



Nuevas técnicas de automatización industrial

7 May 2021

Festo CMMP-AS Configuration Manual

- 1 Introduction
- 2 Necessary software
- 3 Connection with controller
- 4 Project creation
- 5 Component selection
- 6 Configuration
- 7 Support

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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 secondary configuration options.

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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 Festo¹ website and download the latest version available, making sure that it is compatible with your CMMP-AS controller, as indicated in the following slides.



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

Necessary software



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festo configuration tool cmm

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

		Document Type	Title	Description	Version	
Product information	0					
Technical documentation	21	Commissioning	FCT - Festo Configu...	Configuration and commissioning software for the motor contro...	1.4.2. 58/1/2...	▼
Certificates	0	Commissioning	FCT - Festo Configu...	Configuration and commissioning software for the motor contro...	2.15.0.1 01/2...	▼
Software	2					
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

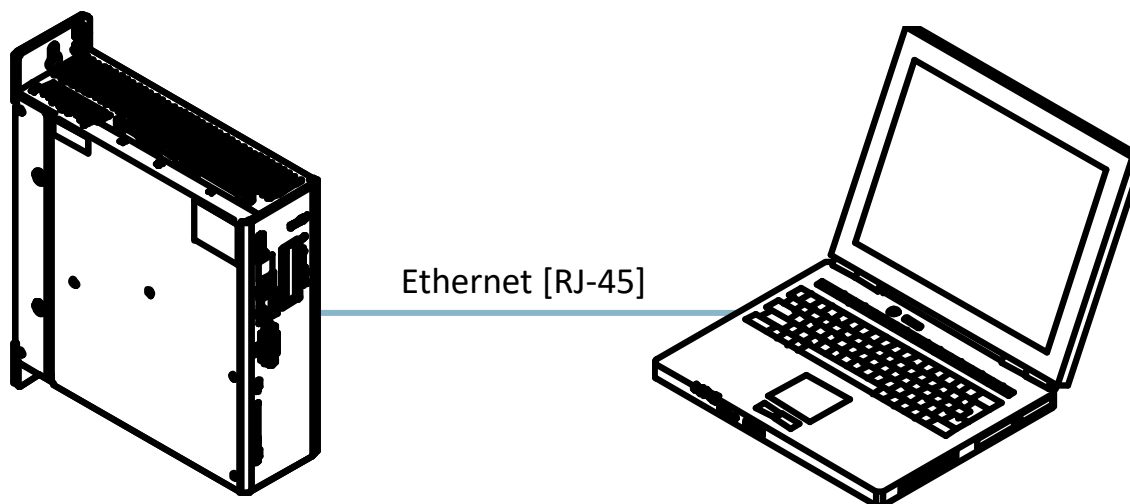
Title	Language	Version	File size	Download
Version 2.15.0.10 (26.01.2021) Version hl...	Deutsch [de], English [en], 中文 [zh-CN]	2.15.0.10 (1/26/...	1513 MB	

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Connection with controller



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

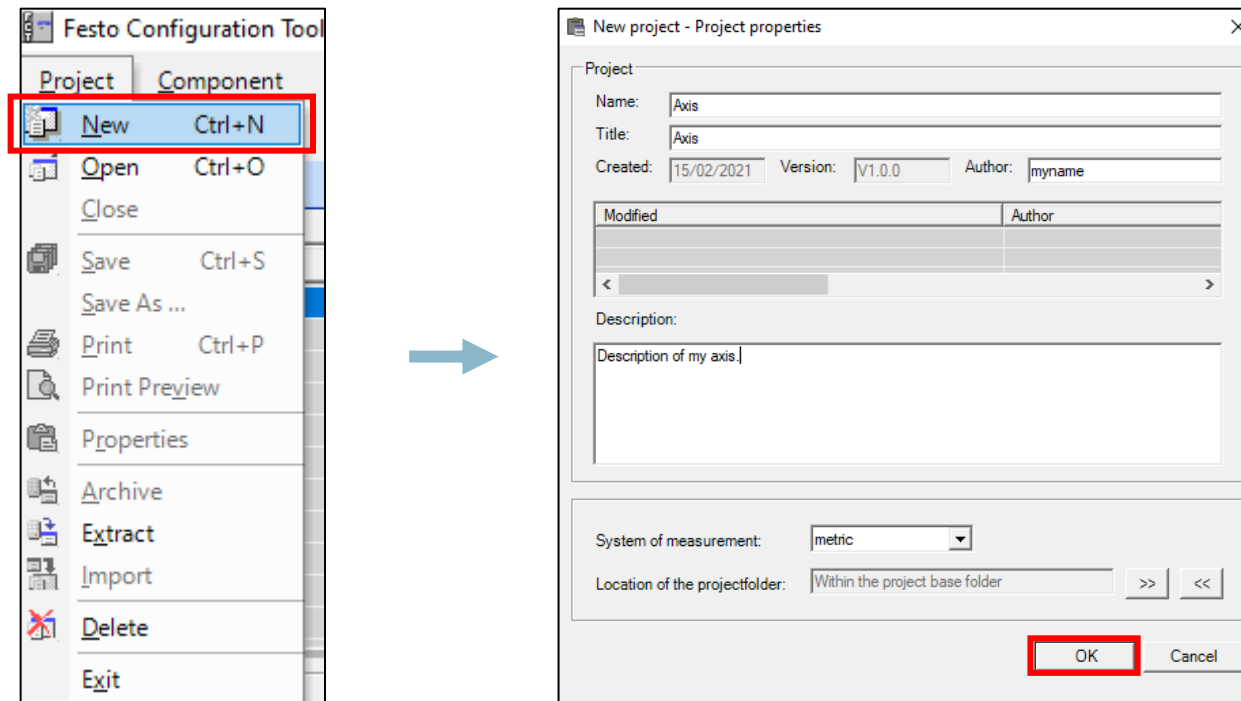


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Project creation



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

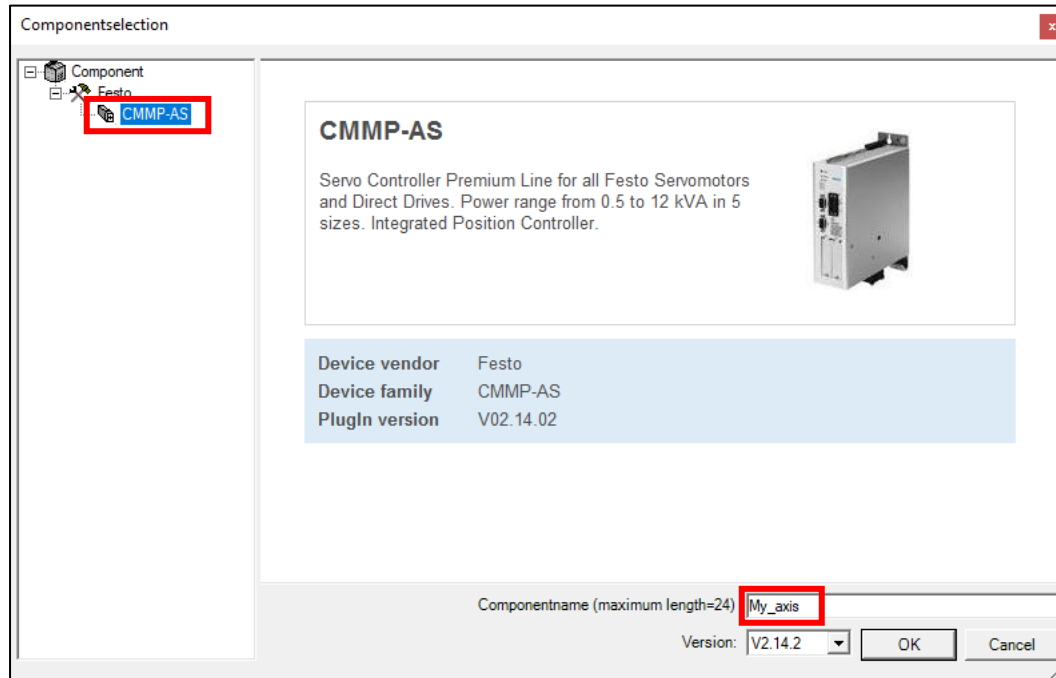


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Component selection



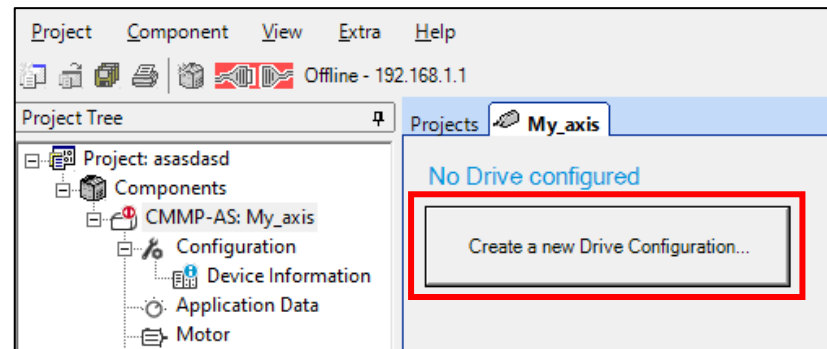
Once the project is created, go to it, select the CMMP-AS component and enter a name for this component.



Component selection



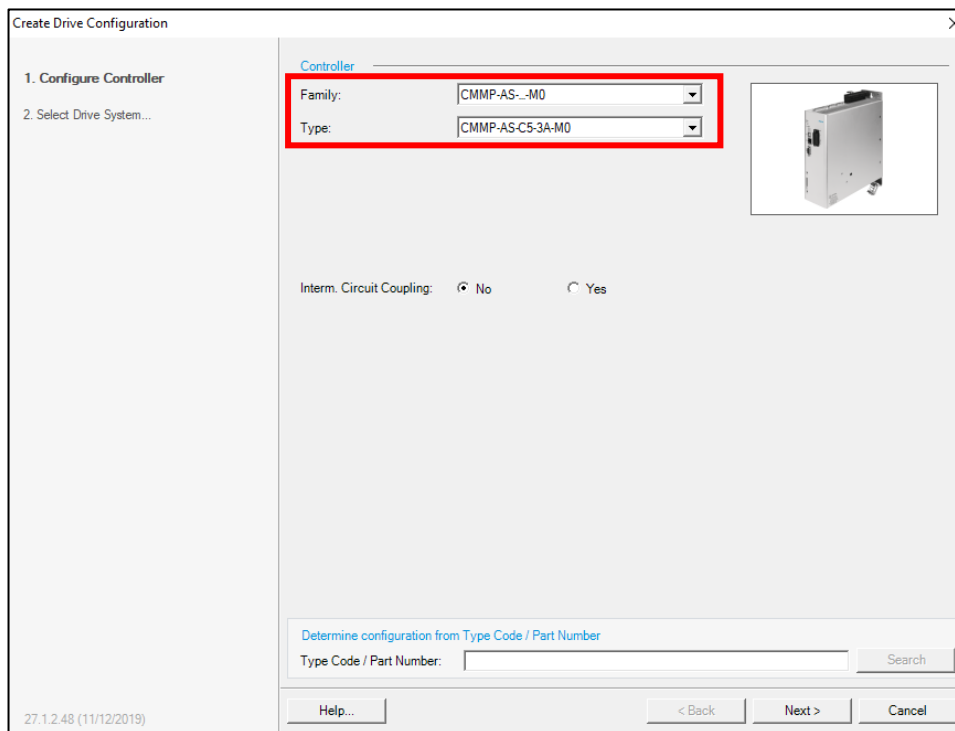
The next step will be to create a new controller configuration. Click the *Create new Drive Configuration* button.



Component selection

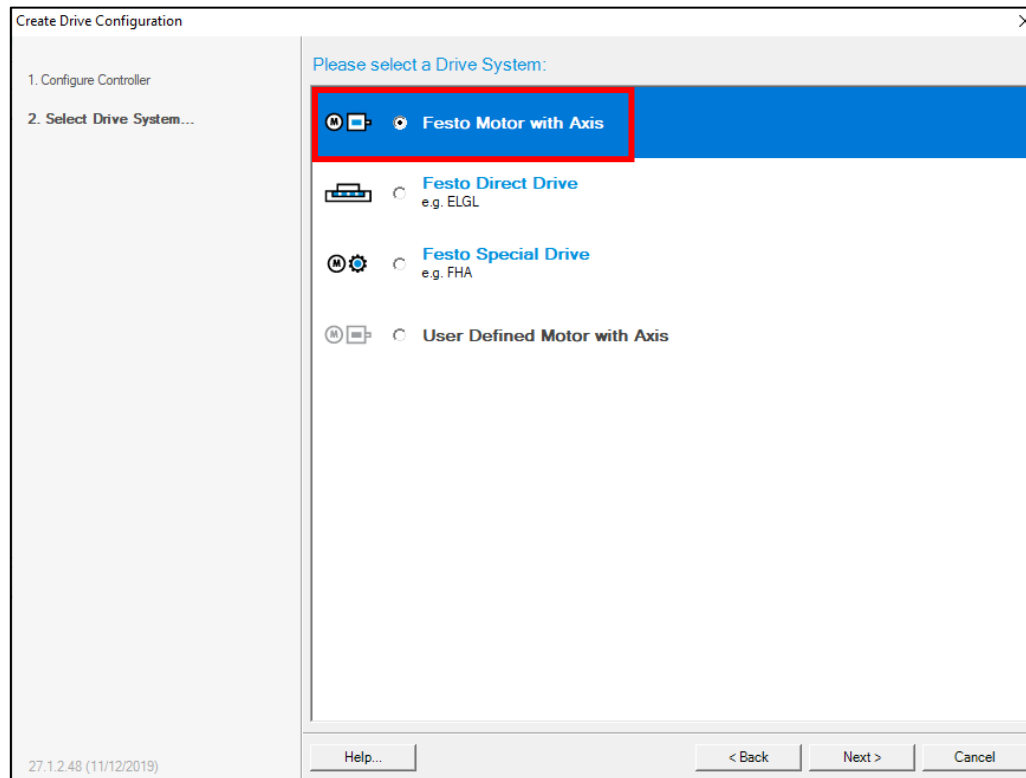


First, select the family and type of controller you have. If using DC power, enable the intermediate circuit option.



Component selection

Then select the drive system: *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: Search

27.1.2.48 (11/12/2019)

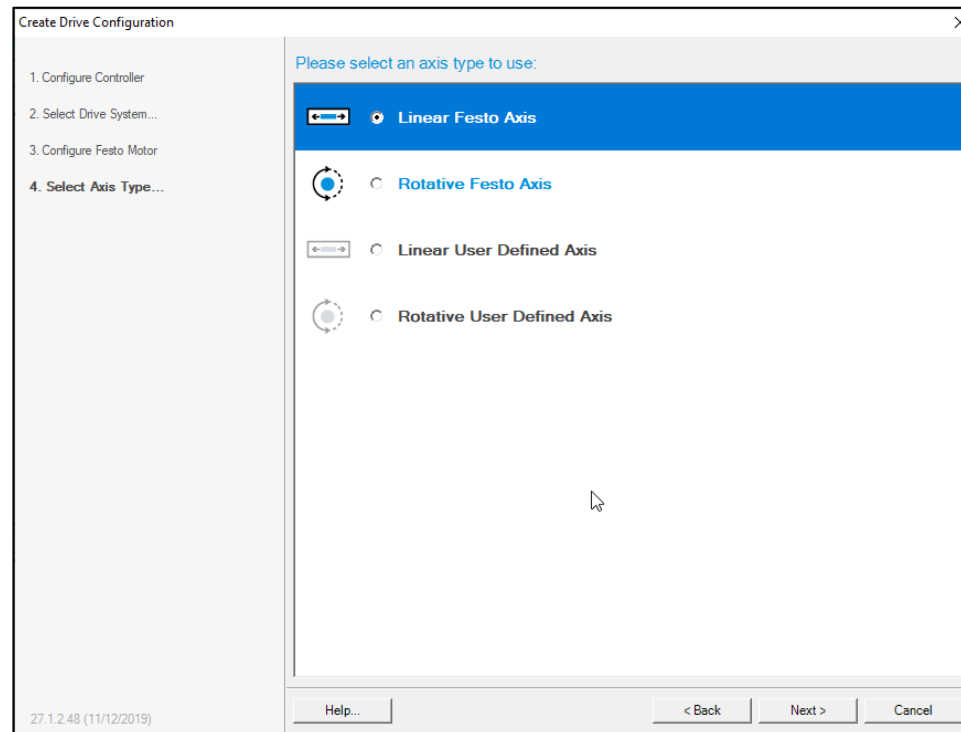
Help... < Back Next > Cancel



Component selection



Now we select the type of axis we are going to use.



Component selection

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

Edit Drive Configuration

1. Configure Controller
2. Configure Festo Motor
3. Configure Linear Festo Axis
4. Configuration Result

Linear Festo Axis

Axis Type: EGC
Technology: Tooth belt
Axis Size: 160
Guidance: GuideHeavy
Variant: TB-0H-GK
Working Stroke: 2000 mm

Feed Constant: 125.00 mm/r

Integrated Gearbox: Not Present

Result: EGC-HD-160-2000-TB-0H-GK

Options

External Gearbox: Present

Mechanical Structure: Single Axis

Mounting kit

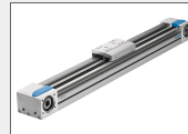
Mounting kit: EAMM-A-M48-80G

Determine configuration from Type Code / Part Number

Type Code / Part Number: Search

Help... < Back Next > Cancel

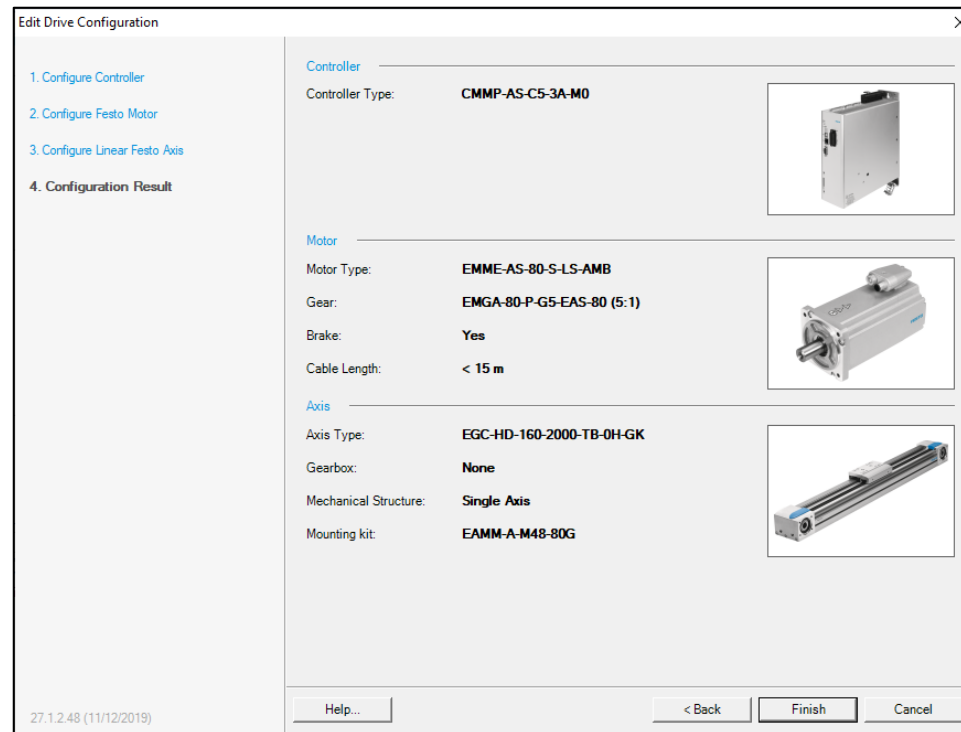
27.1.2.48 (11/12/2019)



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*.

The screenshot displays the configuration interface for a project named "CMMP". The left sidebar shows a tree view with "Application Data" selected. The main window is titled "Operating Mode Settings" and shows the following configuration:

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

The "Control Interface" dropdown is set to "Modbus/TCP".

Used Operating Modes:

- Profile Position Mode
- Homing Mode
- Interpolated Position Mode
- Profile Velocity Mode
- Profile Force Mode

Modulo Positioning:

Mode: Inactive

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

Configuration



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

The screenshot displays the configuration software interface. On the left, a tree view shows the project structure: Project: CMMP, Components, CMMP-AS: Eje, Configuration, Application Data (highlighted with a red box), Motor, Axis, Measuring Systems, Controller, and Trace. The main panel shows the 'Environment' tab (highlighted with a red box) under 'Operating Mode Settings'. It lists the Controller (CMMP-AS-C5-3A-M0), Motor (EMME-AS-80-S-LS-AMB), Axis (EGC-HD-160-2000-TB-0H-GK), and Gear Ratio (total): 5 : 1. The 'Parameters' section includes 'Mounting Position' with radio buttons for 'Horizontal' (selected) and 'Vertical' (highlighted with a red box), and checkboxes for 'Holding Torque Compensation', 'Offset Range Torque Limitation', and 'Inverse Rotation Polarity'. The 'Application Data' section shows 'Total Load' set to 33,500 kg (highlighted with a red box). An information icon and message state: '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 an axis. On the left, a tree view shows the project structure: Project: CMMP, Components, CMMP-AS: Eje, Configuration, Application Data, Motor, **Axis** (highlighted with a red box), Measuring Systems, Controller, and Trace. The main configuration area is titled 'Axis' and shows the following 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

Switch Types

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

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

General Limitations

Velocity: + 0,00 mm/s .. 1666,67 mm/s

Velocity: - mm/s Asymmetric

Setup Velocity: %

Shutdown Following Error: mm

Overspeed Protection: mm/s

Stop Decelerations

Quick Stop: m/s² Suppress Following Error

Limit Switch: m/s²

Software Limit: m/s²

Configuration



We access the *Fieldbus* subcategory and select the *Factor Group* tab. We configure the following fields as indicated in the screenshot:

The screenshot shows the FHP+ Editor interface for configuring a Factor Group. The left sidebar displays a project tree for 'Project: CMMP' with the following structure:

- Components
 - CMMP-AS: Axis
 - Configuration
 - Application Data
 - Motor
 - Axis
 - Measuring Systems
 - Controller
 - Closed Loop
 - I/O Configuration
 - Digital Inputs
 - Digital Outputs
 - Analogue Inputs
 - Analogue Output
 - Fieldbus**
 - Direct Mode

The main window displays the 'Factor Group' configuration tab. The 'Used' checkbox is checked. The configuration parameters are as follows:

Parameter	Value	Factor Parameter	Value
Unit	mm	Factor Position	16384 : 625
Exponent Position	10 ⁻²	Factor Velocity	49152 : 5
Exponent Velocity	10 ⁰	Factor Accel.	3072 : 5
Exponent Accel.	10 ⁰	Gear	5 : 1
Feed Constant	125,00 mm/r		

Configuration



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

Project: CMMP

- Components
 - CMMP-AS: Eje
 - Configuration
 - Device Information
 - Application Data
 - Motor
 - Axis
 - Measuring Systems
 - Controller
 - Closed Loop
 - I/O Configuration
 - Fieldbus**
 - Direct Mode
 - Jog Mode
 - Record Table
 - Error Management
 - Trace

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

Message from PLC | Answer to PLC

Message Options

Control Data	Parameter Channel		
8	16	24	32

Use Parameter Channel

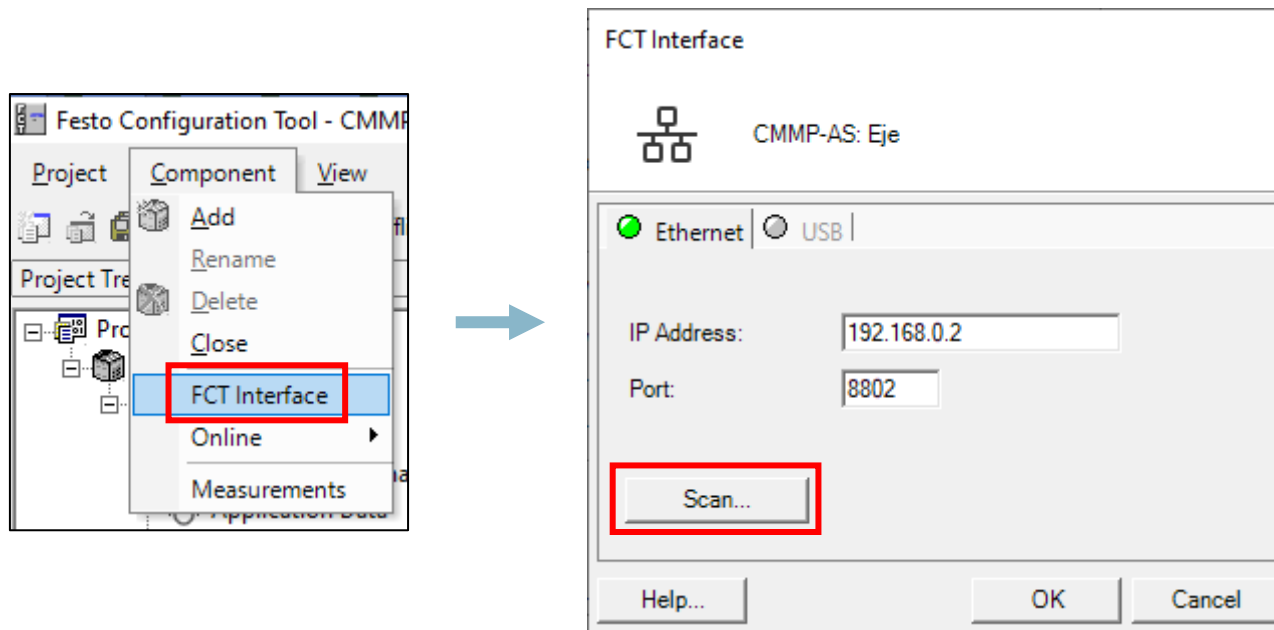
FHPP+ Data

#	Address	PNU.IND	Type	Access	Name	Edit...

PLC Configuration:

Configuration

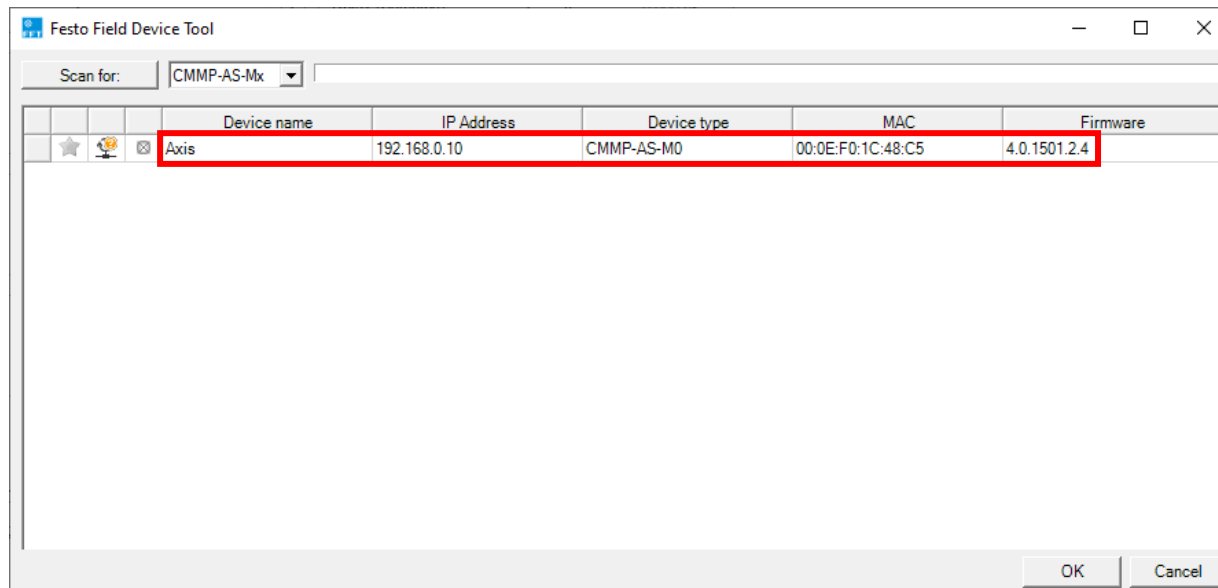
Once the configuration is complete, we proceed to connect to the controller. To do this we access *Component -> FCT Interface -> Scan*.



Configuration

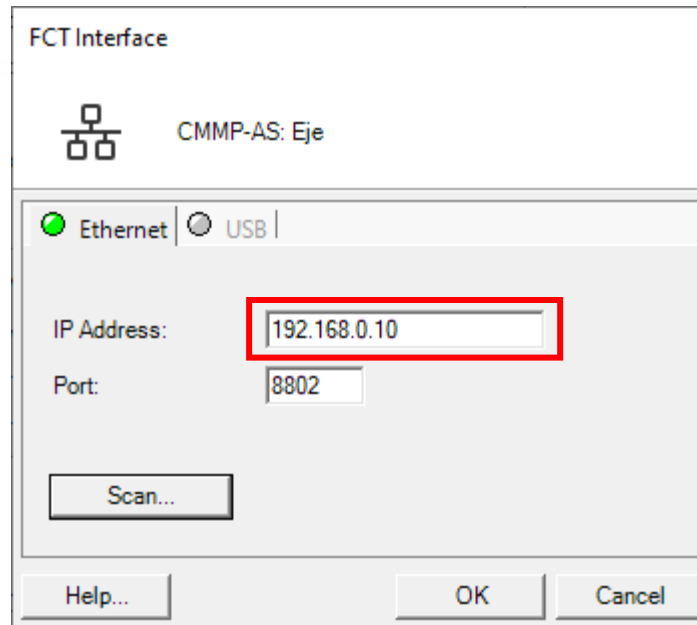


From this window we can see the devices found and their main data. It is also possible to modify¹ its name and network configuration by right clicking on it and accessing the *Network* option.



¹ You need to restart the controller to apply the changes.

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

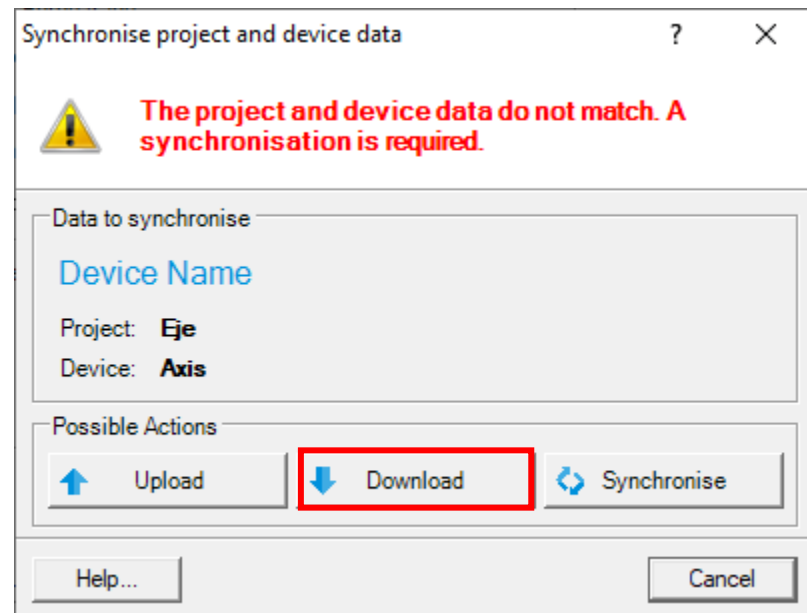
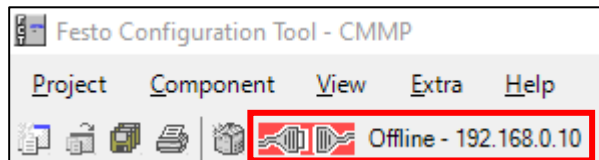
Scan...

Help... OK Cancel

Configuration

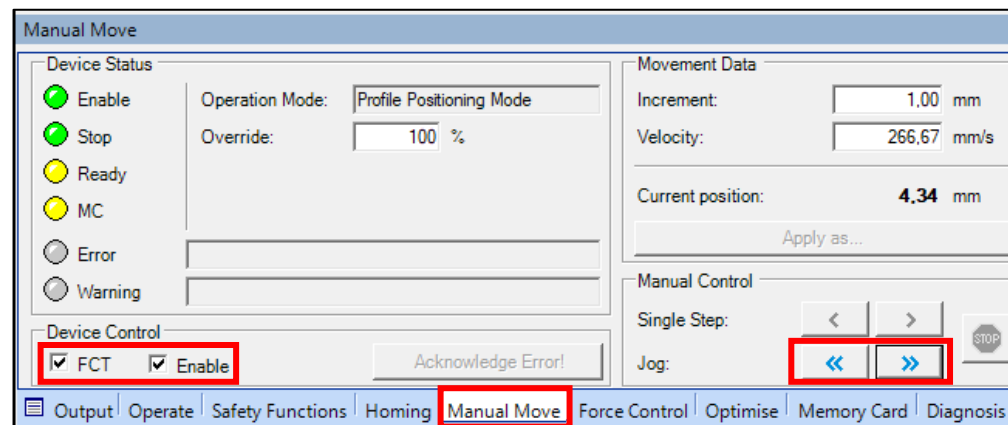


Now we proceed to connect to the controller by clicking on the connection icon. A warning message will be displayed, and we will click the *Download* button to download the project data to the controller.



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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