



January 15, 2024

# Festo CMMP-AS Configuration Manual

# Overview

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- 2 Necessary software
- 3 Connection with controller
- 4 Project creation
- 5 Component selection
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# Introduction

This manual explains the configuration of Festo CMMP-AS motor controller so that it can be operated from a UR robot using the NUTAI URCap Multi Axis Drive (MAD) Controller.

Note that this manual explains the minimum required configuration, so it is left pending for the user to complete other configuration options specific for their end application.

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# Necessary software

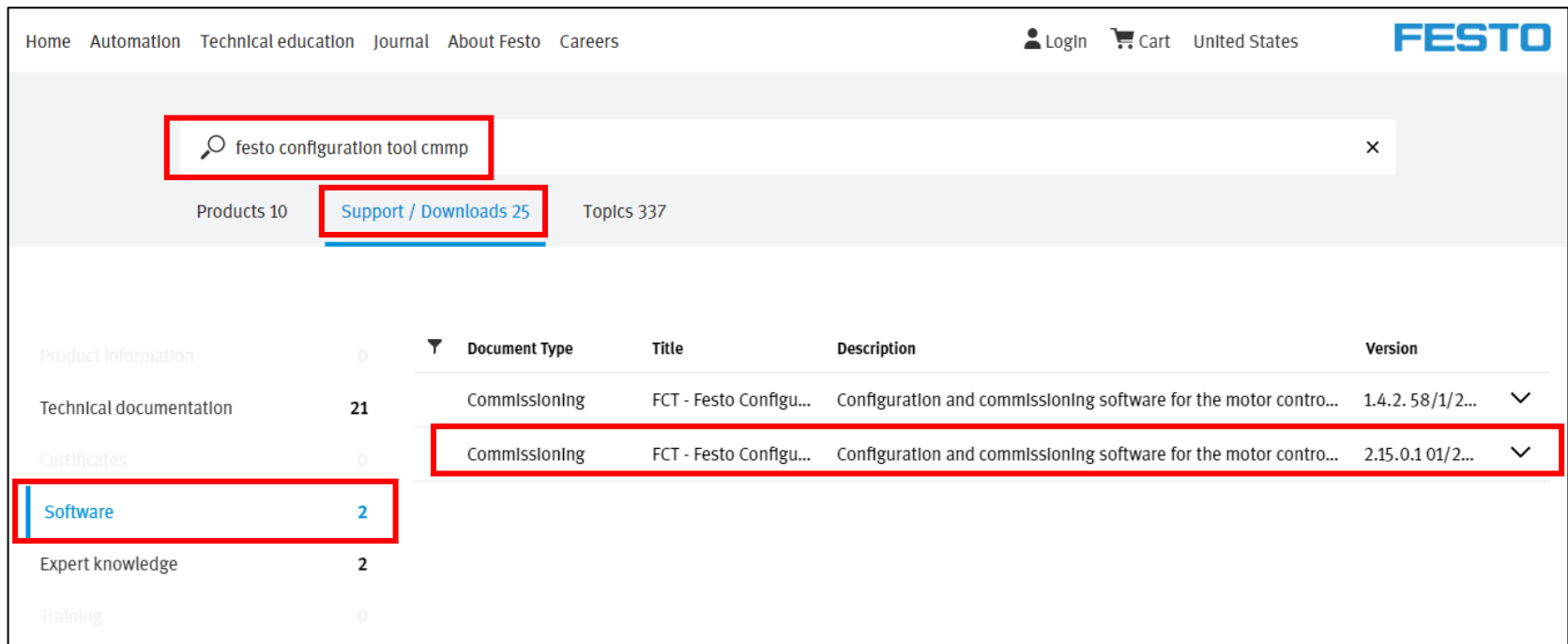
To configure the Festo CMMP-AS motor controller, the Festo Configuration Tool (FCT) software —available for Windows— must be downloaded and installed on your computer.

To do this, go to the Festo<sup>1</sup> website and download the latest version available, making sure that it is compatible with your CMMP-AS controller, as indicated in the following slides.



<sup>1</sup> Festo oficial website:  
<https://www.festo.com>

# Necessary software



The screenshot shows the FESTO website's search results for the query "festo configuration tool ccmp". The search bar is highlighted with a red box. Below the search bar, the "Support / Downloads 25" link is highlighted with a red box. The results are categorized on the left, with "Software 2" highlighted by a red box. A table of results is shown, with the second row highlighted by a red box.

Home Automation Technical education Journal About Festo Careers Login Cart United States **FESTO**

Search: festo configuration tool ccmp

Products 10 **Support / Downloads 25** Topics 337

Product Information	0	Document Type	Title	Description	Version
Technical documentattion	21	Commissioning	FCT - Festo Configu...	Configuration and commissloning software for the motor contro...	1.4.2. 58/1/2...
Certificates	0	Commissioning	FCT - Festo Configu...	Configuration and commissloning software for the motor contro...	2.15.0.1 01/2...
<b>Software</b>	<b>2</b>				
Expert knowledge	2				
Training	0				

# Necessary software

**Title:**


FCT - Festo Configuration Tool - Plugin

**Description:**

Configuration and commissioning software for the motor controller CMMP-AS FCT Plugin CMMP-AS V2.11.0.262 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.10.0.150 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.9.0.255 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.8.0.554 for Firmware V4.0.1501.2.3 FCT Plugin CMMP-AS V2.7.0.154 for Firmware V4.0.1501.2.3 FCT Plugin CMMP-AS V2.6.0.131 for Firmware V4.0.1501.2.3 FCT Plugin CMMP-AS V2.5.0.479 for Firmware V4.0.1501.2.2 FCT Plugin CMMP-AS V2.4.1.4 for Firmware V4.0.1501.2.1 Festo Configuration Tool V1.3.1.1  
 Version changes: Configuration and commissioning software for the motor controller CMMP-AS FCT Plugin CMMP-AS V2.15.0.10 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.14.2.3 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.13.1.1 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.12.0.174 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.10.0.150 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.9.0.255 for Firmware V4.0.1501.2.4 FCT Plugin CMMP-AS V2.8.0.554 for Firmware V4.0.1501.2.3 Festo Configuration Tool V1.4.3.2  
 Supported systems: Motor controller CMMP-AS-C10-11A-P3-M3 (1501328) Motor controller CMMP-AS-C10-11A-P3-M3-C1 (2106335) Motor controller CMMP-AS-C15-11A-P3-M3 (3215473) Motor controller CMMP-AS-C2-3A-M3 (1501325) Motor controller CMMP-AS-C2-3A-M3-C1 (2106332) Motor controller CMMP-AS-C5-11A-P3-M3 (1501327) Motor controller CMMP-AS-C5-11A-P3-M3-C1 (2106334) Motor controller CMMP-AS-C5-3A-M3 (1501326) Motor controller CMMP-AS-C5-3A-M3-C1 (2106333)

**Document type:**

Commissioning

Title	Language	Version	File size	Download
Version 2.15.0.10 (26.01.2021) Version hl...	Deutsch [de], English [en], 中文 [zh-CN]	2.15.0.10 (1/26/...	1513 MB	

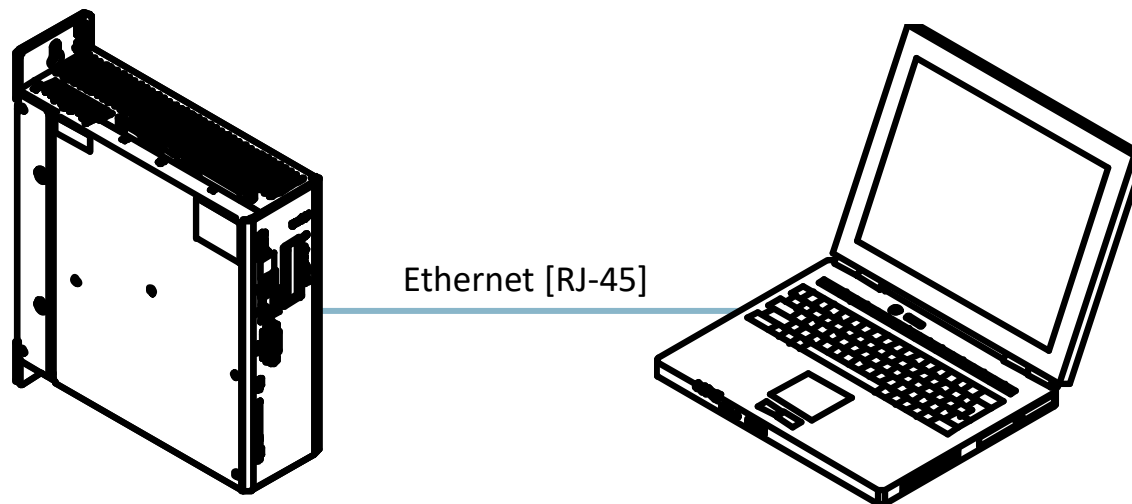


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# Connection with controller

Connect your Festo CMMP-AS controller to your computer —directly or through a switch—via Ethernet.

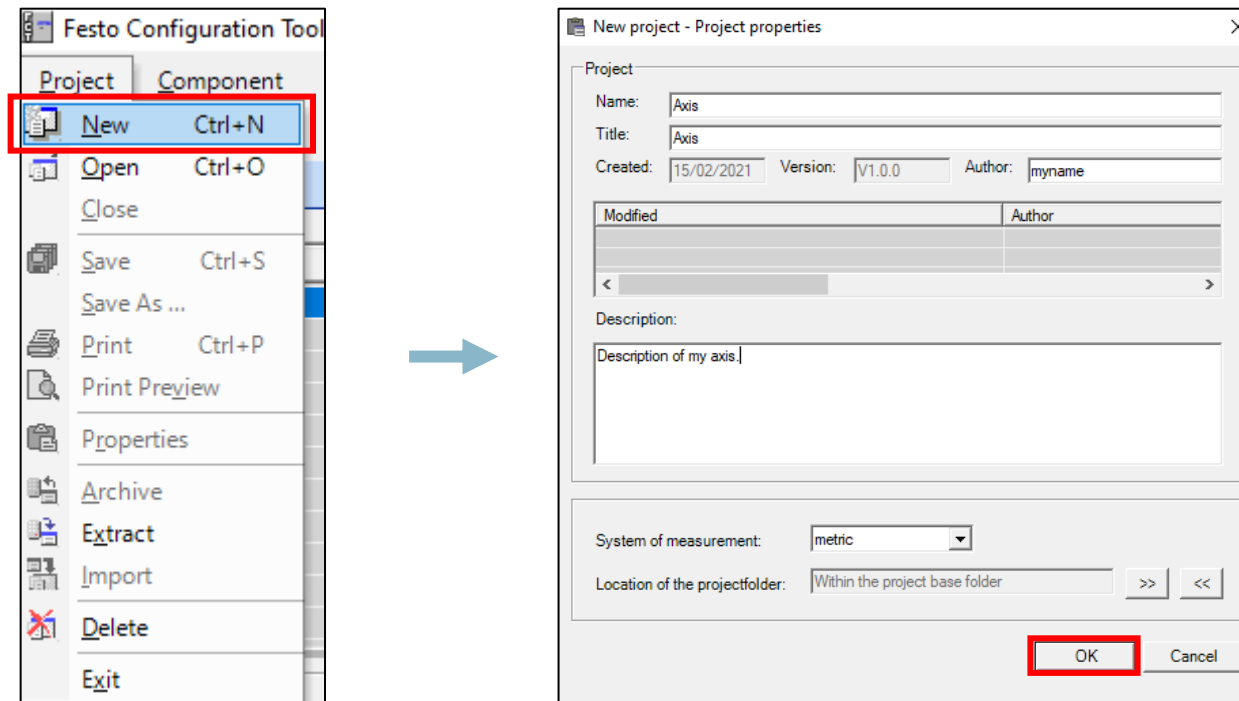


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# Project creation

Start the *Festo Configuration Tool* application, click *Project -> New* and enter the data for the new project.

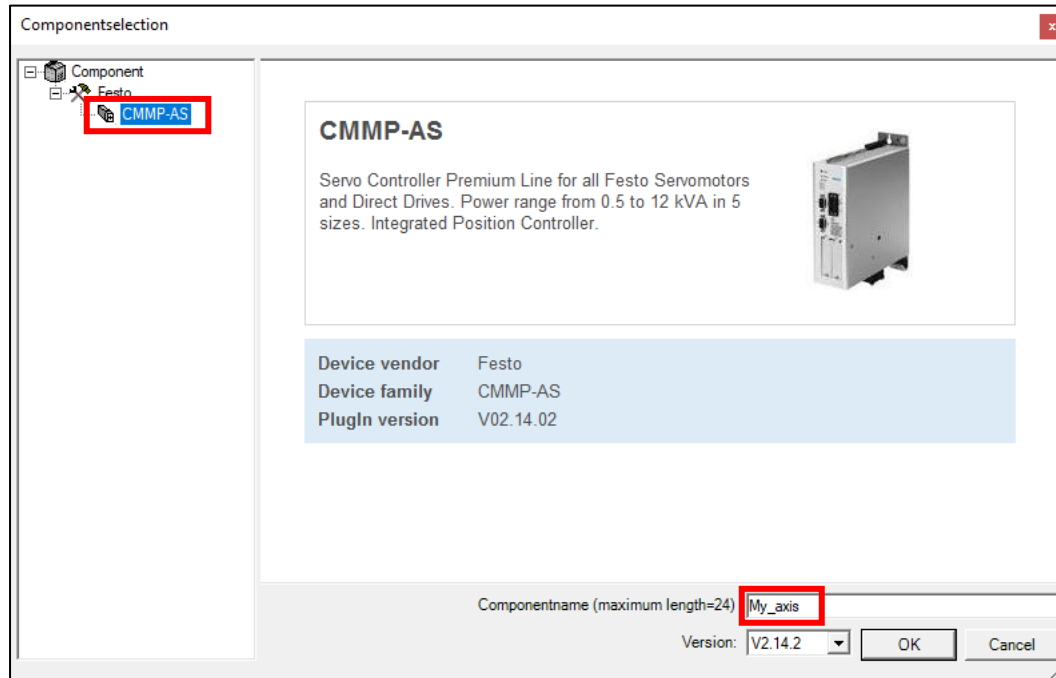


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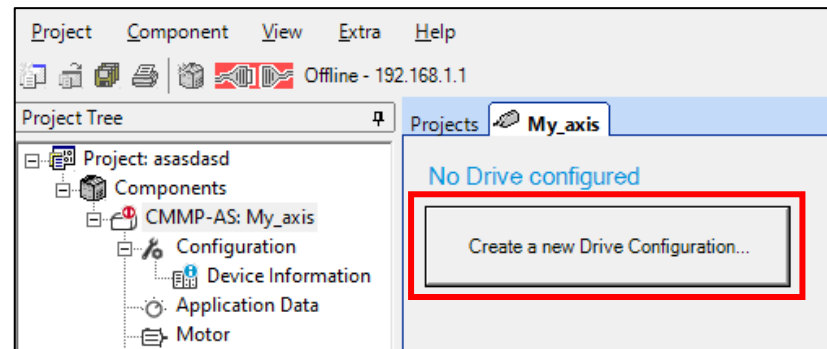
# Component selection

Once the project is created, go to it, select the CMMP-AS component and enter a name for this component.



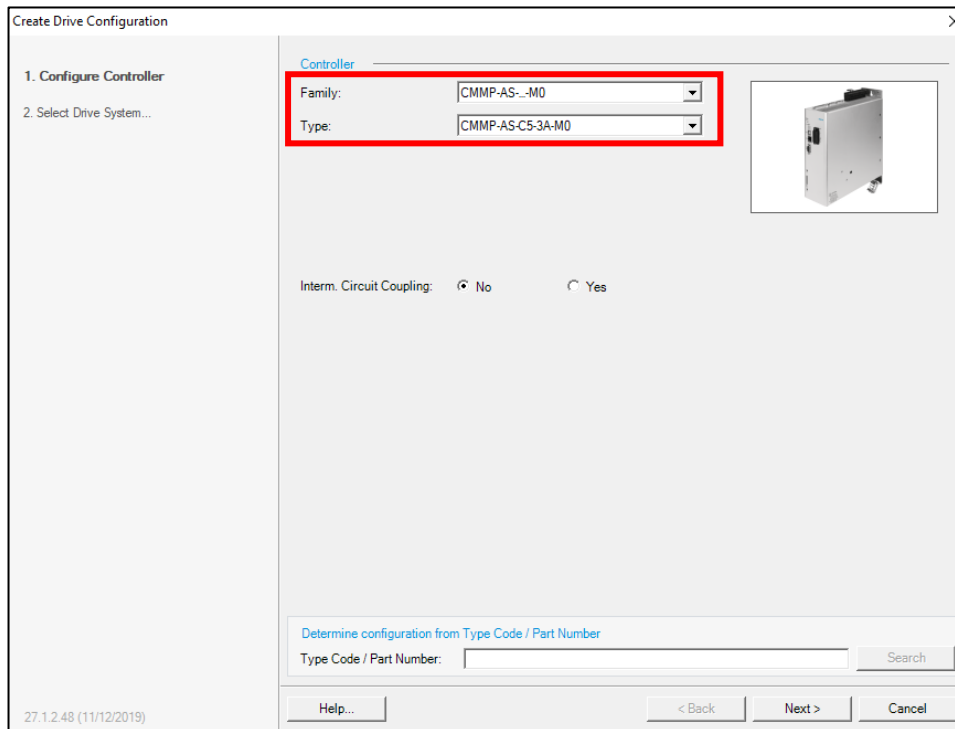
# Component selection

The next step will be to create a new controller configuration. Click the *Create new Drive Configuration* button.



# Component selection

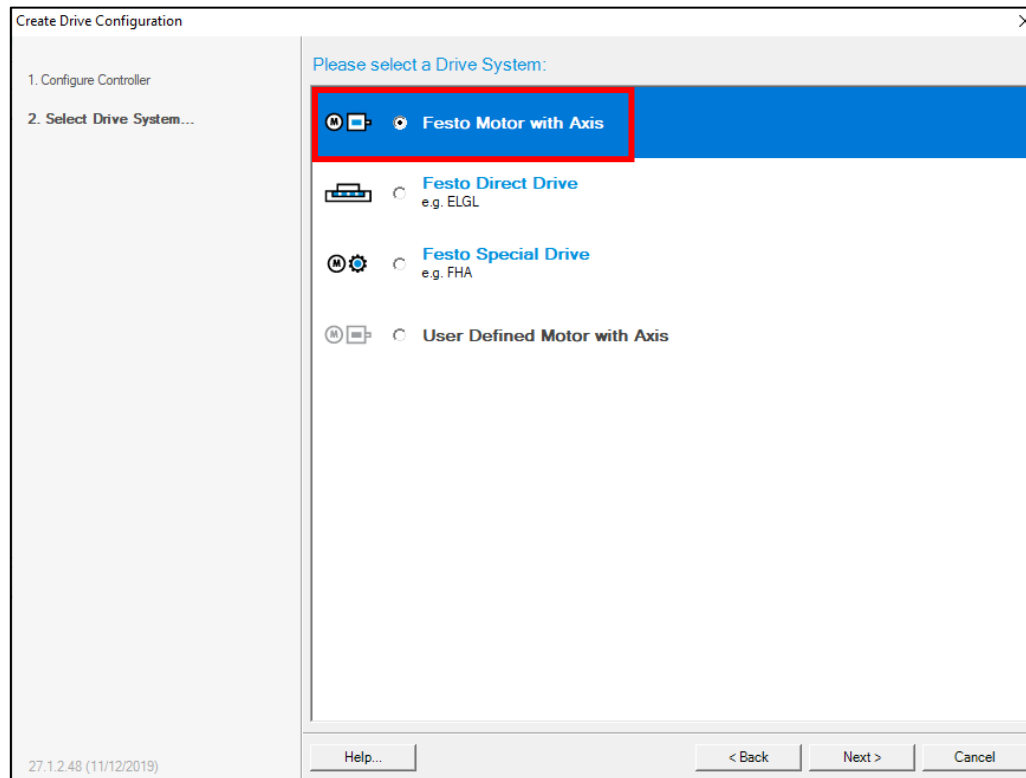
First, select the family and type of controller you have. If using DC power, enable the intermediate circuit option.





# Component selection

Then select the drive system: typically, *Festo Motor with Axis*.



# Component selection

The next step is to indicate the motor, the length of the cable and the reducer you have.

Create Drive Configuration

1. Configure Controller
2. Select Drive System...
3. **Configure Festo Motor**
4. Select Axis Type...

**Festo Motor**

Motor Family:

Motor Size:

Variant:

Brake: **Yes**

Result: **EMME-AS-80-S-LS-AMB**

**Motor cable**

Cable Length:  < 15 m  15 - 25 m  > 25 m

**Gear**

Type:

Ratio:  :

Result: **EMGA-80-P-G5-EAS-80 (5:1)**

Determine configuration from Type Code / Part Number

Type Code / Part Number:

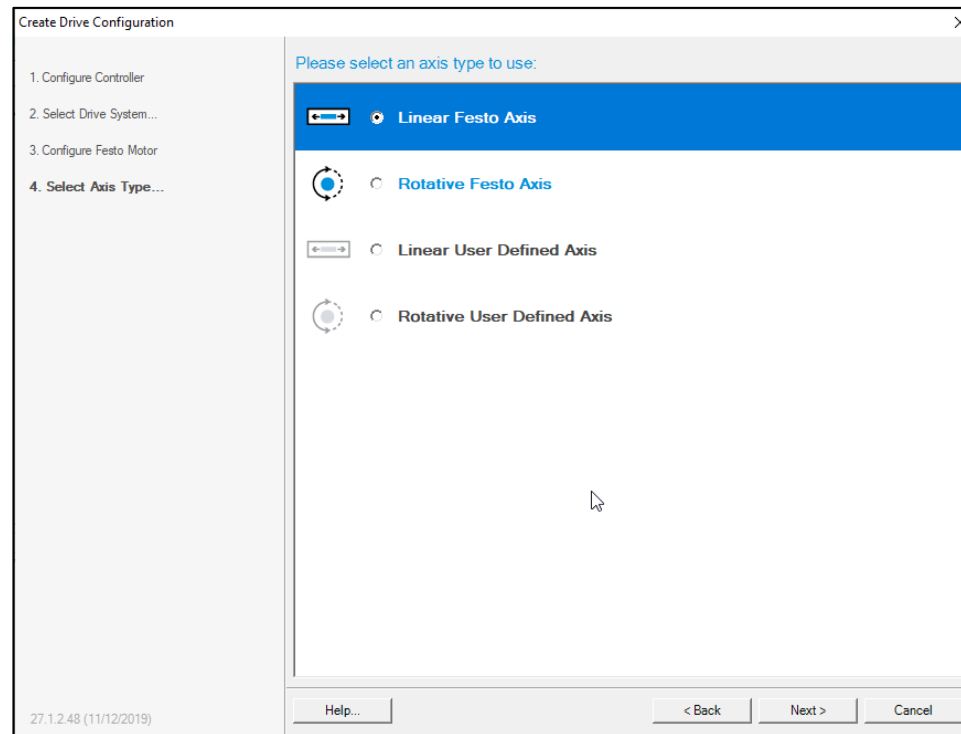
Help...
< Back
Next >
Cancel

27.1.2.48 (11/12/2019)



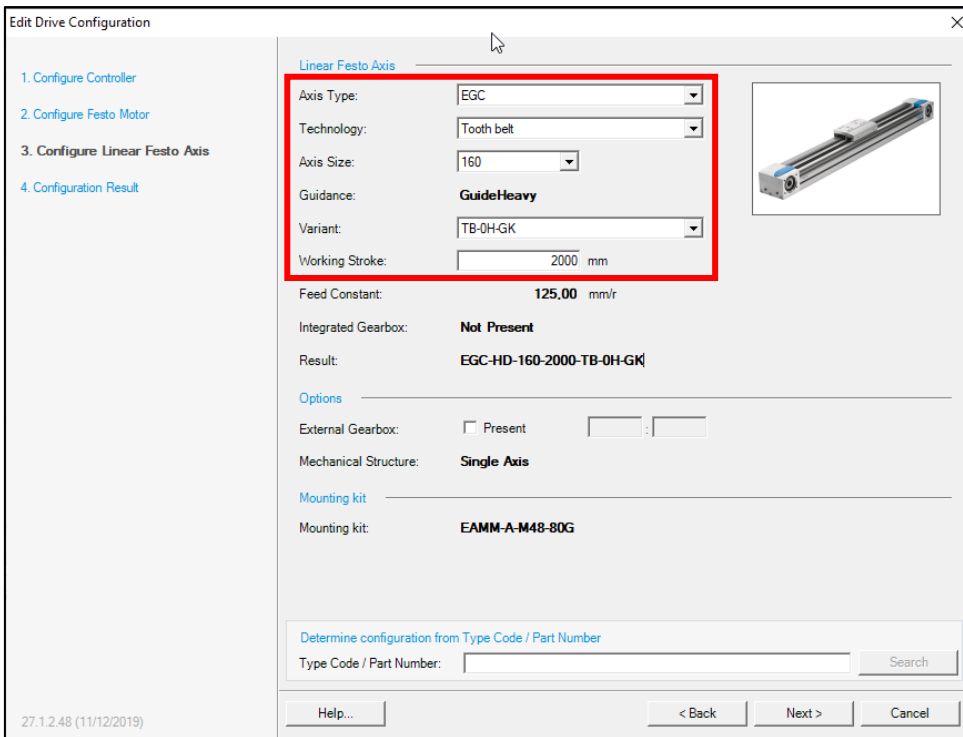
# Component selection

Now we select the type of axis we are going to use, typically a linear or rotative Festo axis (first 2 options).



# Component selection

Subsequently, we select the axis model that we will use.

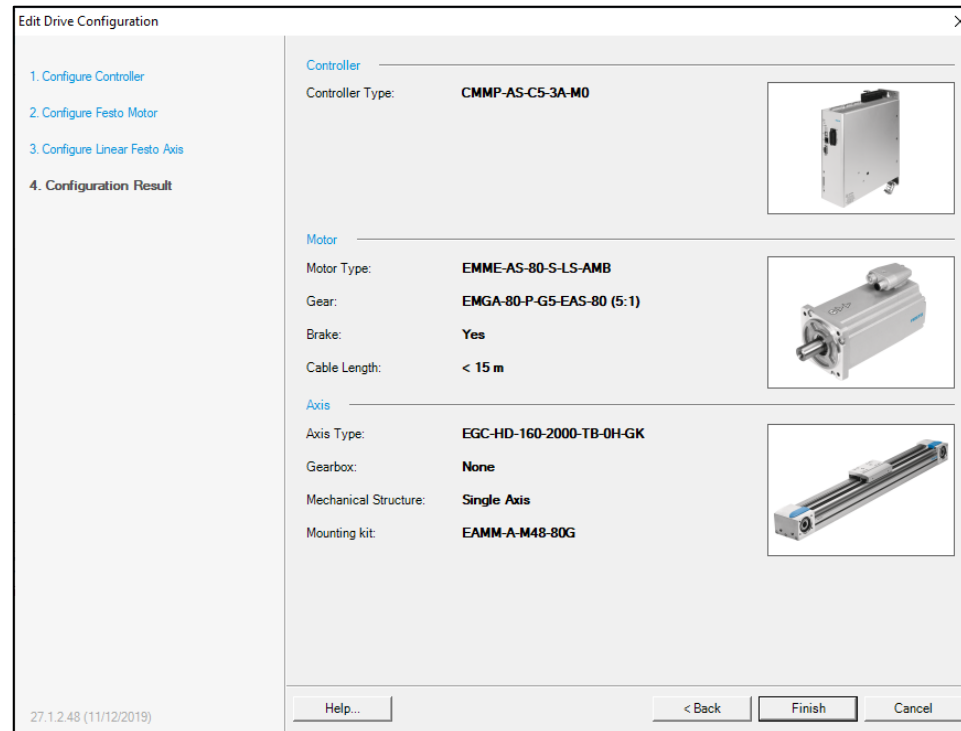


27.1.2.48 (11/12/2019)



# Component selection

Finally, the result of the selected configuration is displayed.

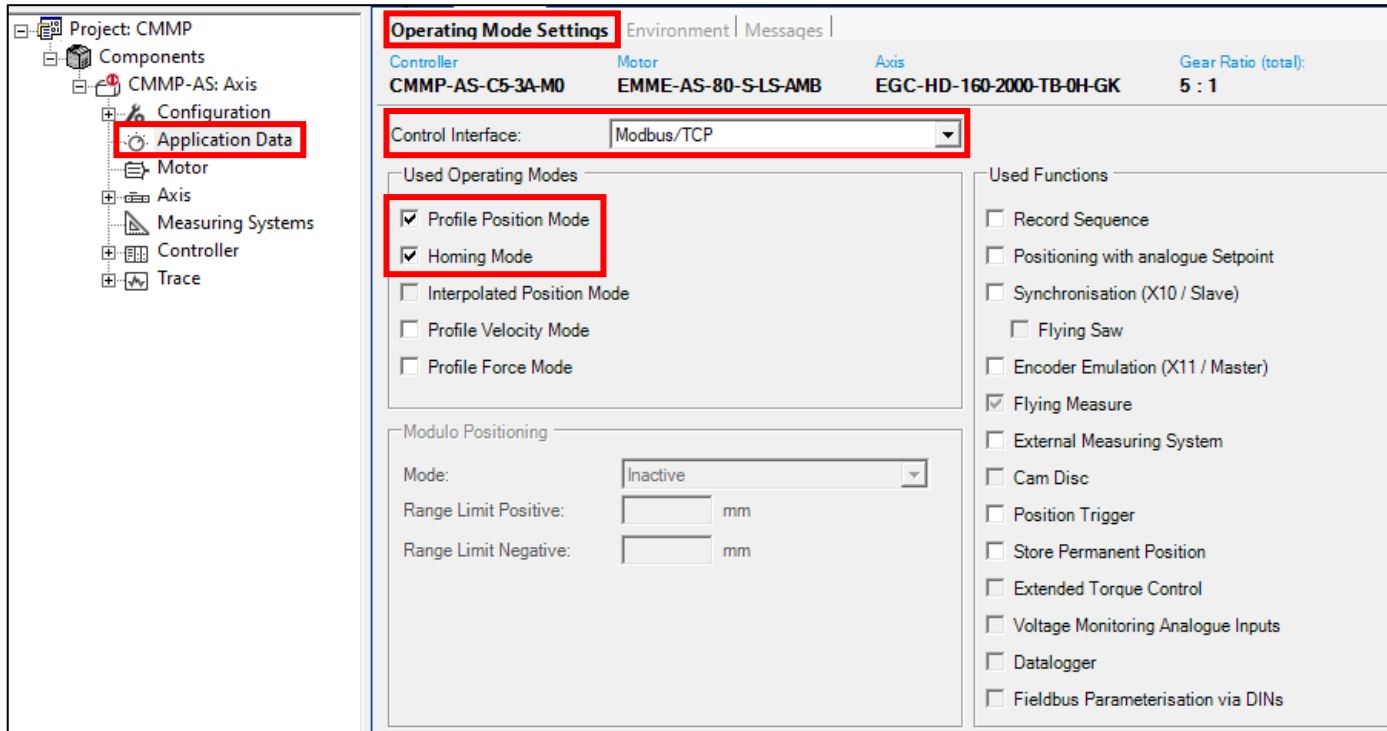


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# Configuration

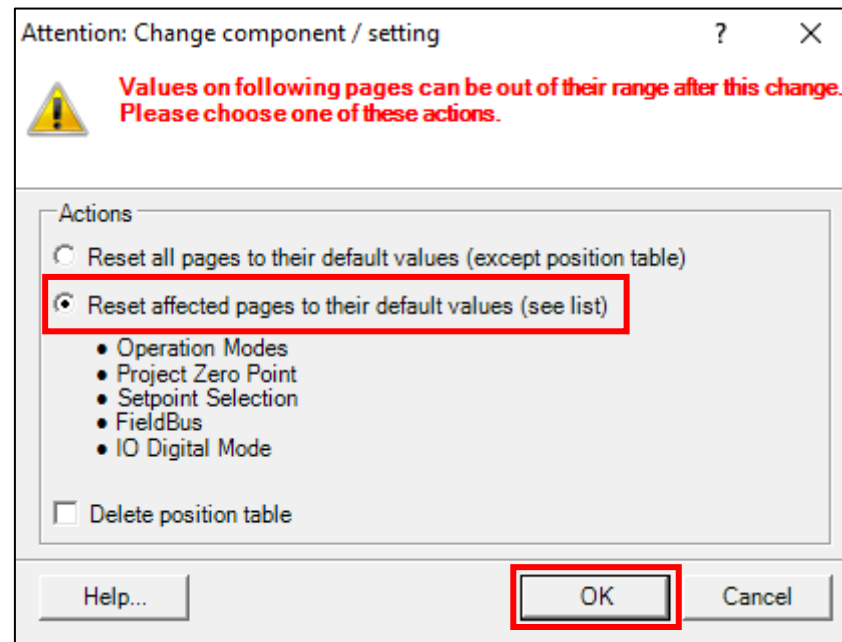
First, go to the *Application Data* category, click the *Operating Mode Settings* tab and select the control interface: *Modbus/TCP*. Also enable the *Profile Position Mode* and *Homing Mode* options.



The screenshot displays the configuration interface for a Nutai drive system. On the left, a tree view shows the project structure: Project: CMMP, Components, CMMP-AS: Axis, Configuration, Application Data (highlighted with a red box), Motor, Axis, Measuring Systems, Controller, and Trace. The main panel is titled 'Operating Mode Settings' (highlighted with a red box) and shows the following configuration:

- Control Interface:** Modbus/TCP (highlighted with a red box)
- Used Operating Modes:**
  - Profile Position Mode (highlighted with a red box)
  - Homing Mode (highlighted with a red box)
  - Interpolated Position Mode
  - Profile Velocity Mode
  - Profile Force Mode
- Modulo Positioning:**
  - Mode: Inactive (dropdown menu)
  - Range Limit Positive: [ ] mm
  - Range Limit Negative: [ ] mm
- Used Functions:**
  - Record Sequence
  - Positioning with analogue Setpoint
  - Synchronisation (X10 / Slave)
    - Flying Saw
  - Encoder Emulation (X11 / Master)
  - Flying Measure
  - External Measuring System
  - Cam Disc
  - Position Trigger
  - Store Permanent Position
  - Extended Torque Control
  - Voltage Monitoring Analogue Inputs
  - Datalogger
  - Fieldbus Parameterisation via DINs

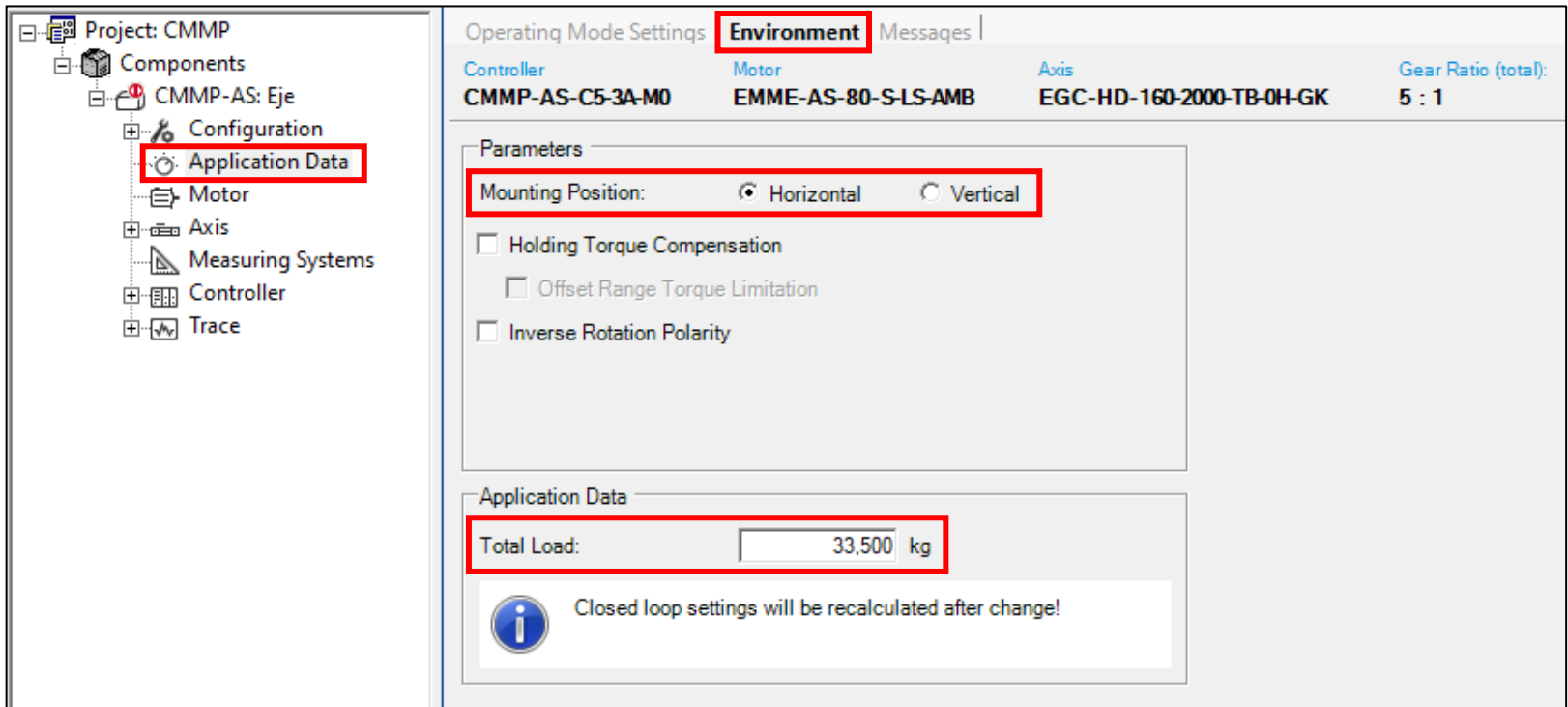
When modifying the control interface, a warning window may appear. Accept the reset of the affected pages by pressing the *OK* button.





# Configuration

Now click on the *Environment* tab and select the axis mounting position and the approximate total load.



The screenshot displays the configuration interface for a project named 'CMMP'. The left sidebar shows a tree view of components, with 'Application Data' highlighted under the 'Configuration' folder. The main panel is titled 'Environment' and shows the following configuration details:


Controller	Motor	Axis	Gear Ratio (total):
CMMP-AS-C5-3A-M0	EMME-AS-80-S-LS-AMB	EGC-HD-160-2000-TB-0H-GK	5 : 1

Parameters:

- Mounting Position:  Horizontal  Vertical
- Holding Torque Compensation
  - Offset Range Torque Limitation
- Inverse Rotation Polarity

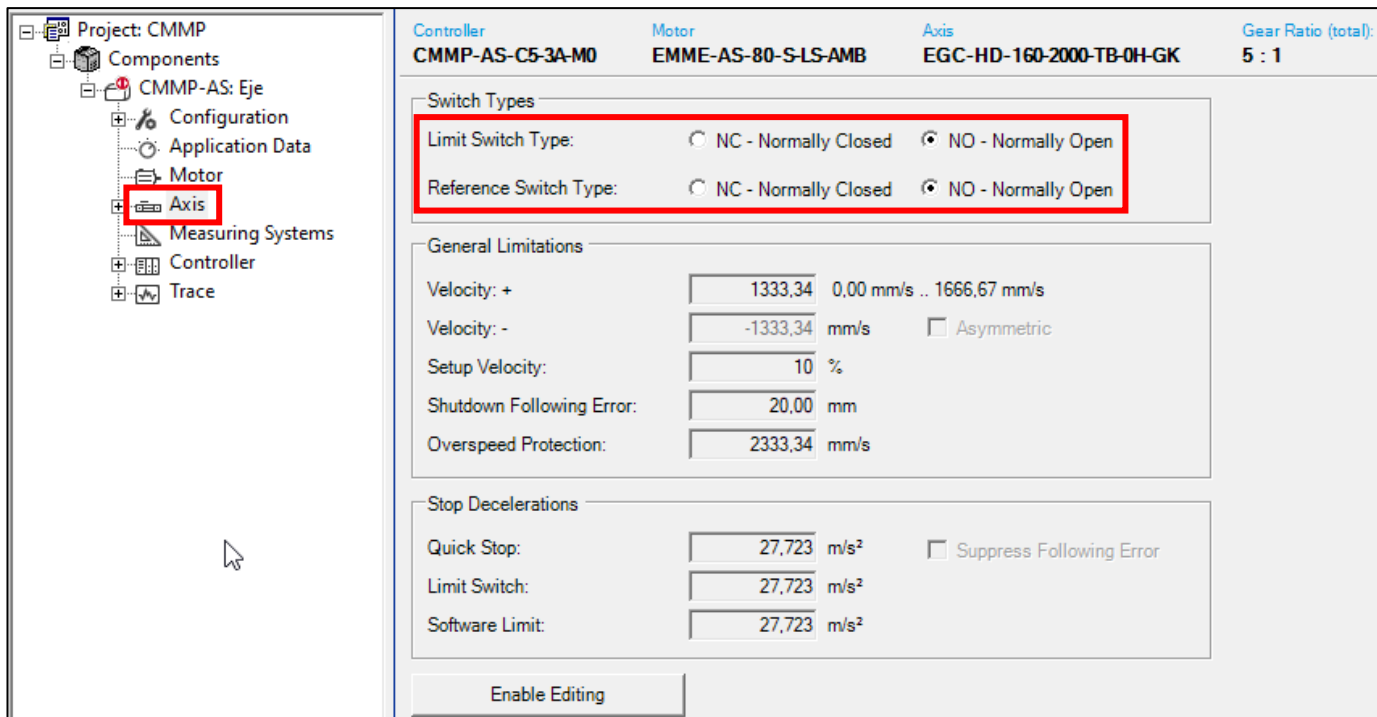
Application Data:

- Total Load:  kg

 Closed loop settings will be recalculated after change!

# Configuration

We now access the *Axis* category and configure the limit and reference switches according to whether they are NC (*Normally Closed*) or NO (*Normally Open*). In case of not using them, we configure them as NO.



The screenshot displays the configuration interface for a project named 'CMMP'. On the left, a tree view shows the project structure with 'Axis' selected and highlighted by a red box. The main configuration area is divided into several sections:

- Controller:** CMMP-AS-C5-3A-M0
- Motor:** EMME-AS-80-S-LS-AMB
- Axis:** EGC-HD-160-2000-TB-0H-GK
- Gear Ratio (total):** 5 : 1

The **Switch Types** section is highlighted with a red box and contains the following settings:

- Limit Switch Type:**  NC - Normally Closed  NO - Normally Open
- Reference Switch Type:**  NC - Normally Closed  NO - Normally Open

The **General Limitations** section includes the following parameters:

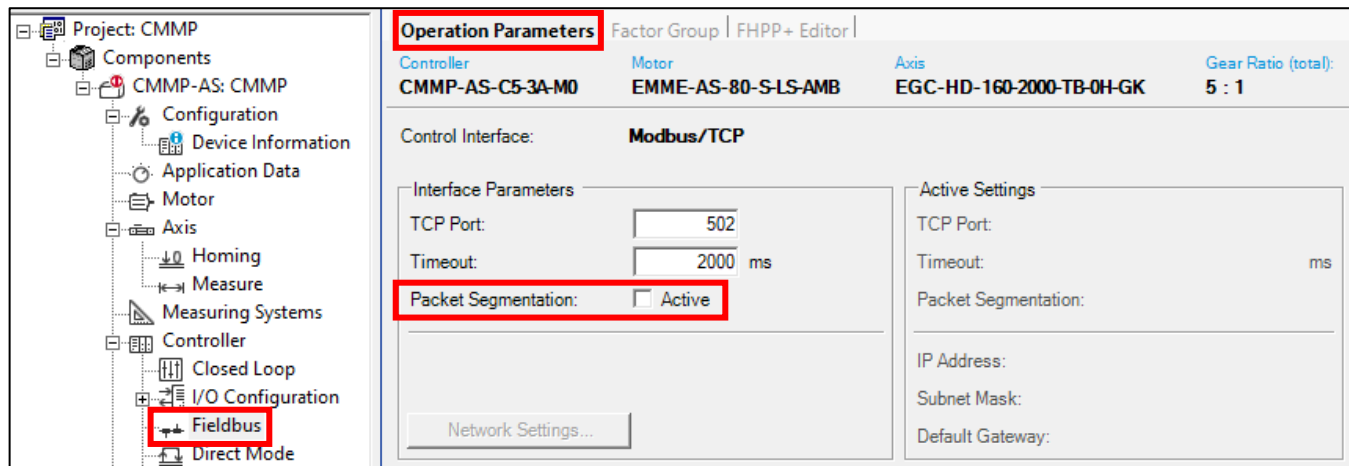
- Velocity: +**: 1333,34 (range: 0,00 mm/s .. 1666,67 mm/s)
- Velocity: -**: -1333,34 mm/s  Asymmetric
- Setup Velocity:** 10 %
- Shutdown Following Error:** 20,00 mm
- Overspeed Protection:** 2333,34 mm/s

The **Stop Decelerations** section includes the following parameters:

- Quick Stop:** 27,723 m/s<sup>2</sup>  Suppress Following Error
- Limit Switch:** 27,723 m/s<sup>2</sup>
- Software Limit:** 27,723 m/s<sup>2</sup>

An **Enable Editing** button is located at the bottom of the configuration area.

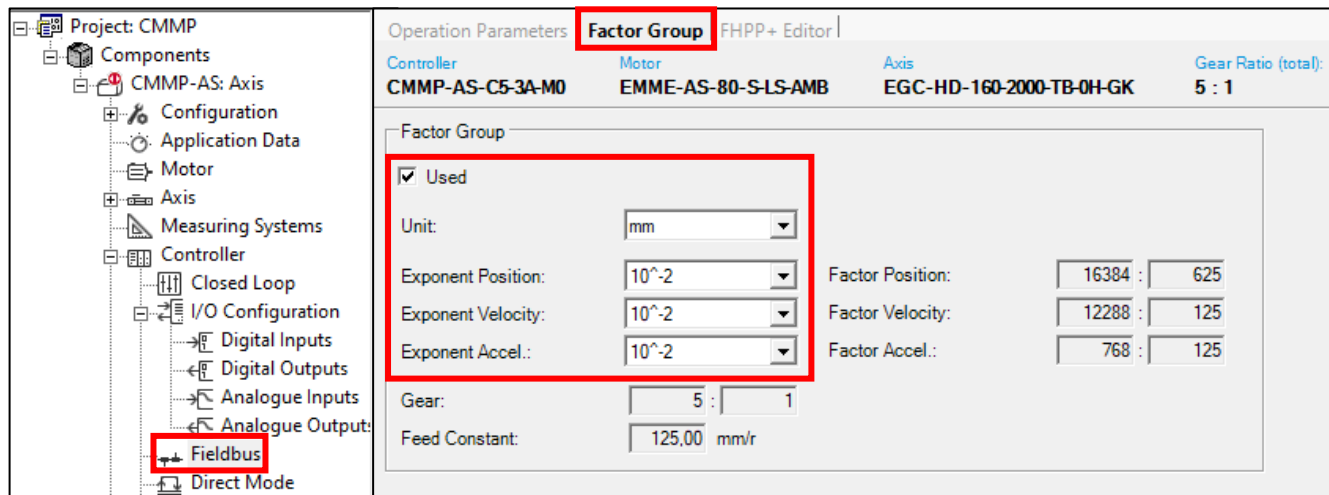
We access the *Fieldbus* subcategory and select the *Operation Parameters* tab. We verify that the *Packet Segmentation*<sup>1</sup> option is **disabled**.



<sup>1</sup> If this option is not visible, update the FCT CMMP plugin to a newer version.

# Configuration

We now select the *Factor Group* tab. We set the units we want to use —typically mm/in for linear axis and r/° for rotative axis— and configure the position, velocity and acceleration exponents to  $10^{-2}$ , as indicated in the image:



The screenshot shows the configuration interface for a motor axis. The left sidebar displays a project tree for 'Project: CMMP' with various components like 'CMMP-AS: Axis', 'Motor', and 'Controller'. The 'Fieldbus' component is highlighted. The main window shows the 'Factor Group' configuration tab, which is also highlighted. The configuration includes a 'Used' checkbox, a 'Unit' dropdown set to 'mm', and three exponent dropdowns for Position, Velocity, and Acceleration, all set to  $10^{-2}$ . Numerical values for position, velocity, and acceleration factors are also displayed.

Operation Parameters	Factor Group	FHPP+ Editor
Controller: CMMP-AS-C5-3A-M0	Motor: EMME-AS-80-S-LS-AMB	Axis: EGC-HD-160-2000-TB-0H-GK
Gear Ratio (total): 5 : 1		
<input checked="" type="checkbox"/> Used		
Unit:	mm	
Exponent Position:	$10^{-2}$	Factor Position: 16384 : 625
Exponent Velocity:	$10^{-2}$	Factor Velocity: 12288 : 125
Exponent Accel.:	$10^{-2}$	Factor Accel.: 768 : 125
Gear:	5 : 1	
Feed Constant:	125,00 mm/r	

# Configuration

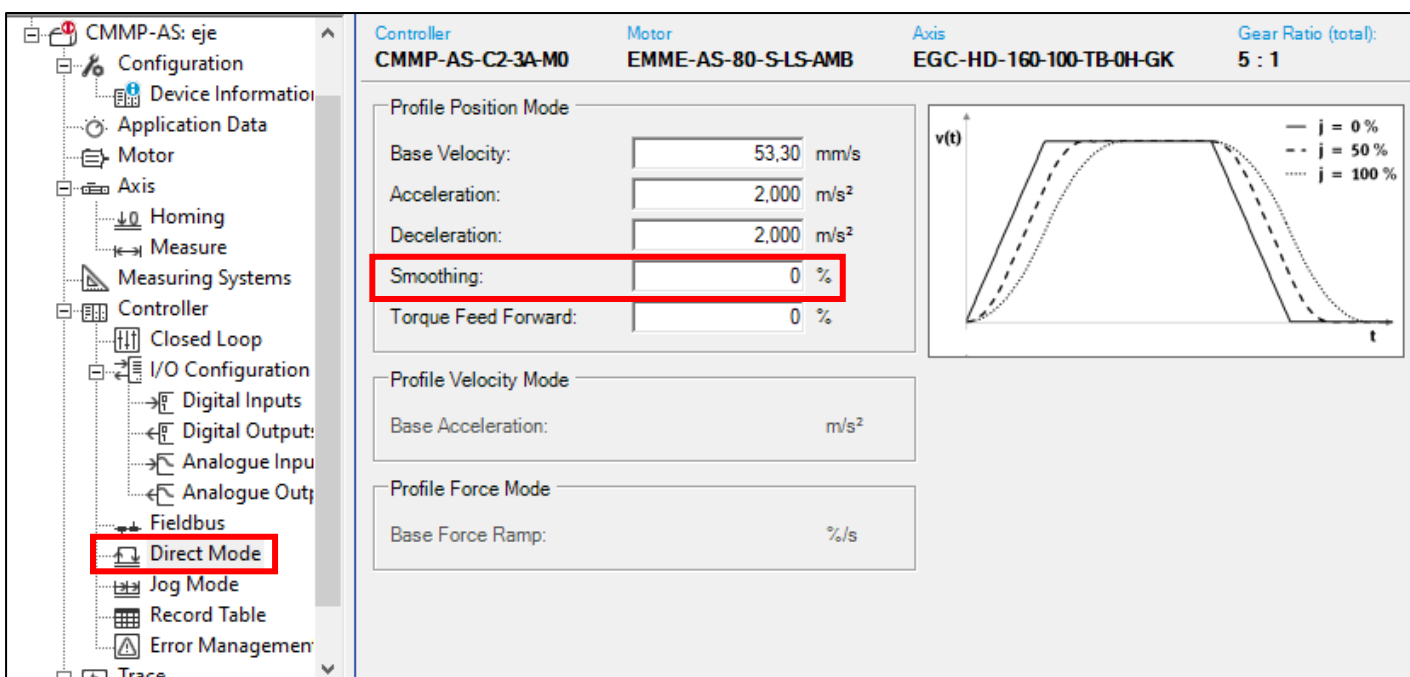
Later, we access the *FHPP+ Editor* tab and enable the *Use Parameter Channel* option in both sub-tabs: *Message from PLC* and *Answer to PLC*.

The screenshot shows the Nutai configuration software interface. On the left is a tree view for 'Project: CMMP'. The 'Fieldbus' option under the 'Controller' folder is highlighted with a red box. The main window displays the 'FHPP+ Editor' tab, which is also highlighted with a red box. Below the tab, there are two sub-tabs: 'Message from PLC' and 'Answer to PLC', both of which are highlighted with red boxes. In the 'Message Options' section, the 'Use Parameter Channel' checkbox is checked and highlighted with a red box. Below this, there is a table for 'FHPP+ Data' with columns: #, Address, PNU.IND, Type, Access, Name, and an 'Edit...' button. At the bottom, there is a 'PLC Configuration' label and an empty text box.

#	Address	PNU.IND	Type	Access	Name

# Configuration

Finally, we select the *Direct Mode* tab and verify that the *Smoothing*<sup>1</sup> parameter is set to a value of 0%.

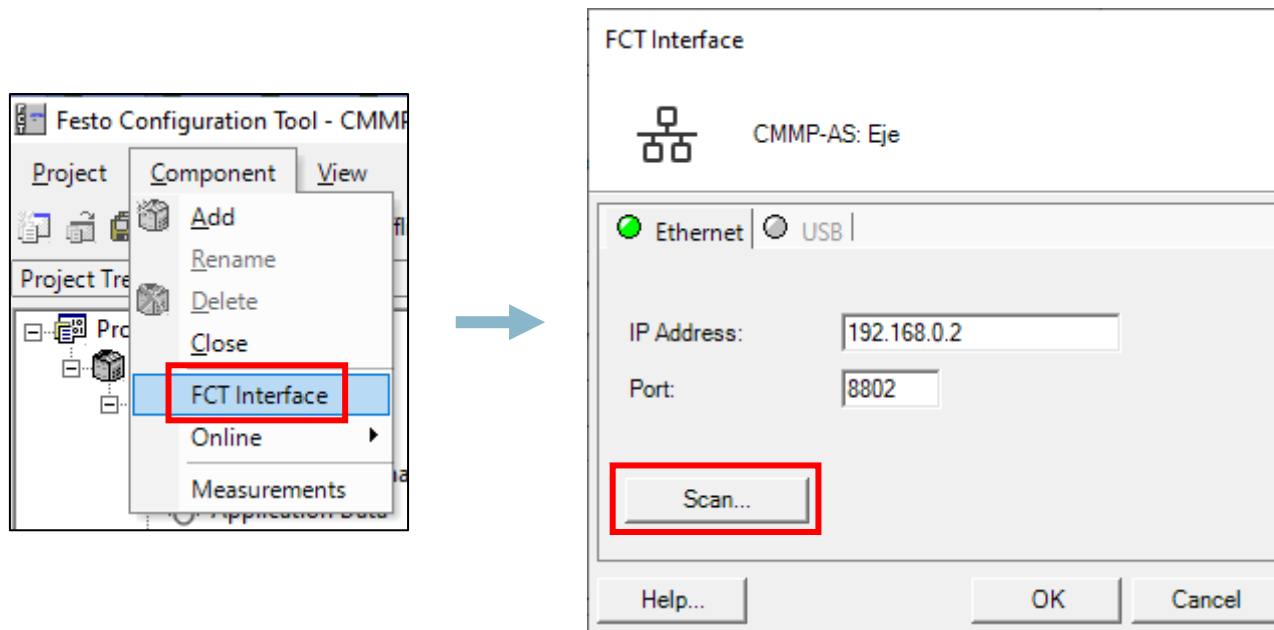


The screenshot displays the configuration software interface for a motor controller. On the left, a tree view shows the configuration structure, with 'Direct Mode' highlighted in red. The main panel shows the configuration for the Controller (CMMP-AS-C2-3A-M0), Motor (EMME-AS-80-S-LS-AMB), and Axis (EGC-HD-160-100-TB-0H-GK) with a Gear Ratio of 5:1. The 'Profile Position Mode' section is active, showing parameters for Base Velocity (53.30 mm/s), Acceleration (2,000 m/s<sup>2</sup>), and Deceleration (2,000 m/s<sup>2</sup>). The 'Smoothing' parameter is set to 0% and is highlighted with a red box. The 'Torque Feed Forward' parameter is also set to 0%. A graph on the right shows the velocity profile v(t) over time t, with three curves representing different smoothing values: j = 0% (solid line), j = 50% (dashed line), and j = 100% (dotted line). The j = 0% curve shows the sharpest transitions, while the j = 100% curve shows the smoothest transitions.

<sup>1</sup> Setting a percentage other than 0% can cause operational problems.

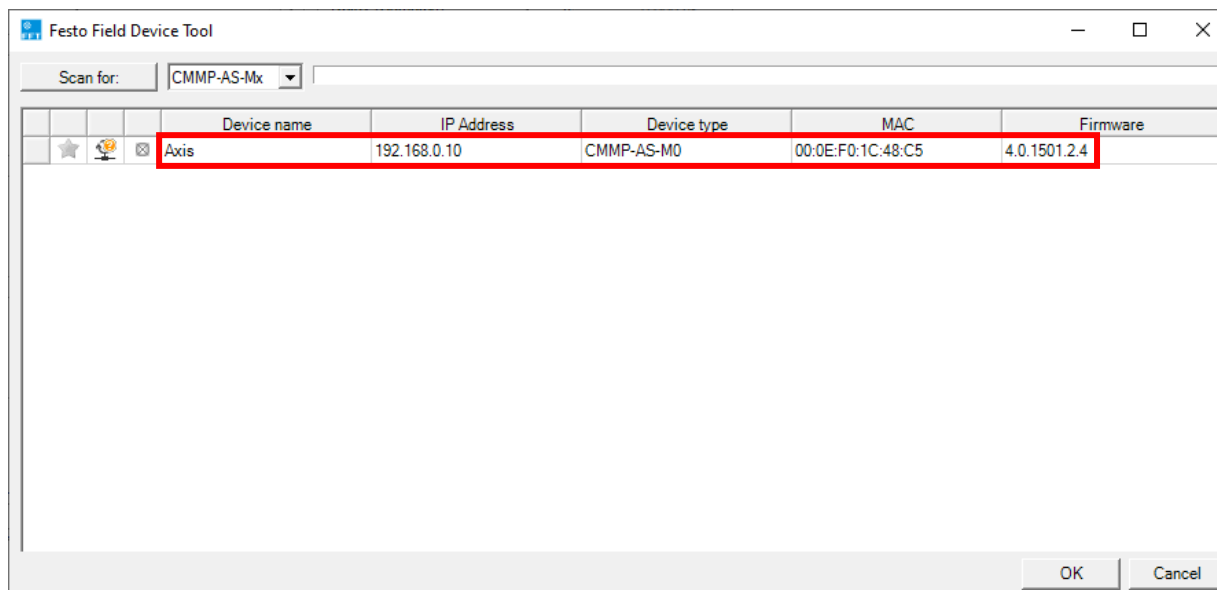
# Configuration

Once the configuration is complete, we proceed to connect to the controller. To do this we access *Component -> FCT Interface -> Scan*.



# Configuration

From this window we can see the devices found and their main data. It is also possible to modify<sup>1</sup> its name and network configuration by right clicking on it and accessing the *Network* option.

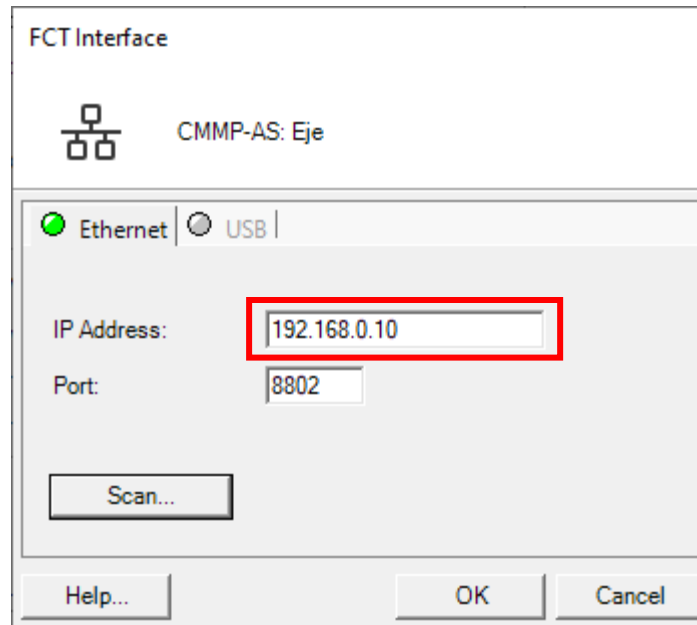


<sup>1</sup> You need to restart the controller to apply the changes.



# Configuration

Once the controller's IP address is known, we configure it in *Component* -> *FCT Interface*.



FCT Interface

CMMP-AS: Eje

Ethernet |  USB

IP Address: 192.168.0.10

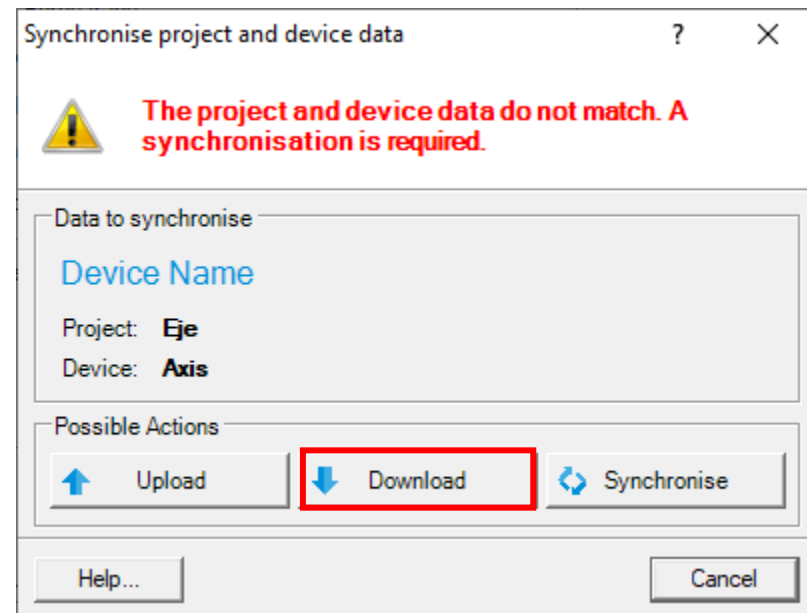
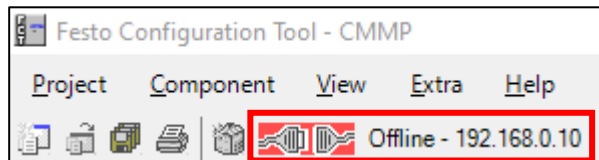
Port: 8802

Scan...

Help... OK Cancel

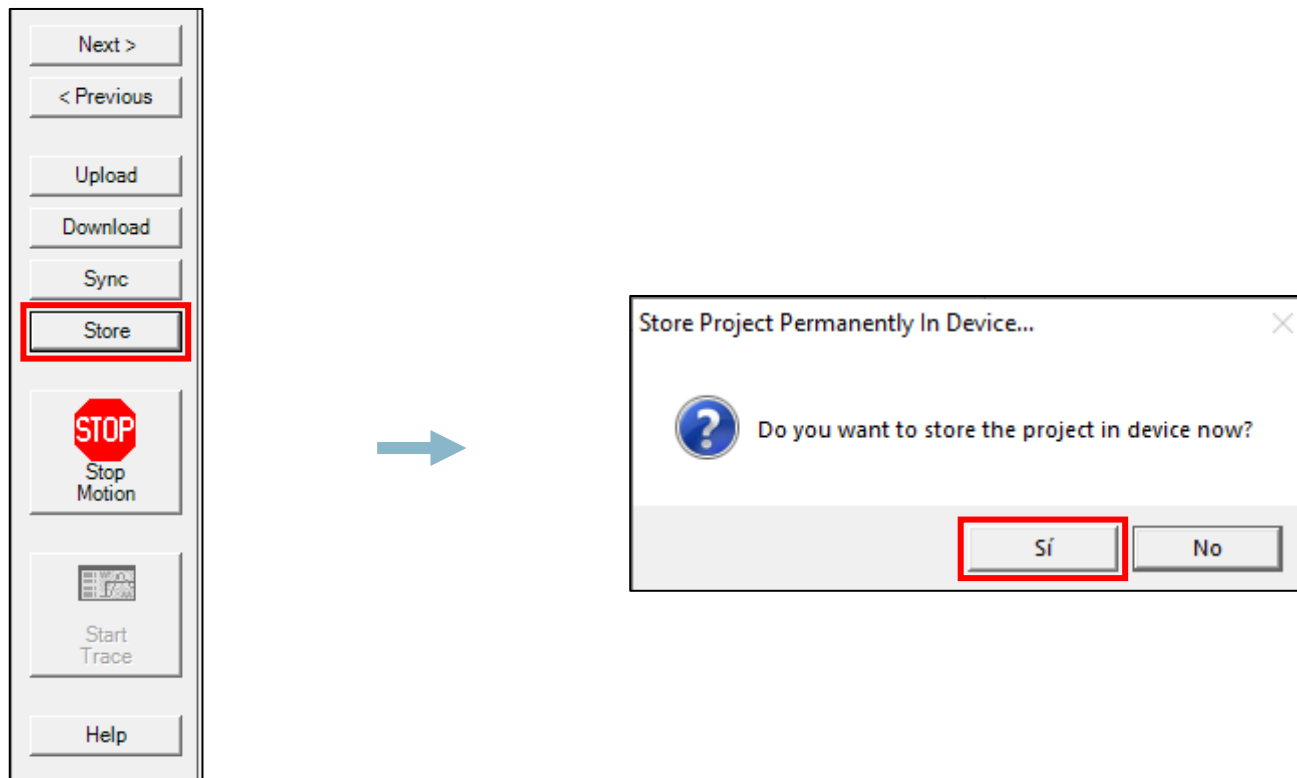
# Configuration

Now we proceed to connect to the controller by clicking on the connection icon. A warning message will be displayed, and we will click the *Download* button to download the project data to the controller.

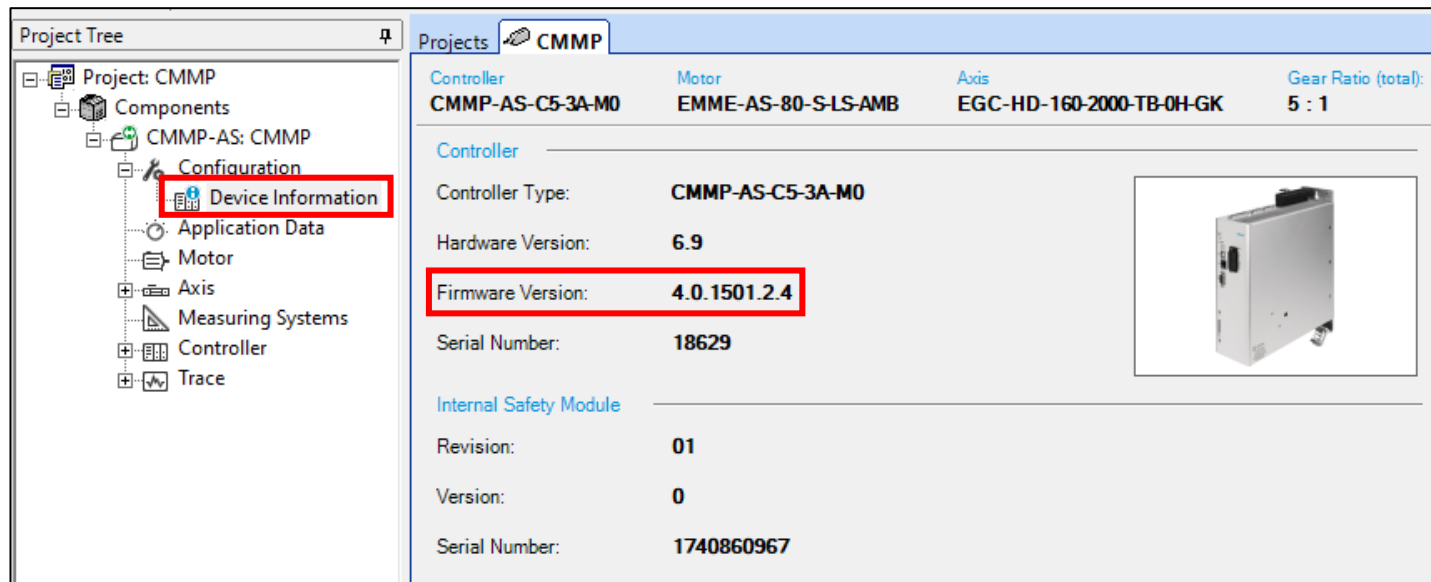


# Configuration

Once the project is downloaded, we perform a *Store* in the controller to permanently save the changes in its non-volatile memory.



**IMPORTANT:** make sure your motor controller has firmware version 4.0.1501.2.4<sup>1</sup> installed to avoid any incompatibility.



The screenshot shows the configuration software interface. On the left is the 'Project Tree' with 'Device Information' highlighted. The main area shows the 'Projects' tab for 'CMMP' with a summary table and detailed controller information.

Controller	Motor	Axis	Gear Ratio (total):
CMMP-AS-C5-3A-M0	EMME-AS-80-S-LS-AMB	EGC-HD-160-2000-TB-0H-GK	5 : 1

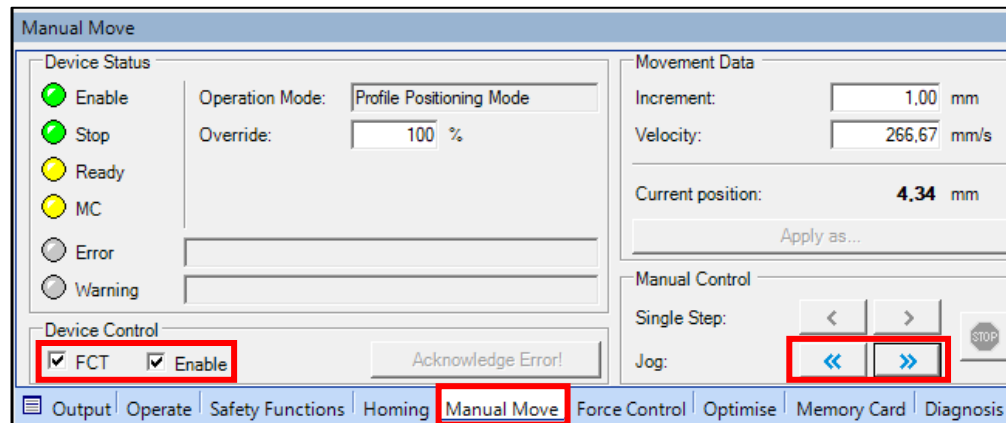
<b>Controller</b>	
Controller Type:	CMMP-AS-C5-3A-M0
Hardware Version:	6.9
Firmware Version:	4.0.1501.2.4
Serial Number:	18629
<b>Internal Safety Module</b>	
Revision:	01
Version:	0
Serial Number:	1740860967

<sup>1</sup> In case you have a different version installed, get the indicated version from the Festo website and download it to your controller from *Component -> Online -> Firmware Download*.

# Configuration

Finally, it is a good idea to check that the downloaded configuration works correctly.

To do this, we access the *Manual Move* tab and enable the *FCT* and *Enable* options to enable the controller. Subsequently, we jog the axis to one side—for example, 60 mm—and physically measure the displacement to confirm that it is correct.



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**i** For further information, please contact:



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