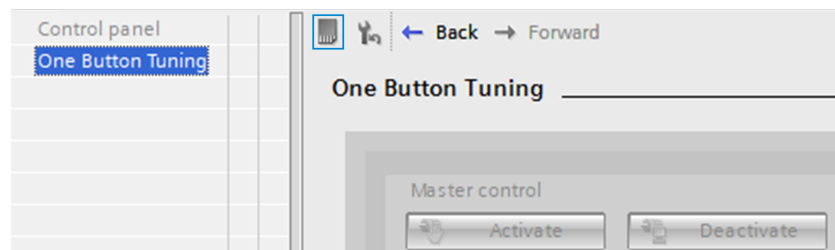


The *One Button Tuning* function is used to optimize control parameters.

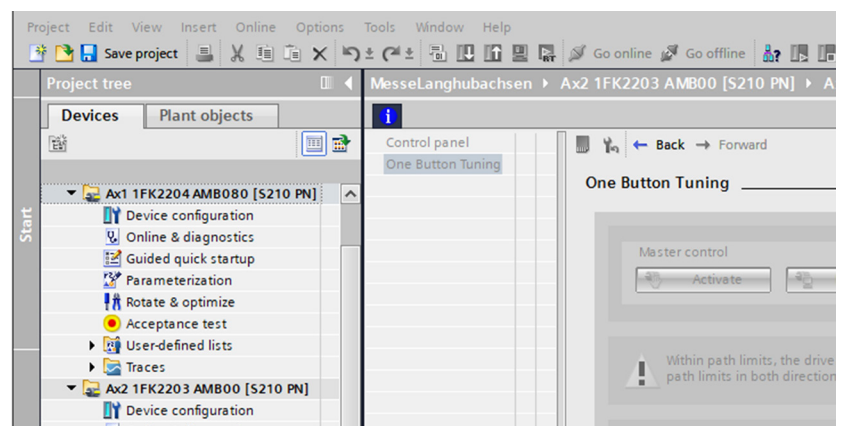
- Click *One Button Tuning* in the menu.
- Make sure that the set path limit can be traversed without causing any danger to persons or machinery and no end position is touched.
- Click the *Start* button.
- Repeat the process several times with different values for the path limit.
- Move the product via the control panel.



- Save the settings to the drive control system by clicking the *Save total device data to non-volatile memory* button.



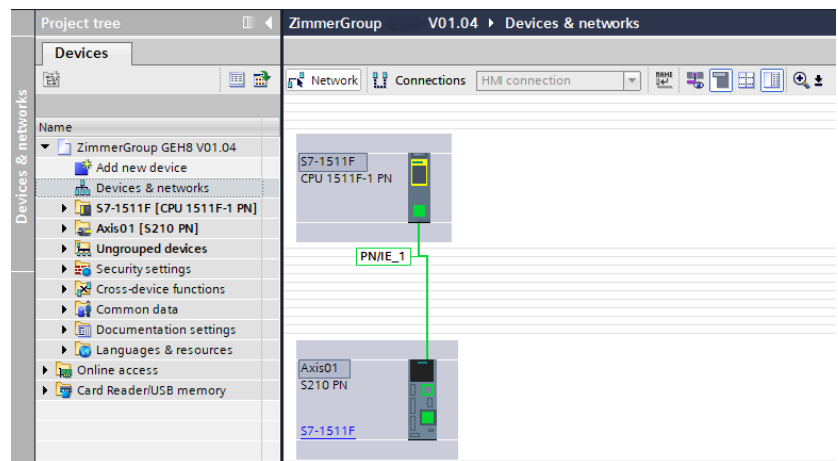
- In Project navigation, click the drive control system.
- Load the configuration to the Simatic-TIA project by clicking the *Load from device* button.



11.4 Making settings in the project

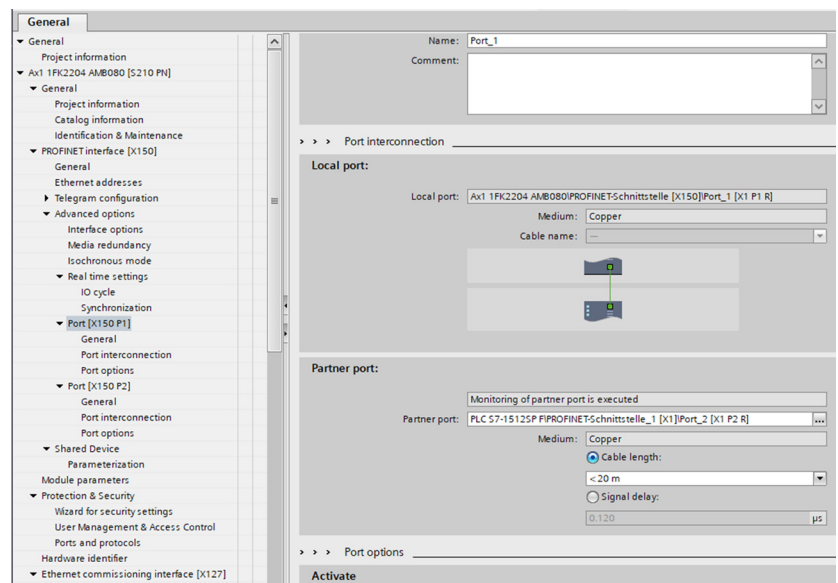
- In the project navigation pane, click *Devices & Networks* and select the exact cable path in the topology view.

- Also make sure that the ports are connected correctly.



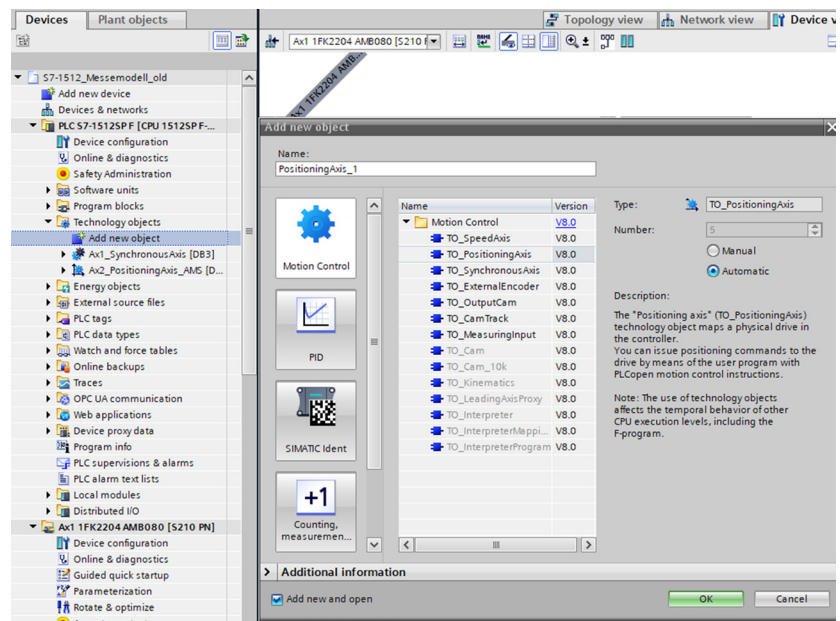
- Then check the settings in the control system and drive control system in the properties of the device view and adjust if necessary.

- Connect the devices to each other using the PROFINET cables.

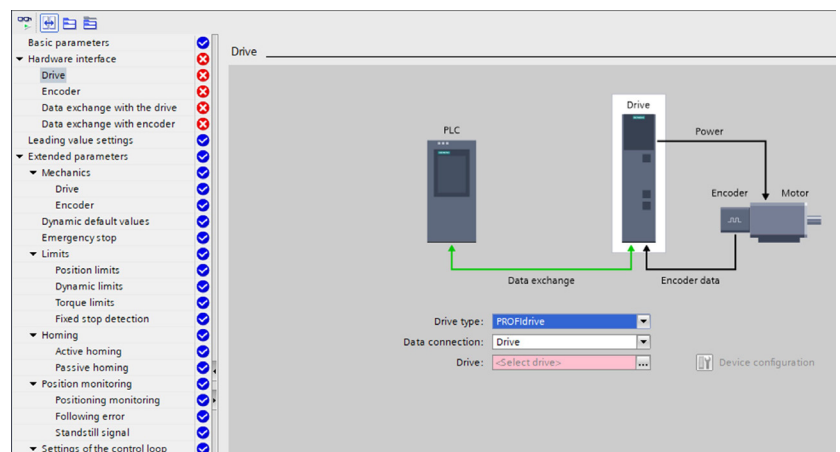


11.5 Adding technology objects

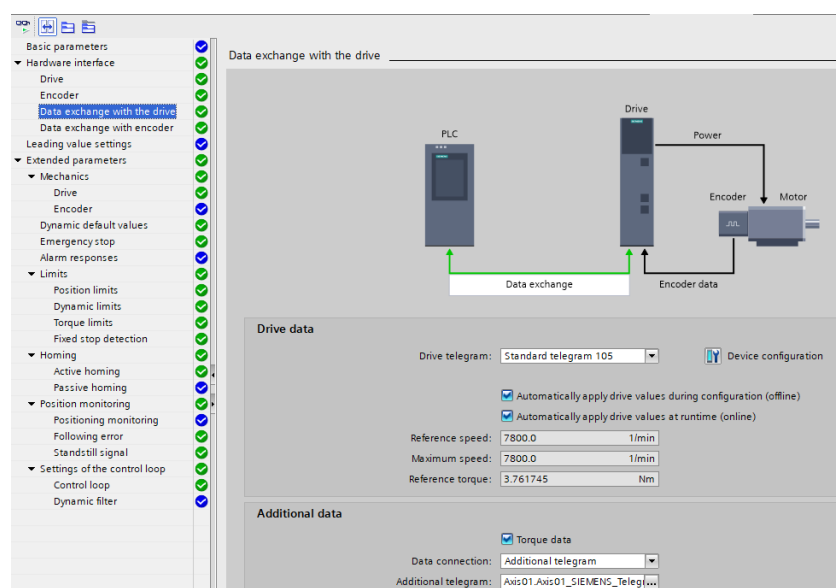
- In Project navigation, click *Technology objects* and then click *Add new object*.
- Select the *TO_PositioningAxis* technology object.
 - It is better to always select the latest version.
 - Note that this may be limited by the firmware of the CPU and drive control system.



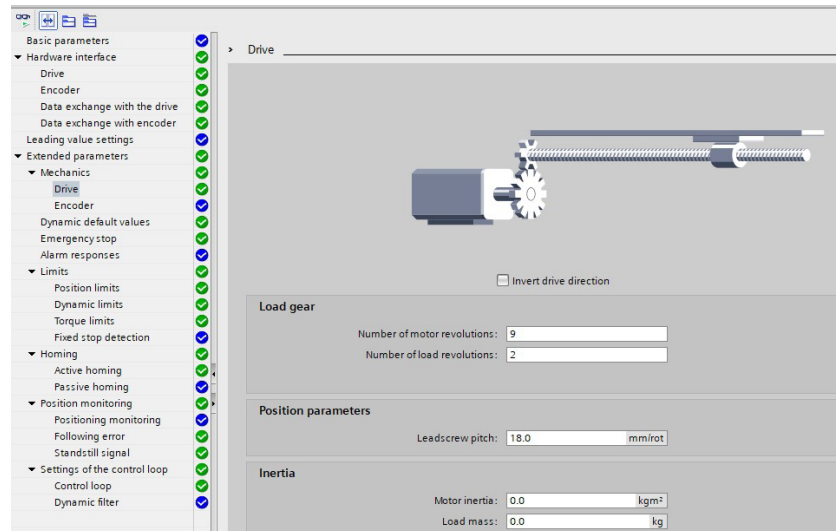
- Click *Configuration* in the Project navigation under *Technology objects*.
 - In the *Hardware Interface* menu, click *Drive*.
 - Select the corresponding drive.
- ⇒ All points receive a green or blue checkmark.



- In the *Hardware Interface* menu, click *Data exchange with the drive*.
- Activate the *Apply drive values automatically for project planning (offline)* checkbox.
- Activate the *Apply drive values automatically for the runtime (online)* checkbox.
- Activate the *Torque data* checkbox.
- In the *Data connection* drop-down menu, select the *Additional telegram* option.
- In the *Additional telegram* drop-down menu, select the telegram of the corresponding drive.

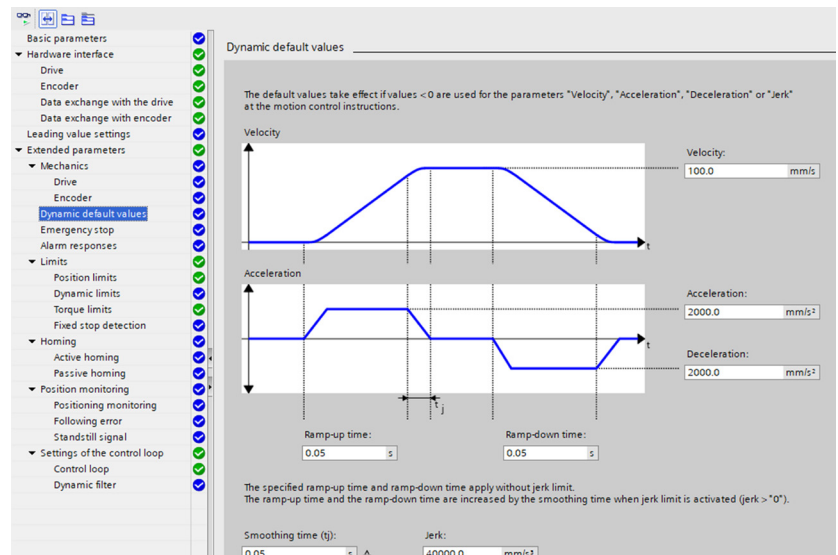


- In the *Advanced parameters* menu under *Mechanical*, select the *Drive* option.
- Enter the feed constant in the *Spindle pitch* field as shown in the figure.
- Enter the drive ratios in the *Motor revolution quantity* field as shown in the figure.



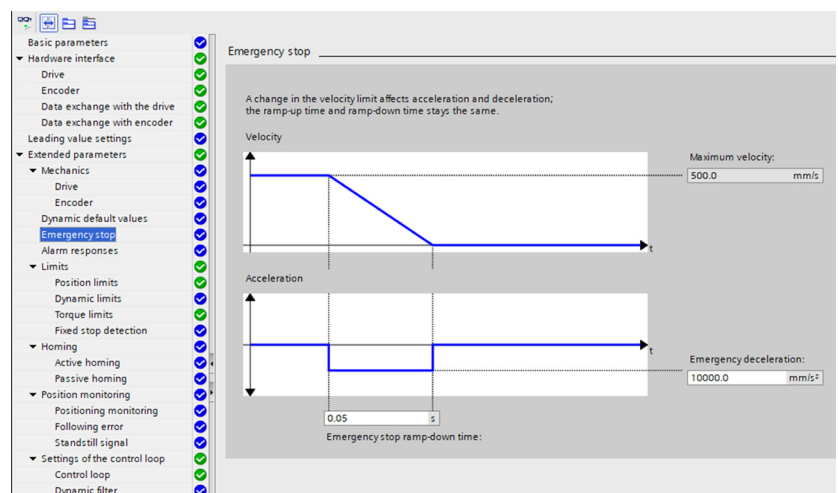
- Click *Dynamic pre-settings* in the *Advance parameters* menu.

The default values entered here can be used by the motion control modules if the identifier for the default is transmitted with the value -1.

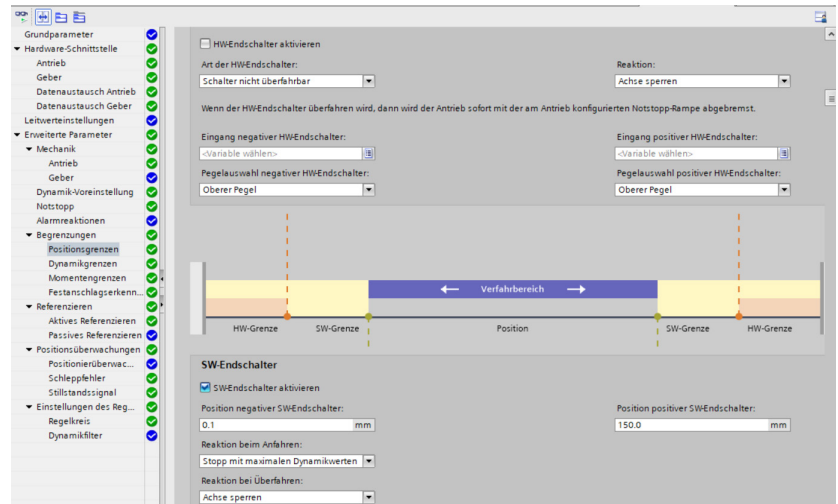


The product is brought to a standstill as quickly as possible with the maximum delay using the emergency stop delay.

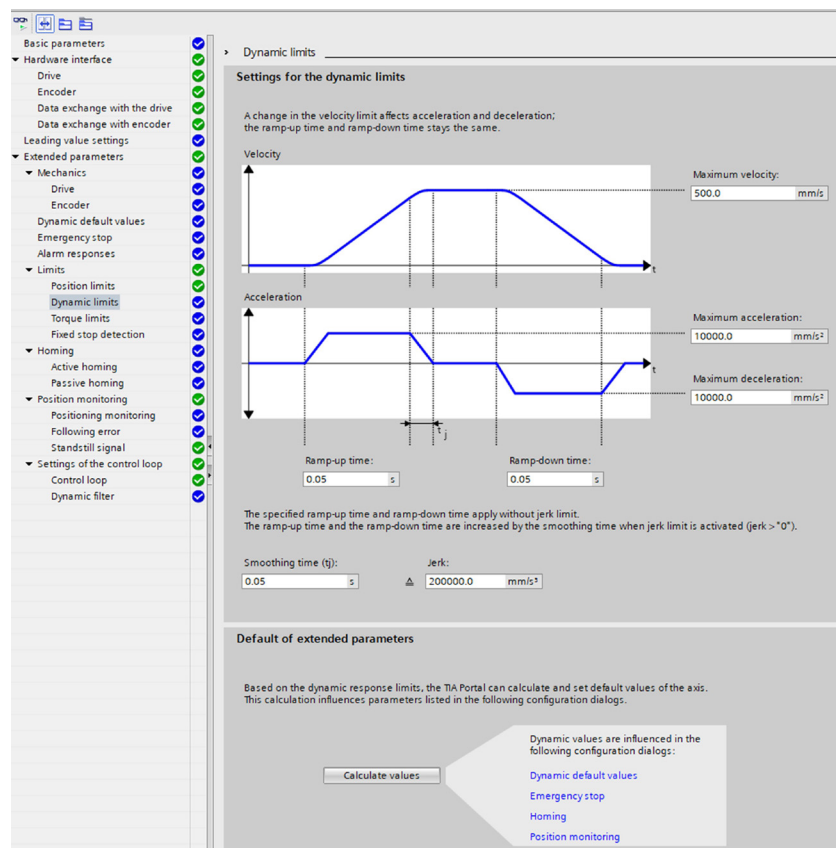
- Click *Emergency stop* in the *Advance parameters* menu.
 - Make sure that the resulting energy does not set the drive control system to an error state.
 - Either install a brake resistor or provide a longer braking ramp.
 - Enter the maximum value from the data sheet in the *Emergency stop delay* field.
- ⇒ The emergency stop return time is calculated automatically.



- In the *Advanced parameters* menu under *Limits*, select the *Position limits* option.
- Note that the software limit switch can only be used if a valid travel range was set.
- Make sure that the set end positions are at least 2 mm before the actual mechanical end positions.



- In the *Advanced parameters* menu under *Limits*, select the *Dynamic limits* option.
- Fill in the fields with the maximum values from the technical data sheet based on the selected installation size.

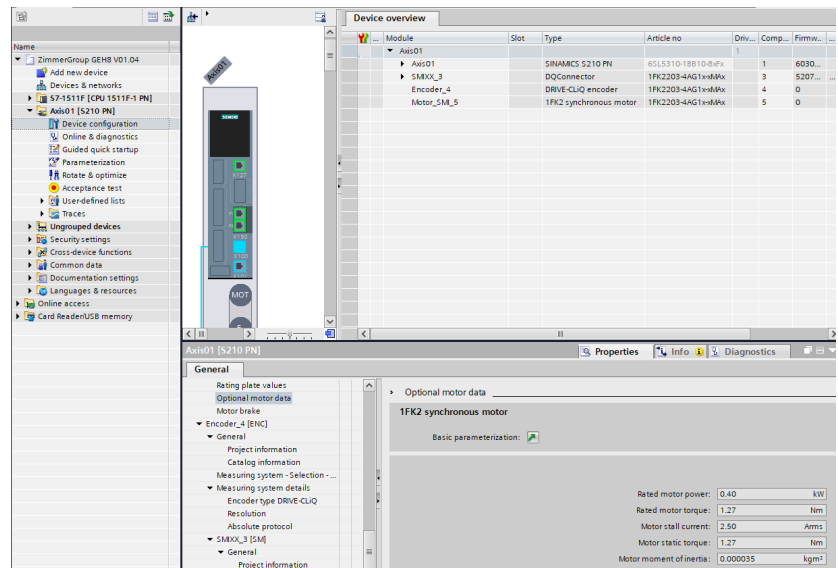


INFORMATION

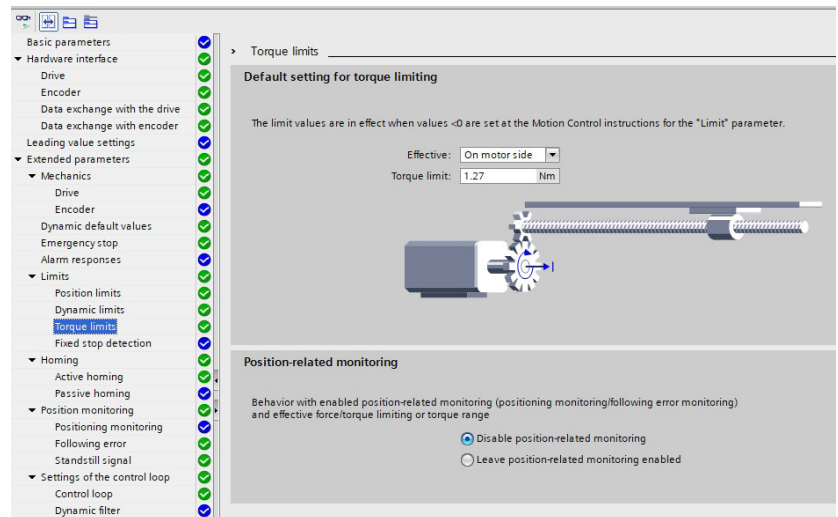


- Please note that the limits apply to the entire travel range, so the values listed in the data sheet must be doubled.
 - Max. positioning speed per gripper jaw
 - Max. acceleration/deceleration

- Click *Device configuration* in Project navigation under the product.
- Click *Optional motor data* under *Motor details* on the *General* tab.
- Make a note of the value in the *Motor rated torque* field.



- Click *Torque limits* under *Limits* in the *Advanced parameters* menu.
- Enter the value from the *Motor rated torque* field in the *Torque limit* field.

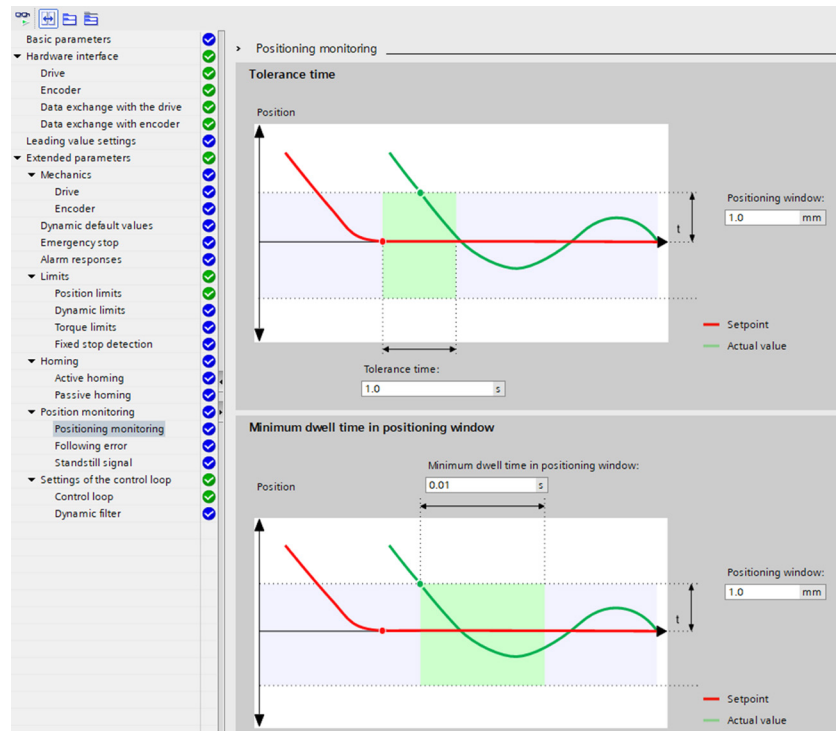


11.6 Referencing by Homing

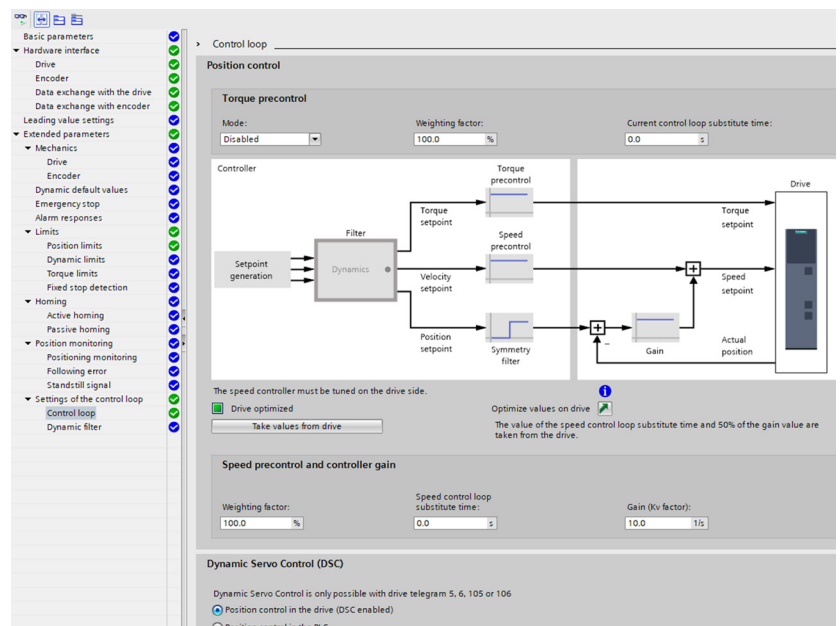
No reference run is required, because the drive is equipped with a multturn absolute encoder.

You only need to set the difference between the axis reference system and the encoder reference system one time.

- Make the application-specific settings in the *Position monitoring* menu.



- Select the *Control loop* option in the *Control loop settings* menu.
- Click the *Apply values to drive* button in the *Positioning control* area.
- Click *Positioning control in drive (DSC activated)* in the *DSC* area.



11.7 Using the function block

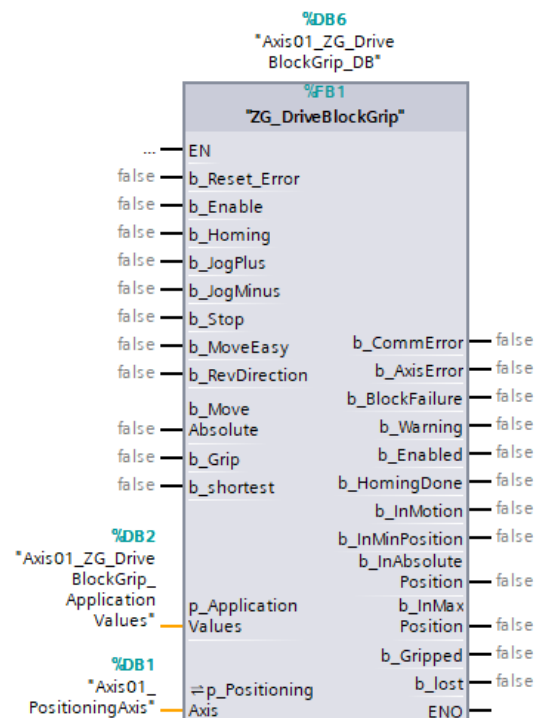
NOTICE



Disclaimer

This function block is used to simplify the control of a Zimmer Group product. However, the entire programming must be set individually for each application. The focus of this function block is on simple programming. For better performance, different programming may prove to be more suitable. Despite intensive testing, it cannot be ruled out that functions do not work correctly. Please check that the block is functioning properly for your application. The Zimmer Group assumes no legal or any liability for incorrect program functions and their consequences.

- ▶ Connect the inputs and outputs to the included function block.
- ▶ Select the data block with the application values for the *p_ApplicationValues* pointer.
 - ▶ Do not change the structure of the data block with application values.
- ⇒ Target and actual values can be exchanged with the drive control system using the data block assigned to *p_ApplicationValues*.
- ▶ Select the data block of the positioning axis technology object for the *p_PositioningAxis* pointer.
- ⇒ The function block communicates with the drive control system via the technology object.



11.8 Module functions

11.8.1 Monitoring and switching on

11.8.1.1 b_Enable

The output stage is energized with this variable.

11.8.1.2 b_Enabled

This variable indicates that the output stage is energized.

11.8.1.3 b_InMotion

This variable indicates that the product is in motion.

11.8.1.4 b_CommError

This variable indicates a communication malfunction with the drive.

- ▶ Check the cable of the drive and control system.
- ▶ Check the settings in the device configuration and technology object.

11.8.1.5 b_AxisError

This variable indicates an error with the drive.

- ▶ If necessary, use the *e_StatusWord* and *e_ErrorWord* to determine the cause.
- ▶ Acknowledge the error via *b_Reset_Error*.

INFORMATION



- ▶ Refer to the document block that was assigned to *p_ApplicationValues* for a detailed description of *e_StatusWord* and *e_ErrorWord*.

- | | |
|--|--|
| • <i>e_StatusWord</i> | • <i>e_ErrorWord</i> |
| • <i>e_StatusWord.X00_Enable</i> | • <i>e_ErrorWord.X00_SystemFault</i> |
| • <i>e_StatusWord.X01_Error</i> | • <i>e_ErrorWord.X01_ConfigFault</i> |
| • <i>e_StatusWord.X02_RestartActive</i> | • <i>e_ErrorWord.X02_UserFault</i> |
| • <i>e_StatusWord.X03_OnlineStartValuesChanged</i> | • <i>e_ErrorWord.X03_CommandNotAccepted</i> |
| • <i>e_StatusWord.X04_ControlPanelActive</i> | • <i>e_ErrorWord.X04_DriveFault</i> |
| • <i>e_StatusWord.X05_HomingDone</i> | • <i>e_ErrorWord.X05_SensorFault</i> |
| • <i>e_StatusWord.X06_Done</i> | • <i>e_ErrorWord.X06_DynamicError</i> |
| • <i>e_StatusWord.X07_StandStill</i> | • <i>e_ErrorWord.X07_CommunicationFault</i> |
| • <i>e_StatusWord.X08_PositioningCommand</i> | • <i>e_ErrorWord.X08_SW_Limit</i> |
| • <i>e_StatusWord.X09_JogCommand</i> | • <i>e_ErrorWord.X09_HW_Limit</i> |
| • <i>e_StatusWord.X10_VelocityCommand</i> | • <i>e_ErrorWord.X10_HomingFault</i> |
| • <i>e_StatusWord.X11_HomingCommand</i> | • <i>e_ErrorWord.X11_FollowingErrorFault</i> |
| • <i>e_StatusWord.X13_Accelerating</i> | • <i>e_ErrorWord.X12_PositioningFault</i> |
| • <i>e_StatusWord.X14_Decelerating</i> | • <i>e_ErrorWord.X13_PeripheralError</i> |
| • <i>e_StatusWord.X15_SWLimitMinActive</i> | • <i>e_ErrorWord.X14_SynchronousError</i> |
| • <i>e_StatusWord.X16_SWLimitMaxActive</i> | • <i>e_ErrorWord.X15_AdaptionError</i> |
| • <i>e_StatusWord.X17_HWLlimitMinActive</i> | |
| • <i>e_StatusWord.X18_HWLlimitMaxActive</i> | |
| • <i>e_StatusWord.X23_MoveSuperimposedCommand</i> | |
| • <i>e_StatusWord.X25_AxisSimulation</i> | |
| • <i>e_StatusWord.X27_InLimitation</i> | |
| • <i>e_StatusWord.X28_NonPositionControlled</i> | |

11.8.1.6 b_Warning

This variable indicates whether there are active warnings.

As soon as the cause of the warning has been eliminated, it is automatically canceled by the product and must not be acknowledged.

- e_WarningWord.X00_SystemWarning
- e_WarningWord.X01_ConfigWarning
- e_WarningWord.X02_UserWarning
- e_WarningWord.X03_CommandNotAccepted
- e_WarningWord.X04_DriveWarning
- e_WarningWord.X05_SensorWarning
- e_WarningWord.X06_DynamicError
- e_WarningWord.X07_CommunicationWarning
- e_WarningWord.X08_SWLimitMin
- e_WarningWord.X09_SWLimitMax
- e_WarningWord.X10_HomingWarning
- e_WarningWord.X11_FollowingErrorWarning
- e_WarningWord.X12_PositioningWarning
- e_WarningWord.X13_PeripheralWarning
- e_WarningWord.X14_SynchronousWarning
- e_WarningWord.X15_AdaptionWarning

INFORMATION



► More information about warnings can be found in the instructions of the SINAMICS S210 drive control system.

11.8.1.7 b_Reset_Error

This variable is used to acknowledge errors.

11.8.2 References

11.8.2.1 f_SetHomePosition

This variable defines the reference system of the axis after referencing. The default value is 0.0.

11.8.2.2 b_Homing

This variable sets the value of *f_SetHomePosition* at the current position. This requires that *b_Enabled* is set to *true*.

- Repeat the process if mechanical changes are made between the linear system and the motor encoder.
 - For example, the installation of gripper fingers that limit the travel path.

INFORMATION



- Perform homing once during commissioning.

11.8.2.3 b_HomingDone

This variable indicates that the zero point was set.

11.8.2.4 b_Referenced_internal

This variable is required for internal storage.

NOTICE



Material damage and malfunction in case of non-compliance

- Do not make any changes to the variable.

Variable	Unit	Description	Source
b_Referenced_internal	Bool	Stored	MCHome.Done

11.8.3 Manual control

11.8.3.1 b_JogPlus

The product moves in the positive direction as long as this input is set.

This requires that *b_Enabled* is set to *true*.

11.8.3.2 b_JogMinus

The product moves in the negative direction as long as this input is set.

This requires that *b_Enabled* is set to *true*.

11.8.3.3 f_SetJogVelocity

The desired speed for *b_JogPlus* or *b_JogMinus* can be entered for this variable.

11.8.4 Easy Move motion

11.8.4.1 b_MoveEasy

The product moves to the position *f_SetEasyPositionMin* or *f_SetEasyPositionMax* as soon as this variable changes to *true*.

11.8.4.2 b_RevDirection

The product moves in the negative direction when this variable is set to *true* and *b_MoveEasy* is set to *true*.

The product moves in the positive direction when this variable is set to *false* and *b_MoveEasy* is set to *true*.

11.8.4.3 f_SetEasyAccelDecel

The desired acceleration and delay [mm/s²] for *b_MoveEasy* can be entered for this variable.

11.8.4.4 f_SetEasyPositionMin

This variable defines the negative end position [mm].

11.8.4.5 f_SetEasyPositionMax

This variable defines the positive end position [mm].

11.8.4.6 f_SetEasyVelocity

The desired speed [mm/s] for *b_MoveEasy* can be entered for this variable.

11.8.4.7 f_SetEasyJerk

The desired jerk [mm/s³] for *b_MoveEasy* can be entered with this variable.

11.8.4.8 b_InMinPosition

This variable indicates that the product has moved to the negative end position.

11.8.4.9 b_InMaxPosition

This variable indicates that the product has moved to the positive end position.

11.8.5 Gripping

11.8.5.1 **b_Grip**

The product moves in the negative or positive direction as soon as this variable changes to *true*.

11.8.5.2 **b_RevDirection**

This variable can be used to enable inside and outside gripping.

The product moves in the negative direction if this variable is set to *true* and *b_Grip* is set to *true*.

The product moves in the positive direction when this variable is set to *false* and *b_Grip* is set to *true*.

11.8.5.3 **i_SetForceLimit**

Rated force [%] at which the workpiece is to be held.

At 100% of the rated force (Siemens), the motor is operating at full capacity continuously.

11.8.5.4 **f_SetForcePosition**

This variable defines the expected value at which the gripper grips the workpiece [mm].

11.8.5.5 **f_SetForcePositionTol**

This variable defines a tolerance band around the *ForcePosition*.

At the beginning of the band, the speed slows down. When the end of the band is reached, the variable *b_lost* is activated.

11.8.5.6 **f_SetForceVelocity**

The slow speed [mm/s] for *b_Grip* is used for the search travel.

It corresponds to the speed of the variable *f_SetAbsVelocity*.

This speed is valid only until the workpiece has been detected.

11.8.5.7 **f_SetEasyAccelDecel**

The desired acceleration and deceleration [mm/s²] for *b_Grip* can be entered for this variable.

11.8.5.8 **f_SetEasyJerk**

The desired jerk [mm/s³] for *b_Grip* can be entered with this variable.

11.8.5.9 **b_gripped**

This variable is active when the workpiece is gripped.

11.8.5.10 **b_lost**

This variable is active when the workpiece has been lost and *f_SetForcePosition* is reached.

11.8.6 Absolute movement

11.8.6.1 **b_MoveAbsolute**

The product moves to the *f_SetAbsPosition* position as soon as this variable switches to *true*.

11.8.6.2 **f_SetAbsVelocity**

The desired speed [mm/s] for *b_MoveAbsolute* can be entered for this variable.

11.8.6.3 **f_SetAbsAccelDecel**

The desired acceleration [mm/s²] for *b_MoveAbsolute* can be entered for this variable.

11.8.6.4 **f_SetAbsJerk**

The desired jerk [mm/s³] for *b_MoveAbsolute* can be entered with this variable.

11.8.6.5 **b_InAbsolutePosition**

This variable indicates that the product has moved to the *f_SetAbsPosition* position.

11.8.7 Setting and monitoring

11.8.7.1 b_Stop

As soon as the variable is set to *true*, all current movement orders are interrupted and prevented from restarting.

11.8.7.2 f_ActualPosition

This variable outputs the current position [mm] of the product.

11.8.7.3 f_ActualVelocity

This variable outputs the current speed [mm] of the product.

11.8.7.4 f_ActualTorque

This variable outputs the current torque [Nm] of the product.

11.8.7.5 i_ActualForcePeCe

This variable outputs the current force [%] of the product.

12 Error diagnosis

Error	Possible cause	Measure
The gripper jaws do not move.	• The spindle is jammed.	▶ Clean the spindle.
		▶ Make sure there is adequate lubrication.
	• The motor won't start.	▶ Check the energy supply.
		▶ Check that the motor is working properly and replace it if necessary.
	• The torque has fallen below the minimum value.	▶ Check the values.
	• Product does not have any reference position.	▶ Re-reference the gripper jaws.
	• Load from customer-specific application is too high.	▶ Reduce the weight of the customer-specific application or accelerate the drive.
	• The direction of movement is incorrect.	▶ Check the values.
	• The wrong motor is stored in the control system.	▶ Check the values.
The gripping force is declining.	• The spindle is defective.	▶ Please contact Customer Service.
	• The motor is broken.	▶ Check that the motor is working properly and replace it if necessary.
	• The minimum gripping strength retention of 80% is not achieved.	▶ Perform a cyclic brake test to ensure sufficient holding force.
		▶ Please contact Customer Service.
The gripping force is no longer maintained after an emergency stop.	• The safety clamp or holding brake is defective.	▶ Perform a cyclic brake test to ensure sufficient holding force.
		▶ Please contact Customer Service.
The gripper jaws do not travel the full stroke.	• Product is dirty.	▶ Remove any debris from between the gripper jaws and the guide.
	• There is an error in the program.	▶ Check the settings.
The product is making noise.	• The gear is defective.	▶ Please contact Customer Service.
	• There is bracing in the system.	▶ Check the flatness of the contact surface and customer-specific application and install the product without distortion if necessary.
	• Guides are damaged.	▶ Please contact Customer Service.
	• Control parameters are incorrect.	▶ Check the control parameters.

12.1 Perform a cyclic brake test

- ▶ Perform the brake test for both the safety clamp and the holding brake.
- ▶ Apply a drive torque to the engaged brake that is 20% higher than what is required for your application.
- ▶ Check to see if the spindle is rotating or if the gripper jaws are moving.
- ⇒ If there is no movement, then the holding force of the brake is sufficient.
- ⇒ If movement occurs, then the brake does not provide sufficient holding force.

13 Maintenance

NOTICE



Material damage resulting from blowing out with compressed air

Blowing out the product with compressed air can cause malfunctions.

- ▶ Never purge the product with compressed air.

NOTICE



Material damage caused by unsuitable cleaning materials

Seals, insulation, coatings and other surfaces may be damaged by solvent-based cleaning agents.

- ▶ Make sure that no liquids penetrate the product.
- ▶ Use chemically and biologically neutral cleaning agents.
- ▶ Use cleaning agents that are categorized as being nonhazardous to health.
- ▶ Use soft, lint-free cloths for cleaning the surface.

The use of the following cleaning agents is strictly prohibited:

- Acetone
- Cleaning solvent
- Nitrocellulose thinner/turpentine oil (solvents)

NOTICE



Contamination of the environment due to escaping lubricants

Lubricants can escape through moving machine parts. This can lead to contamination of the machine, the workpiece and the environment.

- ▶ Remove leaking lubricant immediately and thoroughly.

Maintenance-free operation of the product is guaranteed for up to **5 million cycles**.

- ▶ Note that the product could become damaged under the following circumstances:
 - Dirty environment
 - Improper use and use that does not comply with the performance data
 - Permissible temperature range not observed
 - ▶ Even though the product is maintenance-free as mentioned above, perform a regular visual inspection to check for any damage or contamination.
 - ▶ Have maintenance work that requires disassembly of the product performed by customer service only.
- ⇒ Dismantling and reassembling the product without authorization may result in complications, as special installation equipment is required in some cases. Zimmer Group GmbH accepts no liability for any resulting malfunctions or damage.

14 Decommissioning/disposal

INFORMATION



When the product reaches the end of its operational phase, it can be disposed of.

- ▶ Disconnect the product completely from the power supply.
- ▶ Comply with the locally applicable environmental and disposal regulations.

15 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer Group GmbH



Am Glockenloch 2

77866 Rheinau, Germany



+49 7844 9138 0



info@zimmer-group.com



www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: 2-jaw parallel gripper

Type designation: GEH8000M1

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch

Authorized representative for
compiling the relevant technical
documents

Rheinau, Germany, 2026-09-23

(Place and date of issuance)

Martin Zimmer
(Legally binding signature)
Managing Partner

16 Declaration of Incorporation (Machinery Directive)

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

Name and address of the manufacturer:

Zimmer Group GmbH



Am Glockenloch 2

77866 Rheinau, Germany



+49 7844 9138 0



info@zimmer-group.com



www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: 2-jaw parallel gripper

Type designation: GEH8000

conforms to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Annex VII, b – Annex II, b, in its design and the version we put on the market.

We hereby confirm that all the relevant basic health and safety requirements for the product have been observed and implemented.

A full list of applied standards can be obtained from the manufacturer.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of special documents for the incomplete machine through our documentation department, should they have reason to request them.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC Declaration of Conformity has been drawn up in accordance with Annex II 1 A.

Kurt Ross

Authorized representative for
compiling the relevant technical
documents

Rheinau, Germany, 2026-09-23

(Place and date of issuance)

Martin Zimmer
(Legally binding signature)
Managing Partner

17 Declaration of Incorporation

In terms of the EU Machinery Regulation 2023/1230, Annex V, Part B

Name and address of the manufacturer:

Zimmer Group GmbH

📍 Am Glockenloch 2
77866 Rheinau, Germany

☎ +49 7844 9138 0

✉ info@zimmer-group.com

🌐 www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: 2-jaw parallel gripper

Type designation: GEH8000

in their design and in the version we have placed on the market comply with the requirements of Regulation 2023/1230, Article 3.10, Annex III, Annex IV, Part B and Annex V, Part B.

A complete list of the standards applied and the essential health and safety requirements is available from the manufacturer.

The incomplete machine must not be commissioned until it has been determined that - where applicable - the machine into which the incomplete machine is to be incorporated complies with the provisions of EU Machinery Regulation 2023/1230 and the EC Declaration of Conformity has been issued in accordance with Annex V, Part A.

Kurt Ross

Authorized representative for
compiling the relevant technical
documents

Rheinau, Germany, 2027-01-20

(Place and date of issuance)



Martin Zimmer
(Legally binding signature)
Managing Partner