Application Note

FESTO

Commissioning of CMMT-AS in Festo Automation Suite with CPX-E-CEC-M1-PN

This application nodes describes step by step how you configure a CMMT-AS-EC with CPX-E-CEC-M1-PN in

- Automation Suite

And how you can use the PTP libraries.

CMMT-AS

Title..... Commissioning CMMT_AS in Festo Automation Suite with CPX-E-CEC-M1-PN
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Author .....Festo

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1 Components/Software/ IP address

Type/Name	Version Software/Firmware	IP address	Subnet mask
CMMT-AS	FW 014.0.5.1	192.168.0.20	255.255.255.0
CPX-E-CEC-M1-PN	FW 1.0.10	192.168.0.10	255.255.255.0
Laptop	--	192.168.0.200	255.255.255.0
Festo Automation Suite	V 1.0.3.6	--	--
CMMT-AS Plug-in	V 1.0.2.5	--	--
CPX Plug-in	V 1.0.0.43	--	--

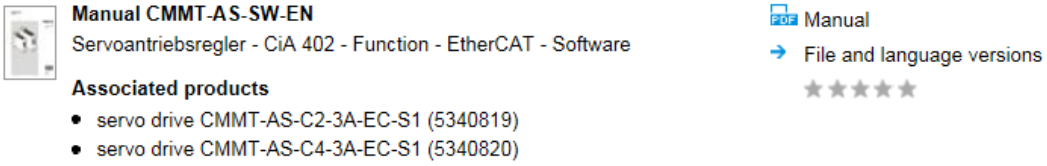
Table 1.1: 1 Components/Software used

Information

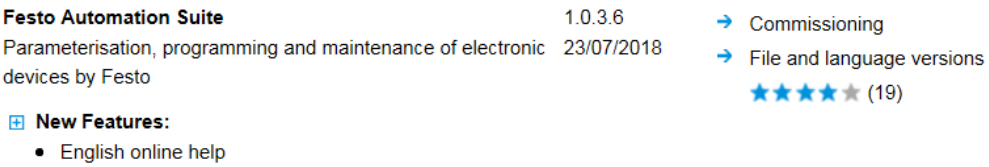
This AppNote describes the procedure with the CMMT-AS motor controller. The CMMT-AS servo drive controller and CMMT-ST servo drive controller for extra-low voltage are based on the same software platform. Therefore, the described settings can also be used as a reference for its parameterization. It is hereby expressly pointed out, that this has not been explicitly tested and therefore the function cannot be guaranteed!

1.1 Recommended manuals / XML / Plug-in / function blocks

A) CMMT-AS Manual

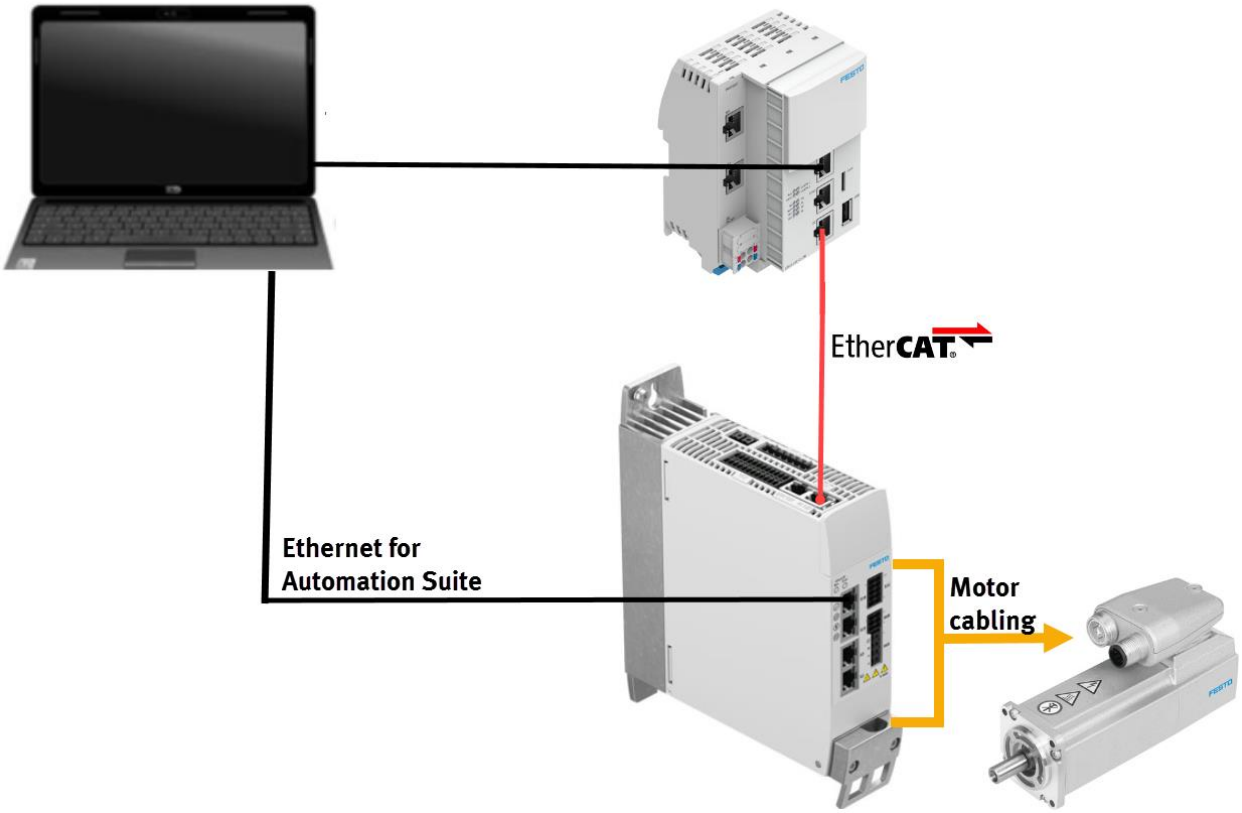


B) Festo Automation Plug-in



Source:
https://www.festo.com/net/en-gb_gb/SupportPortal/default.aspx?q=5340819&tab=4&s=t#result

1.2 Network topology



Hint:
Festo offers M12-RJ45, RJ45-RJ45 and M12-M12 connecting cables for the Ethernet communication:

Type code	Part number	Description
NEBC-D12G4-ES-0.5-S-D12G4-ET	8040446	M12-M12 -› 0,5m
NEBC-D12G4-ES-1-S-D12G4-ET	8040447	M12-M12 -› 1m
NEBC-D12G4-ES-3-S-D12G4-ET	8040448	M12-M12 -› 3m
NEBC-D12G4-ES-5-S-D12G4-ET	8040449	M12-M12 -› 5m
NEBC-D12G4-ES-10-S-D12G4-ET	8045450	M12-M12 -› 10m
NEBC-D12G4-ES-1-S-R3G4-ET	8045451	M12-RJ45 -› 1m
NEBC-D12G4-ES-3-S-R3G4-ET	8045452	M12-RJ45 -› 3m
NEBC-D12G4-ES-5-S-R3G4-ET	8045453	M12-RJ45 -› 5m
NEBC-D12G4-ES-10-S-R3G4-ET	8040454	M12-RJ45 -› 10m
NEBC-R3G4-ES-1-S-R3G4-ET	8040455	RJ45-RJ45 -› 1m

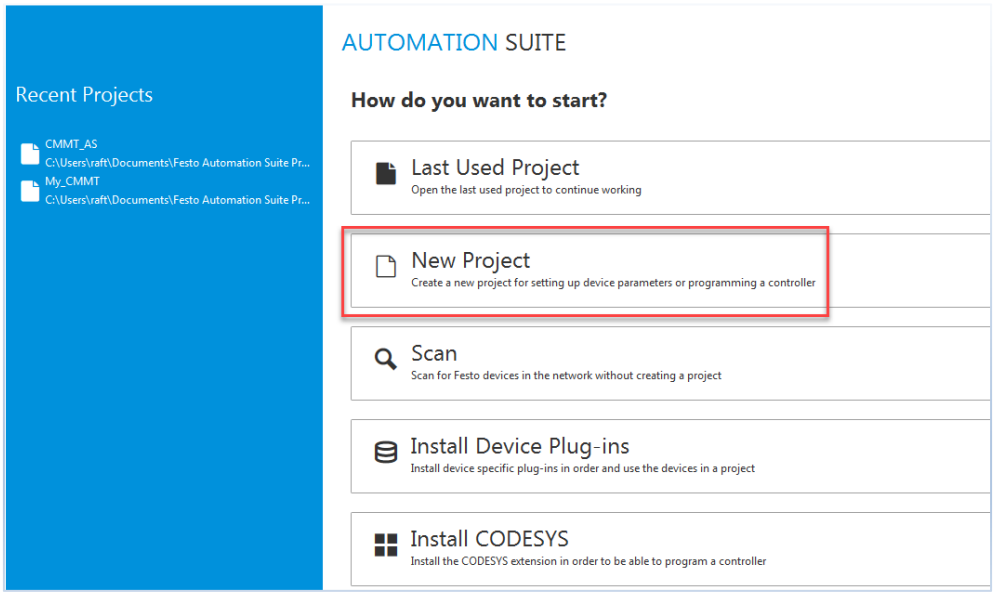
Table 1.2: Connecting cables

More information:
https://www.festo.com/net/en-gb_gb/SupportPortal/default.aspx?q=8040446&tab=3

2 The first steps in Automation Suite

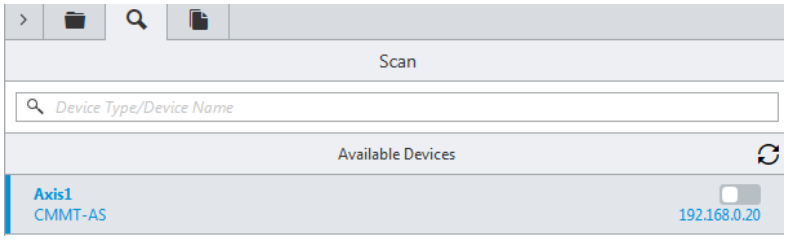
2.1 Creating a new project

Step 1: After starting Automation Suite you have the possibility to open your recent projects or to create a new project:



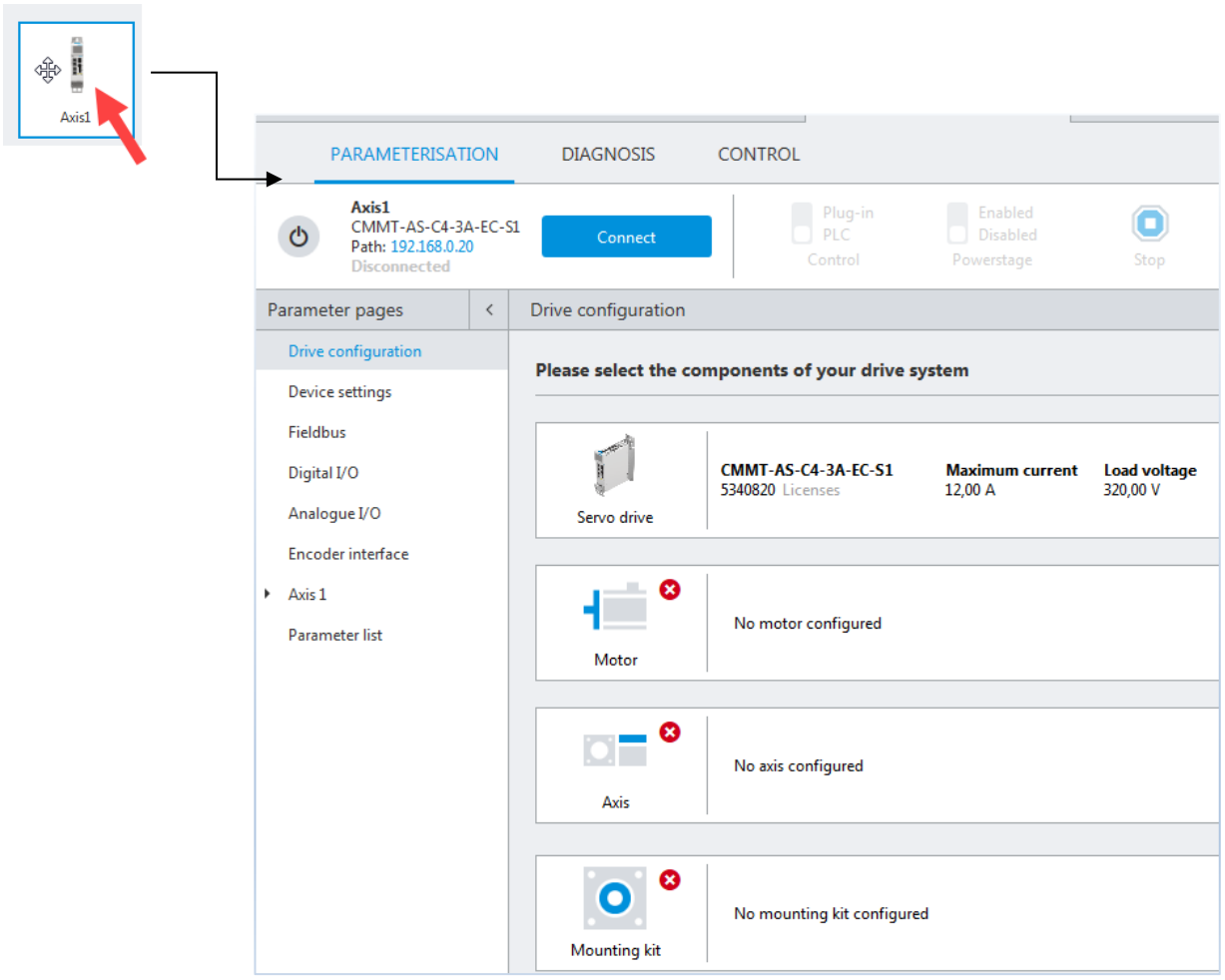
2.2 Step by step commissioning of CMMT-AS

Step 2: Searching for the connected CMMT-AS via the **smaller** loupe, because then you can drag and drop the connected devices to your project

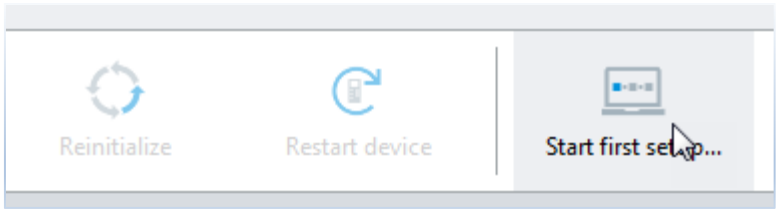


Step 3: Drag and Drop the CMMT-AS to your new project

Step 4: Open the CMMT-AS configuration view via double click on Axis1

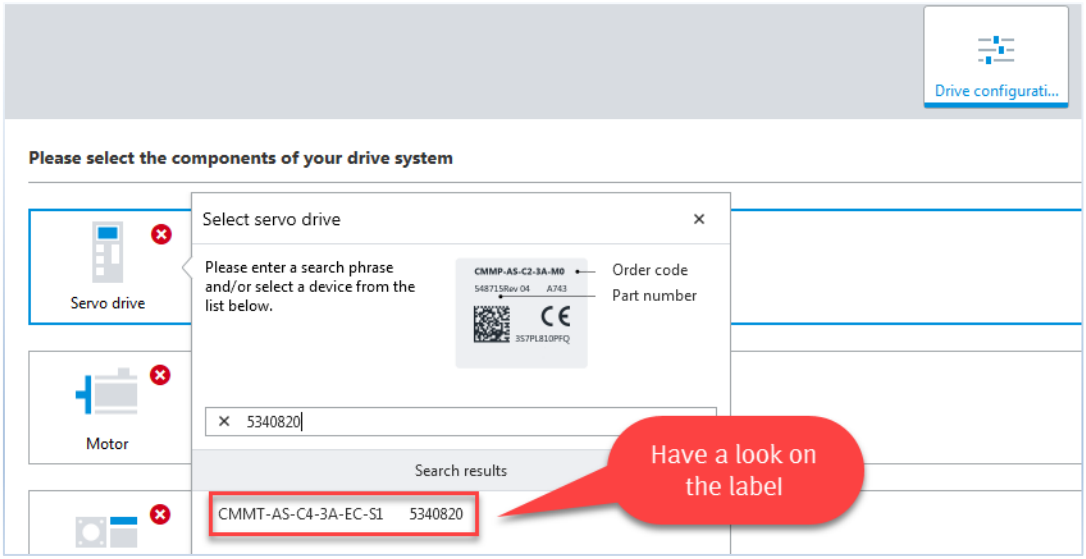


Step 5: Use the Wizard for an easy and fast configuration

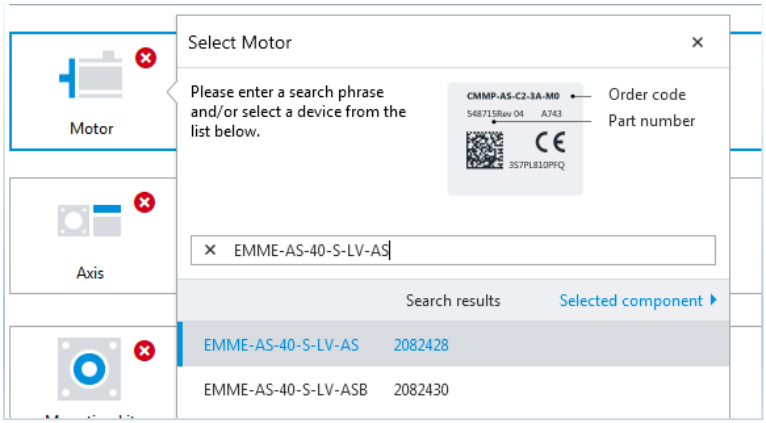


Step 6: Start the configuration step by step

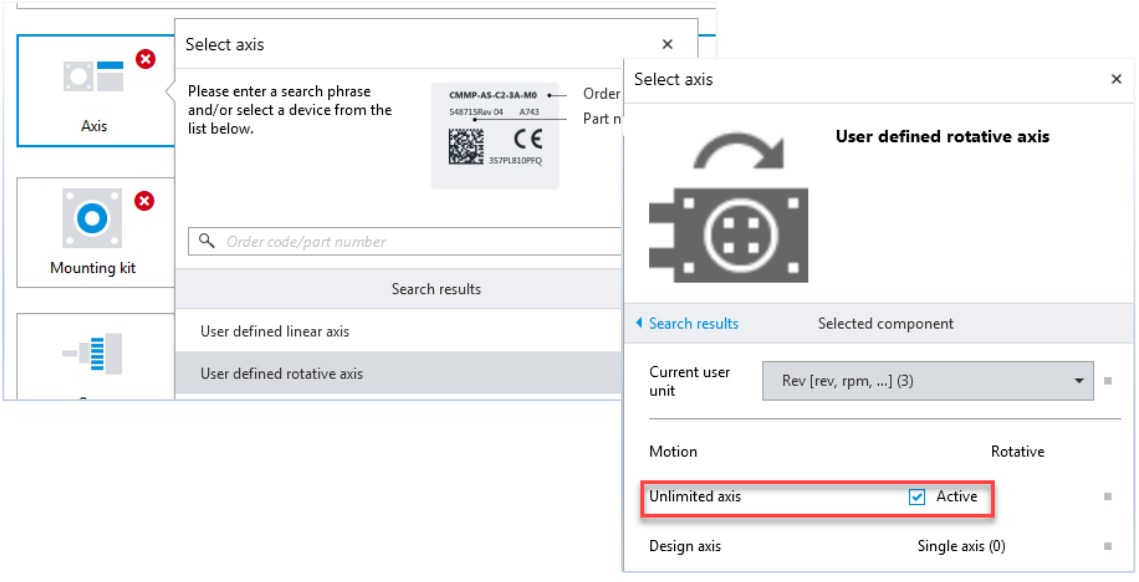
A) Choose the Servo drive (Optional step, if you didn't drag and drop the Online available device)



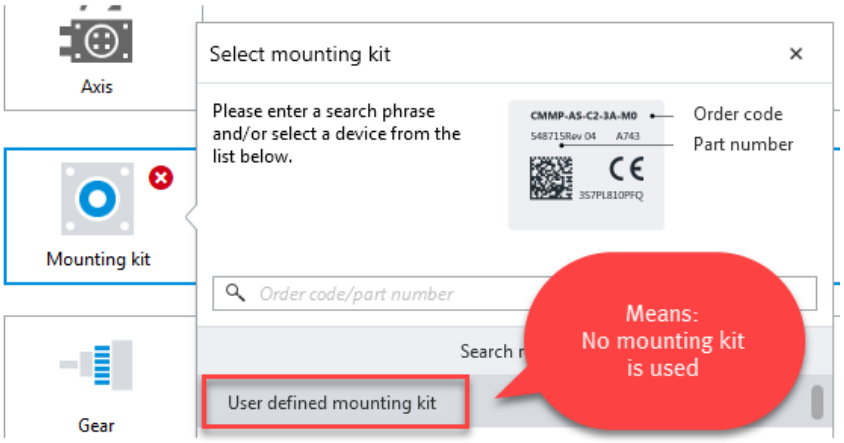
B) Choose the connected motor



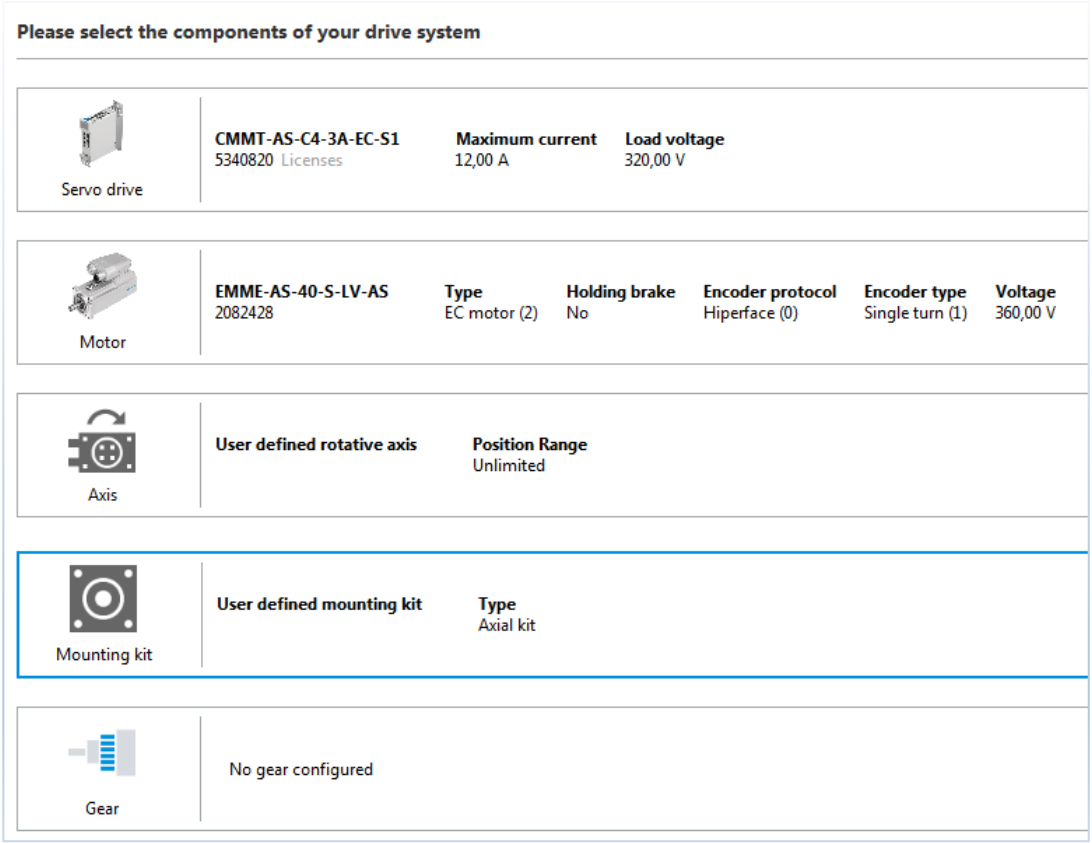
C) Define the axis **(-> In this application we are working with an unlimited user defined rotative axis)**



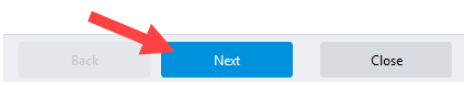
D) Define the mounting kid **(-> In this application we are using no mounting kit)**



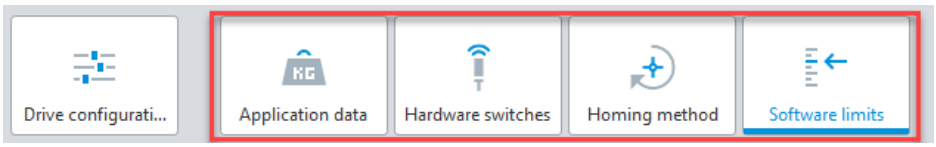
Step 7: After the basic configuration is finished the options for Application data, Hardware switches, Homing method and Software limits are available



You have access to this parameters via the “Next” button which appears on the lower right corner

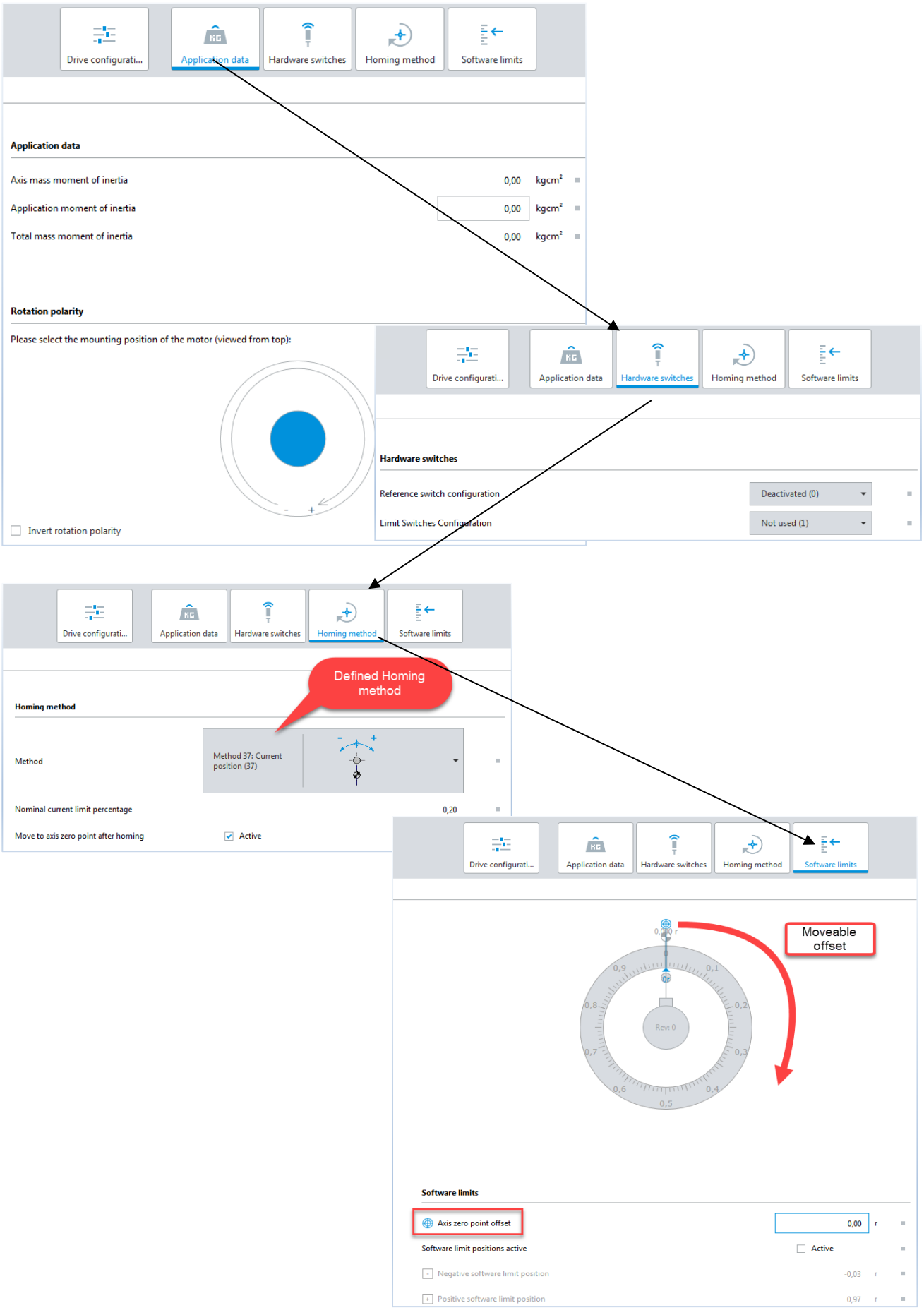


Or per direct click in the upper menu

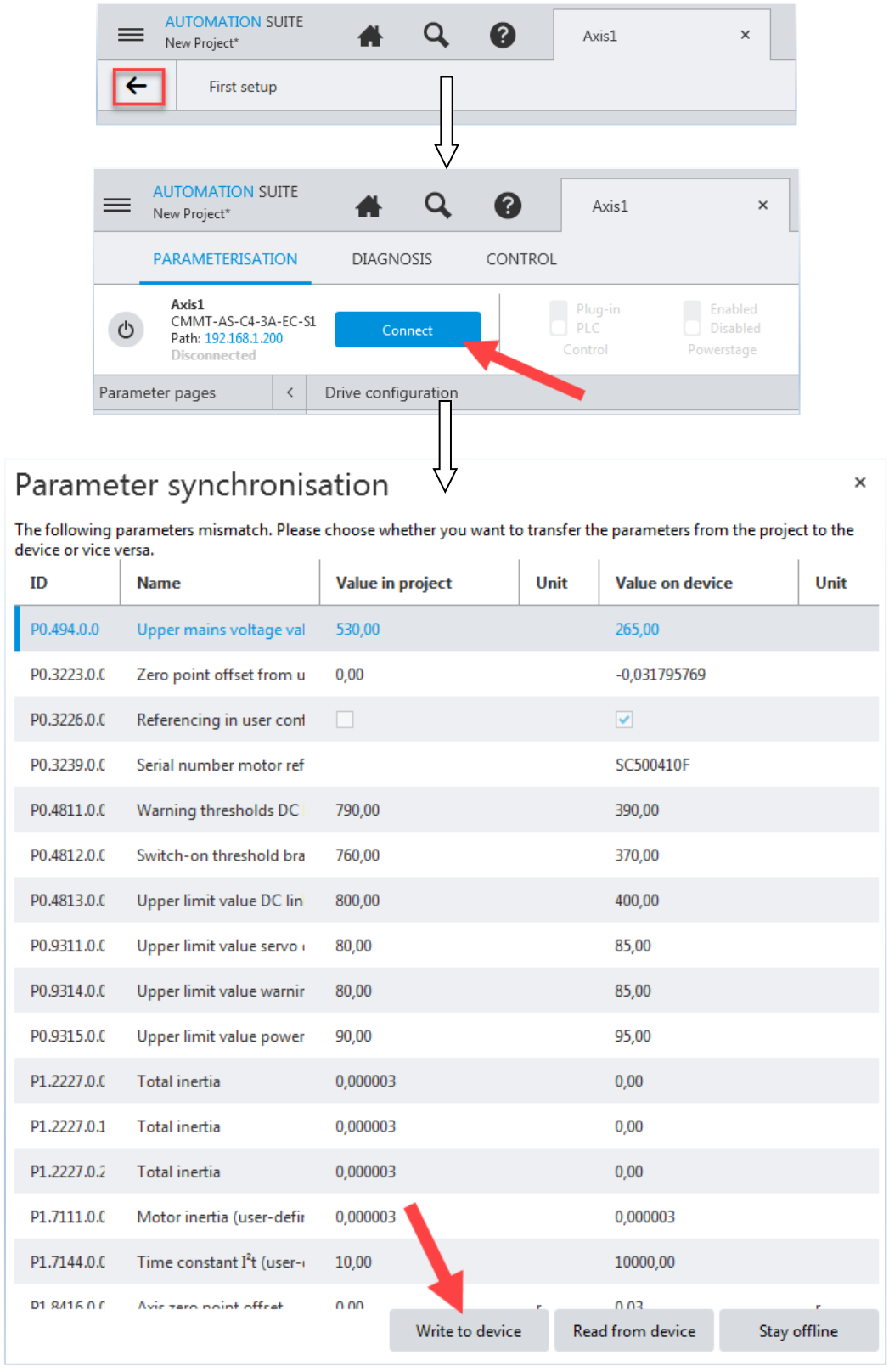


Note:

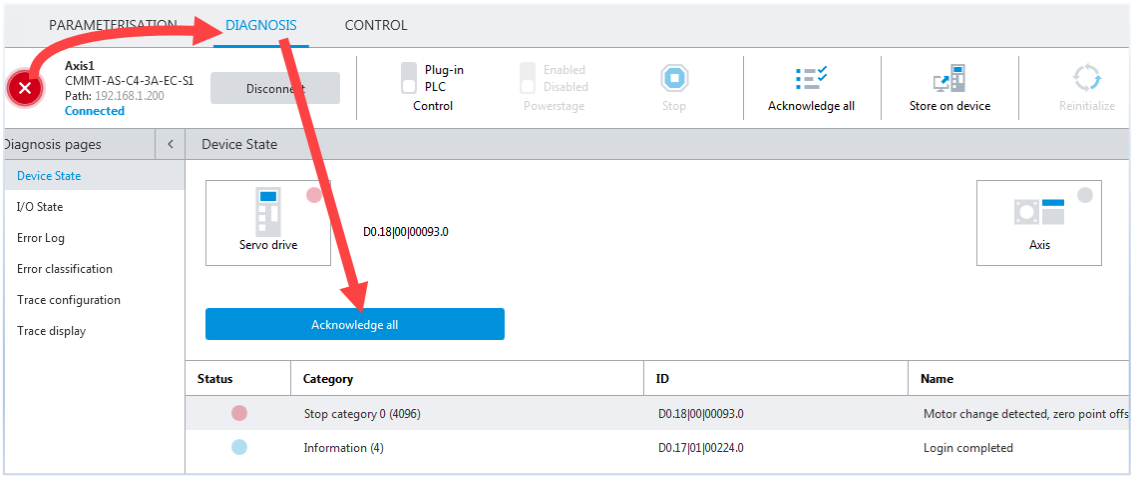
- In this application we have used following settings.



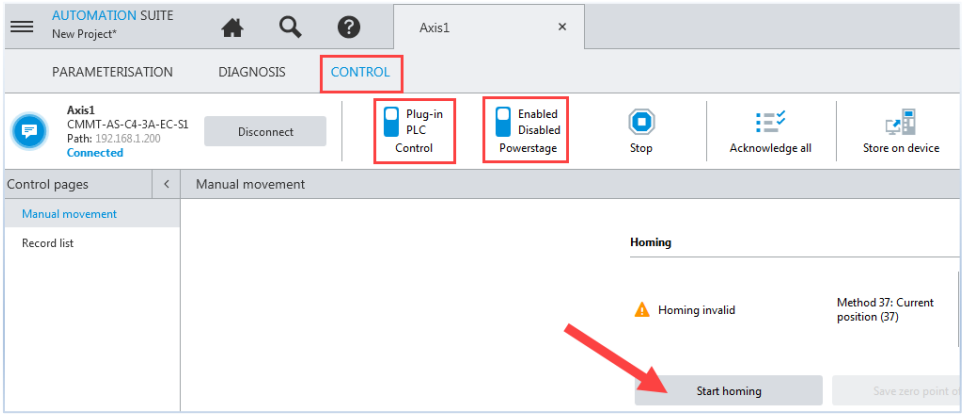
Step 8: Close the Wizard and download everything to the motor controller

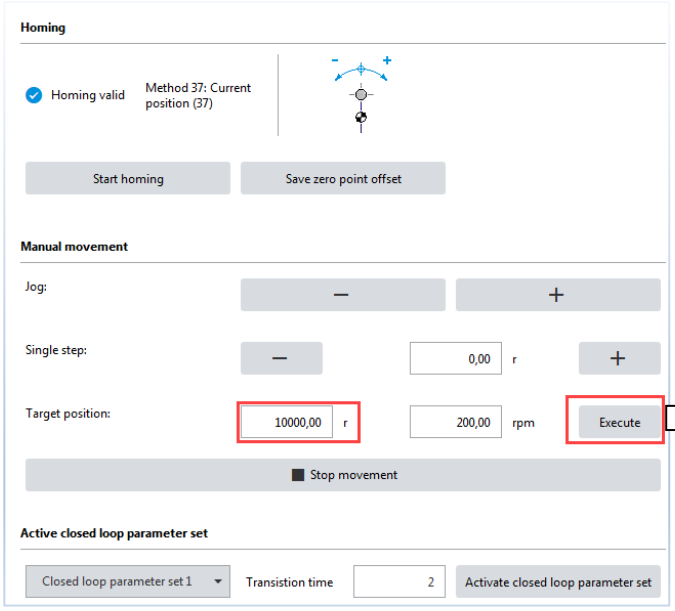


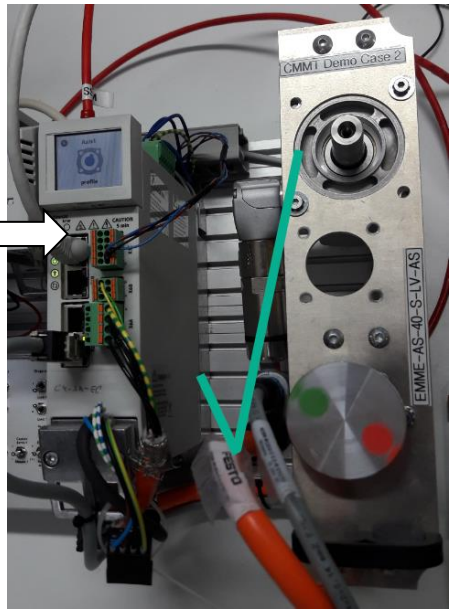
Step 9: If the CMMT-AS was in use already then, a change can occur some diagnosis messages.
You can delete them:



After that you can do for testing purpose a Homing and some movements

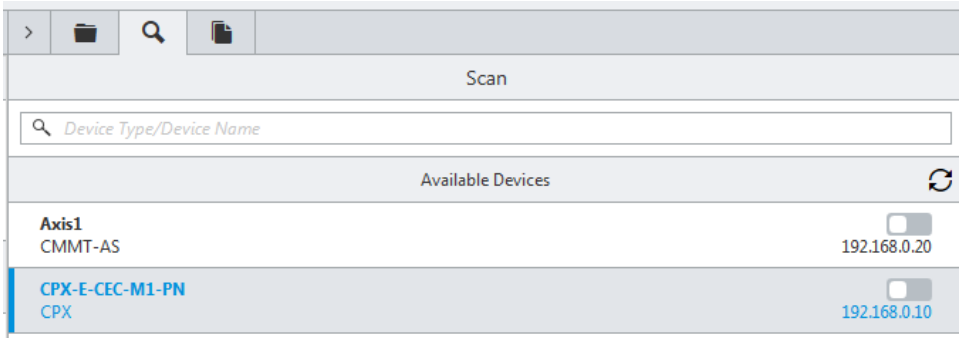




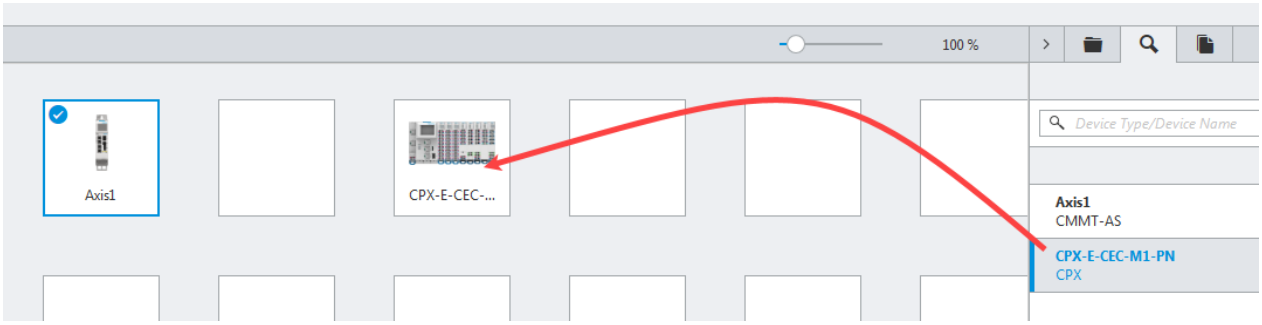


2.3 Step by Step commissioning of CPX-E-CEC-M1-PN

Step1: Searching for the connected CPX-E-CEC-M1-PN via the **smaller** loupe, because then you can drag and drop the connected the devices to your project



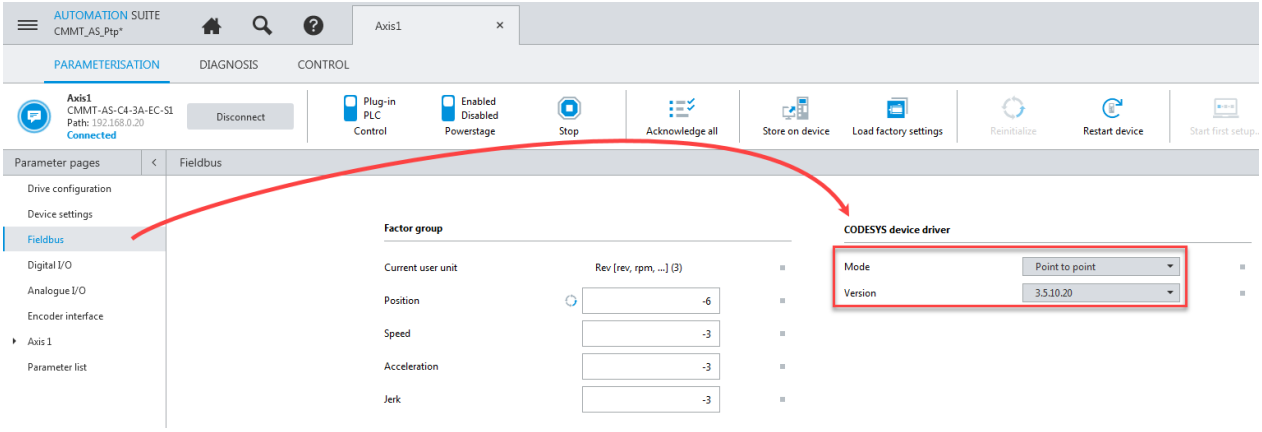
Step2: Drag and drop the CPX-E-CEC-M1-PN to your project



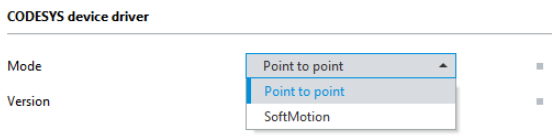
Step3: To establish a EtherCAT communication path you must draw a line between master and slave

The result could look like:

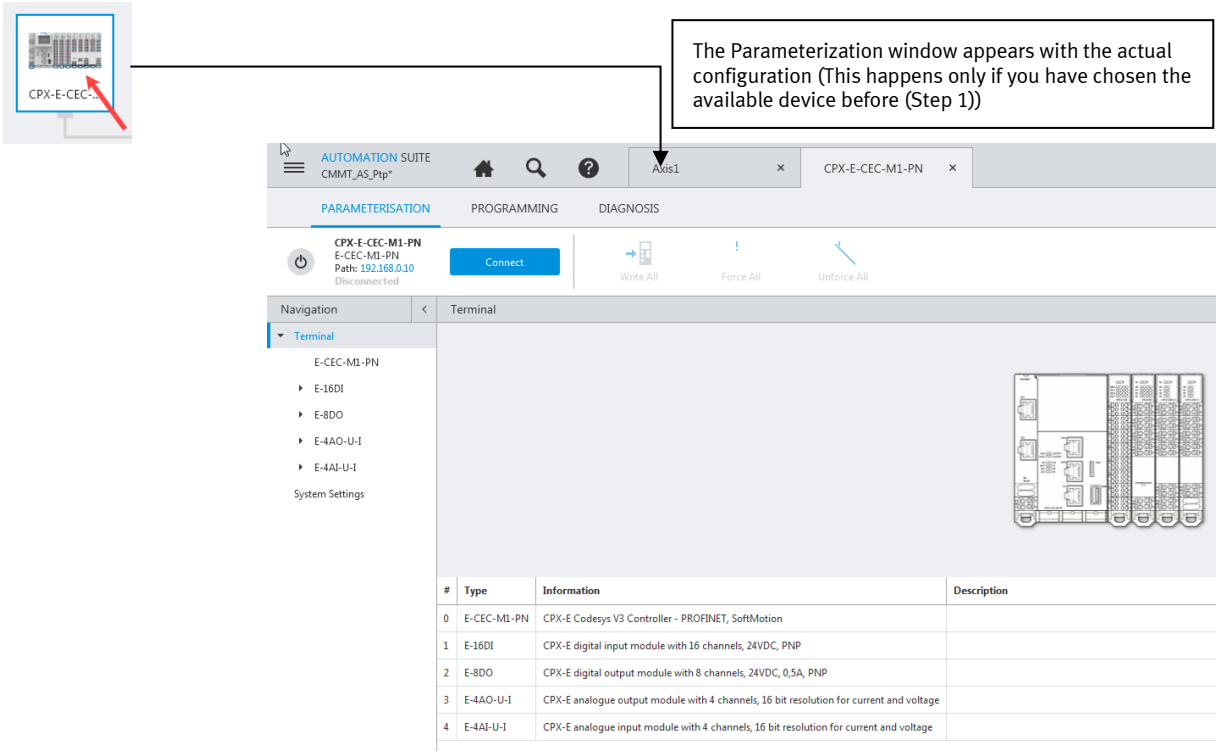
Important:
After you have established an EtherCAT communication following new option appears at CMMT-AS



You can change the mode depending on your needs (In this document we are using just PtP):

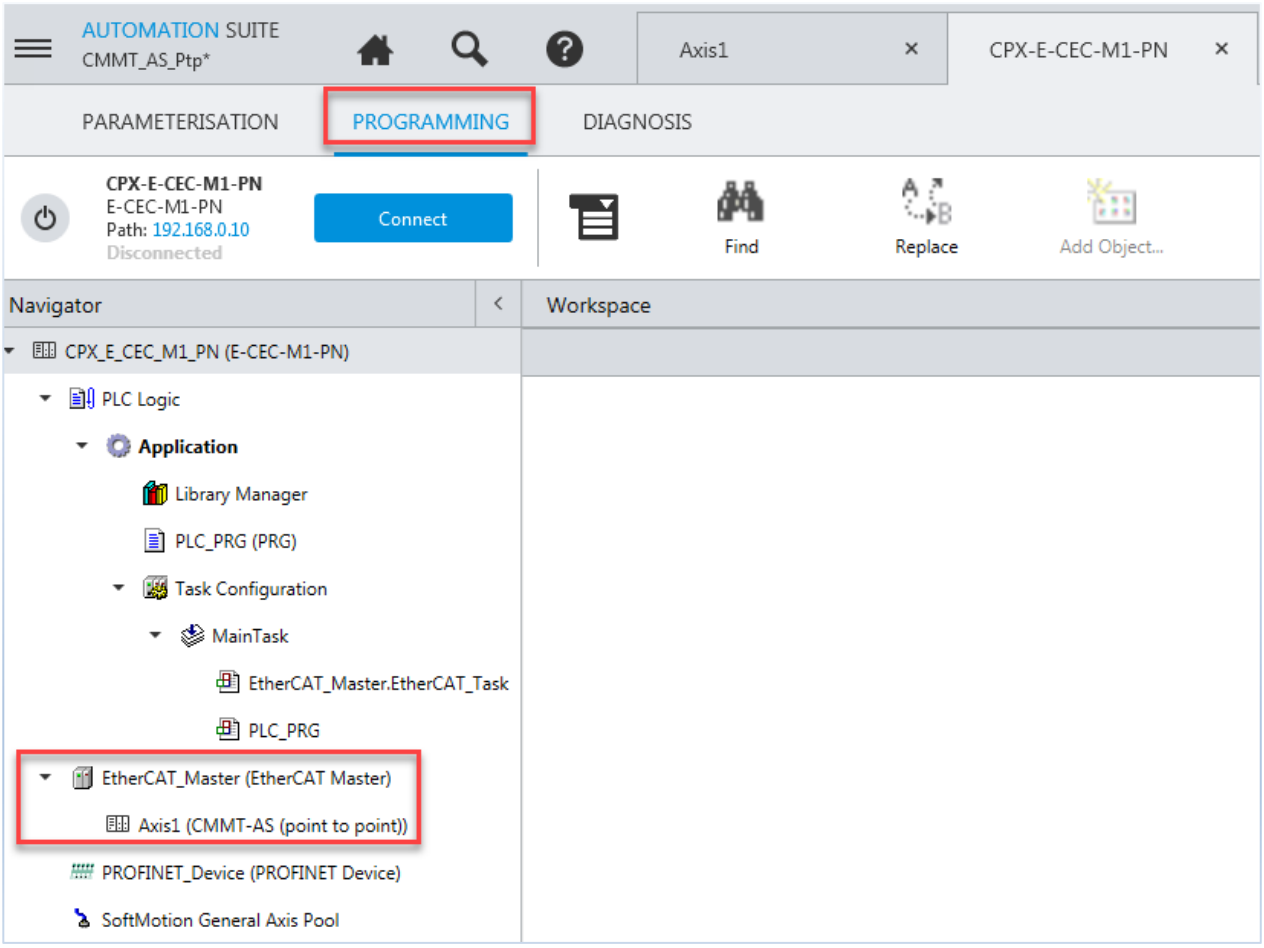


Step4: Open the CPX-E-CEC-M1-PN Codesys view via double click

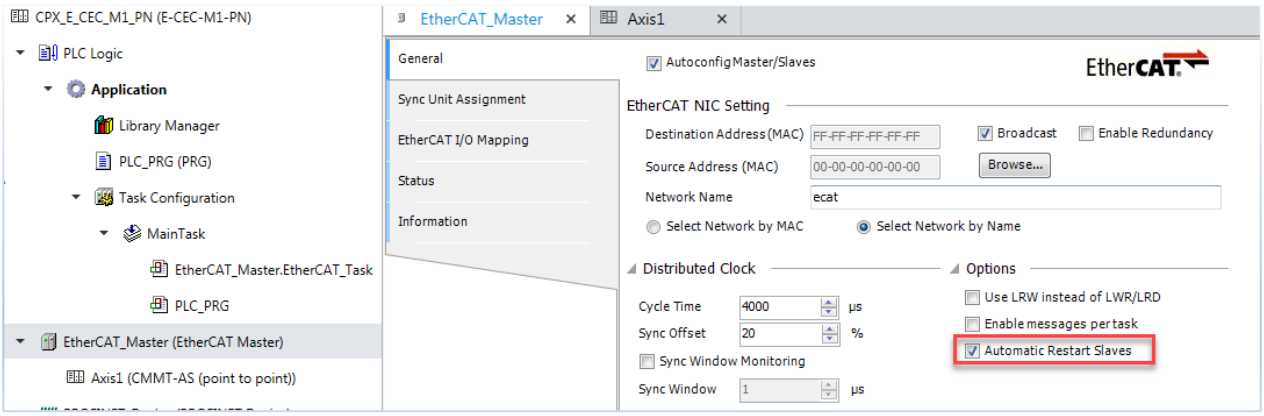


Step5: Open the Programming tap

If you have established the EtherCAT communication, then the system recognizes the CMMT-AS automatically



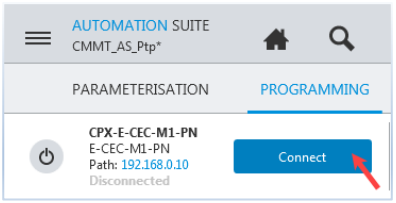
Step6: For testing purpose and easier handling in EtherCAT activate following option



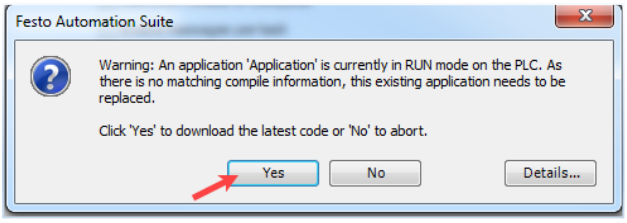
Automatic Restart Slaves means that in the event of communication breakdown the master tries to restart the slaves cyclically till everything is running again.

Step7: Download the project to the PLC and check if the EtherCAT communication is running

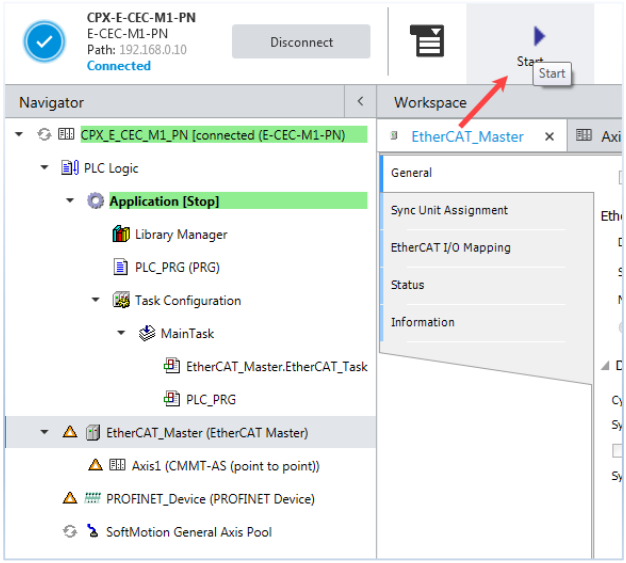
A) Connect to device to start download automatically



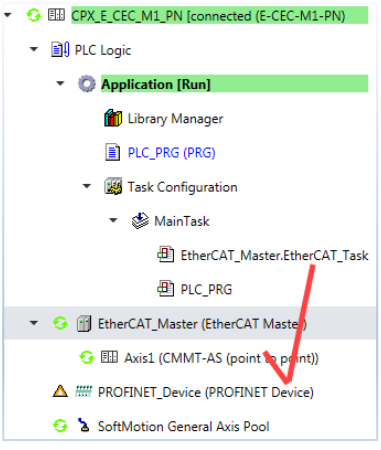
B) Accept the Warning



C) Switch PLC to Run Mode

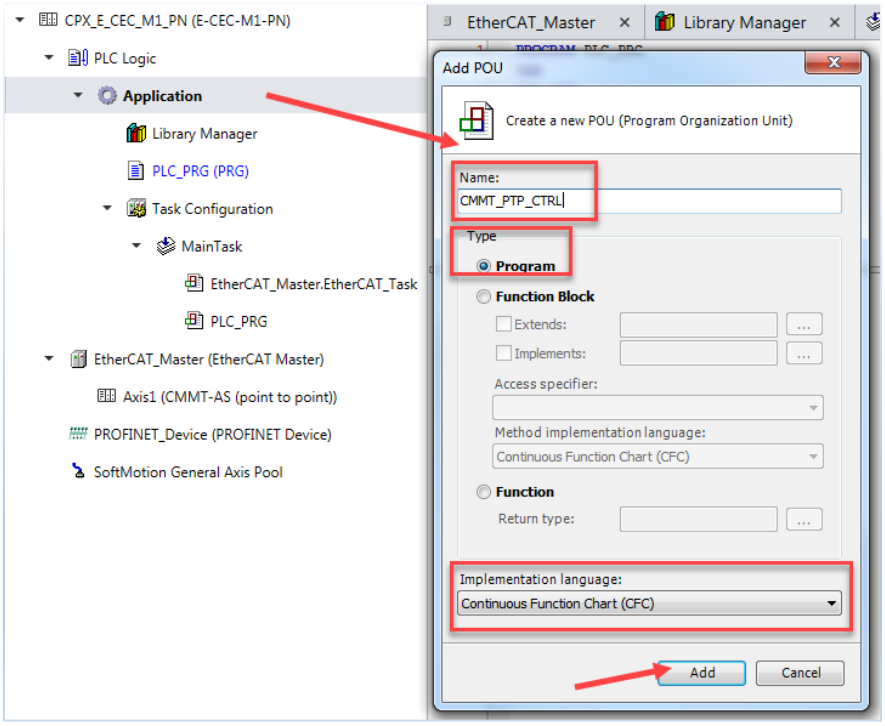


D) Check result (Green = EtherCAT is running)

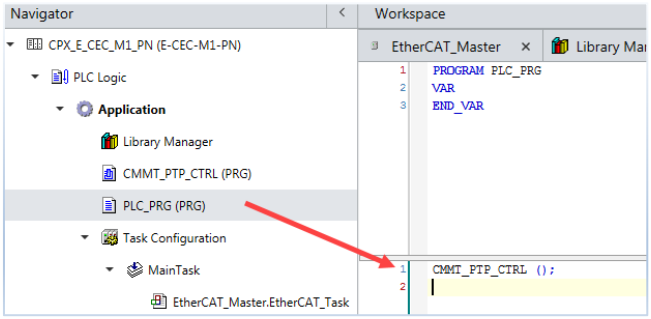


2.4 Using the PtP function blocks

Step1: Add e.g. a CFC program



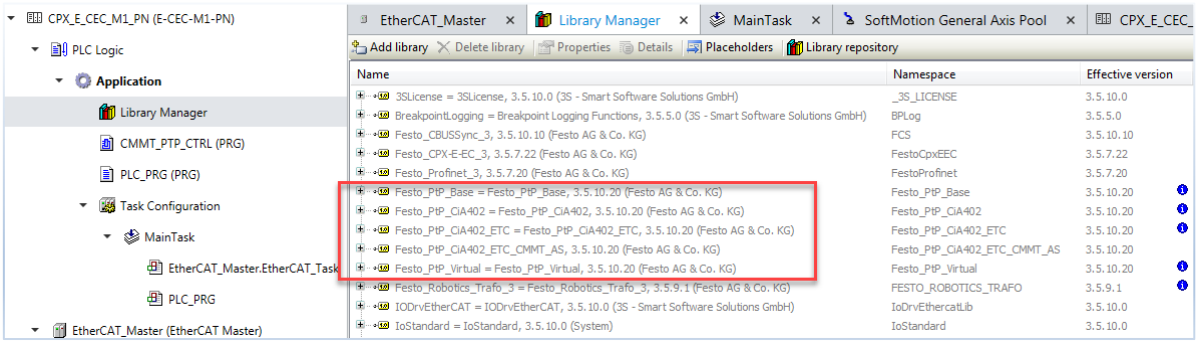
2. Call the CFC (PRG) in the PLC_PRG cyclically



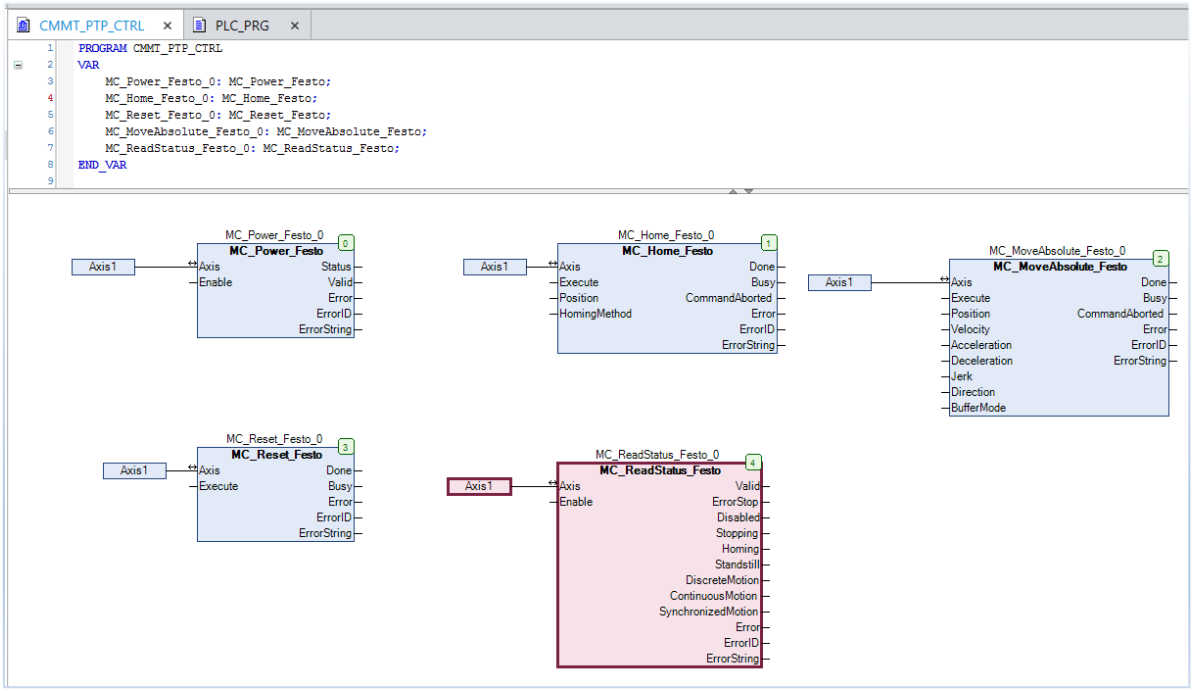
3. Integrate the Festo PtP function blocks in your CFC (PRG)

Note:

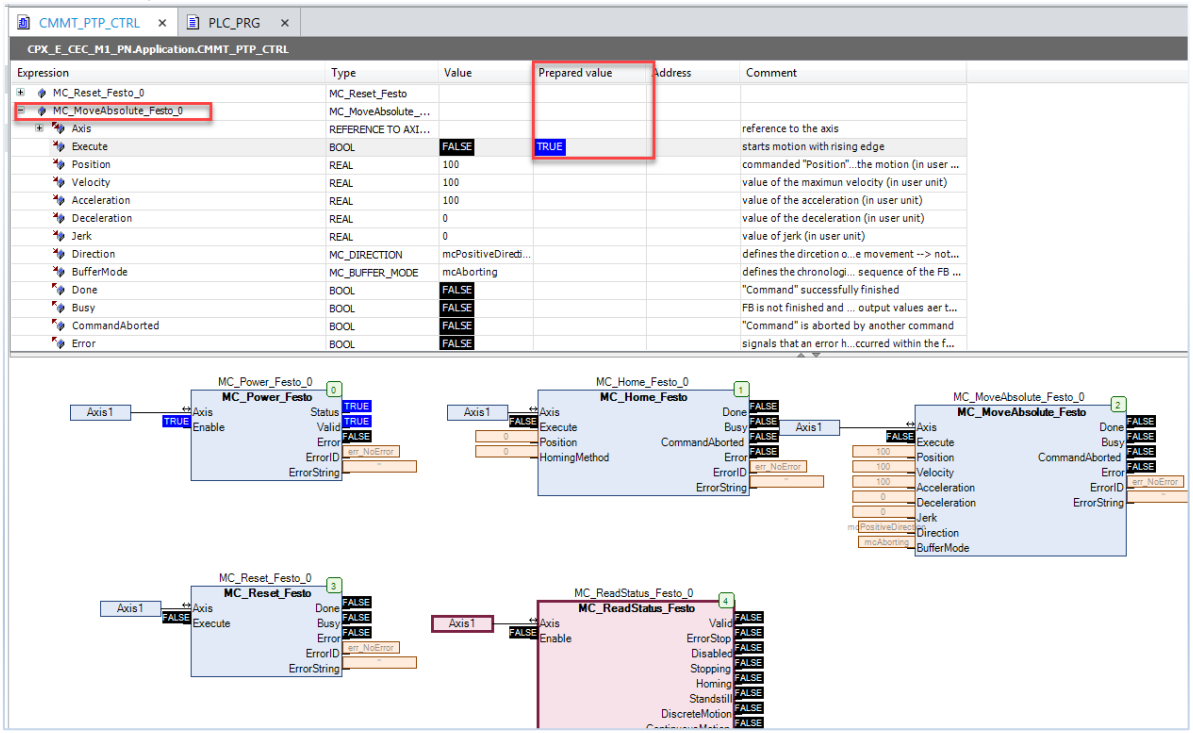
- You find all available FB's in the Library Manager. They are included in the CPX-E-CEC-M1-PN package.



A simple testing program (without variables) could look like this:



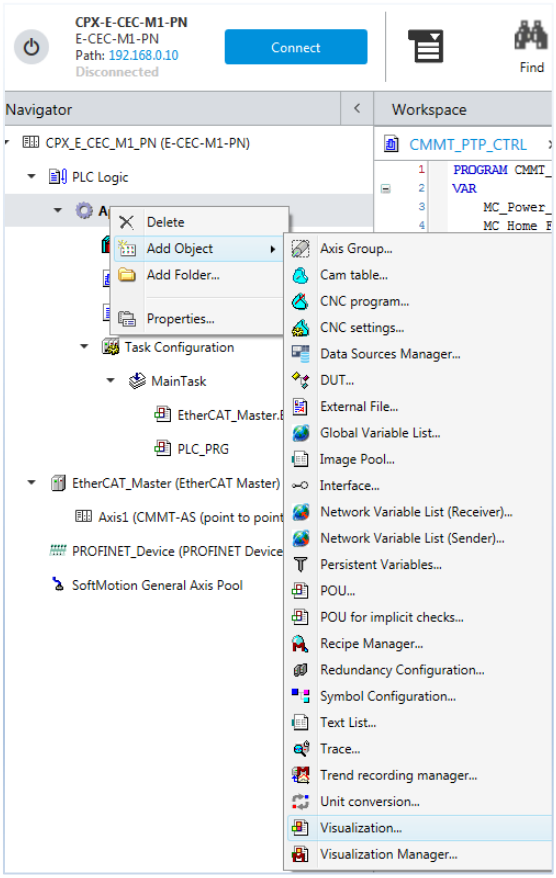
After download you could use for testing the internal FB variables in Online Mode:



2.4.1 Creating a visualisation

To make the testing easier you can use the available FB visualisation elements.

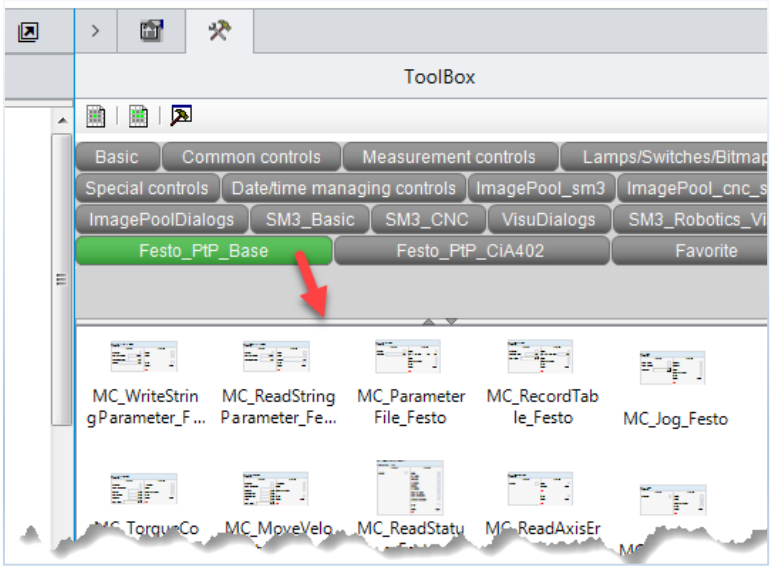
Step1: Add visualization



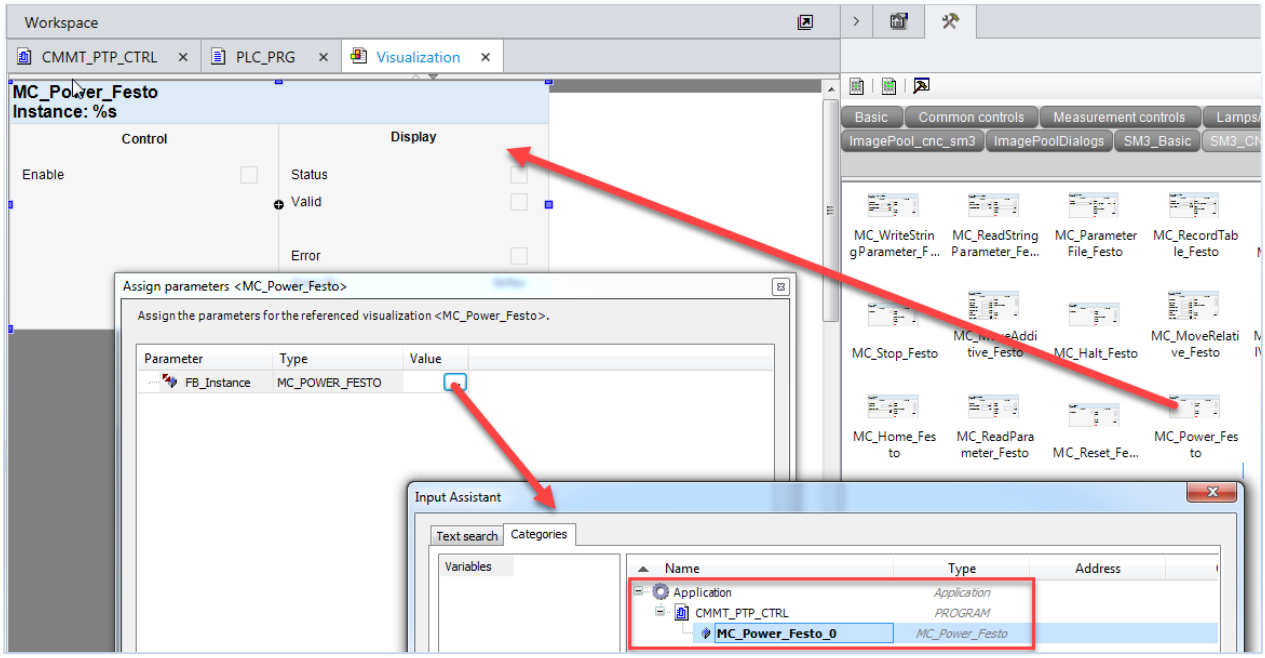
Step2: Drag and drop the Visualisation element which you want to use from the PtP library **and** link the Visu elements to the corresponding function blocks

Note:

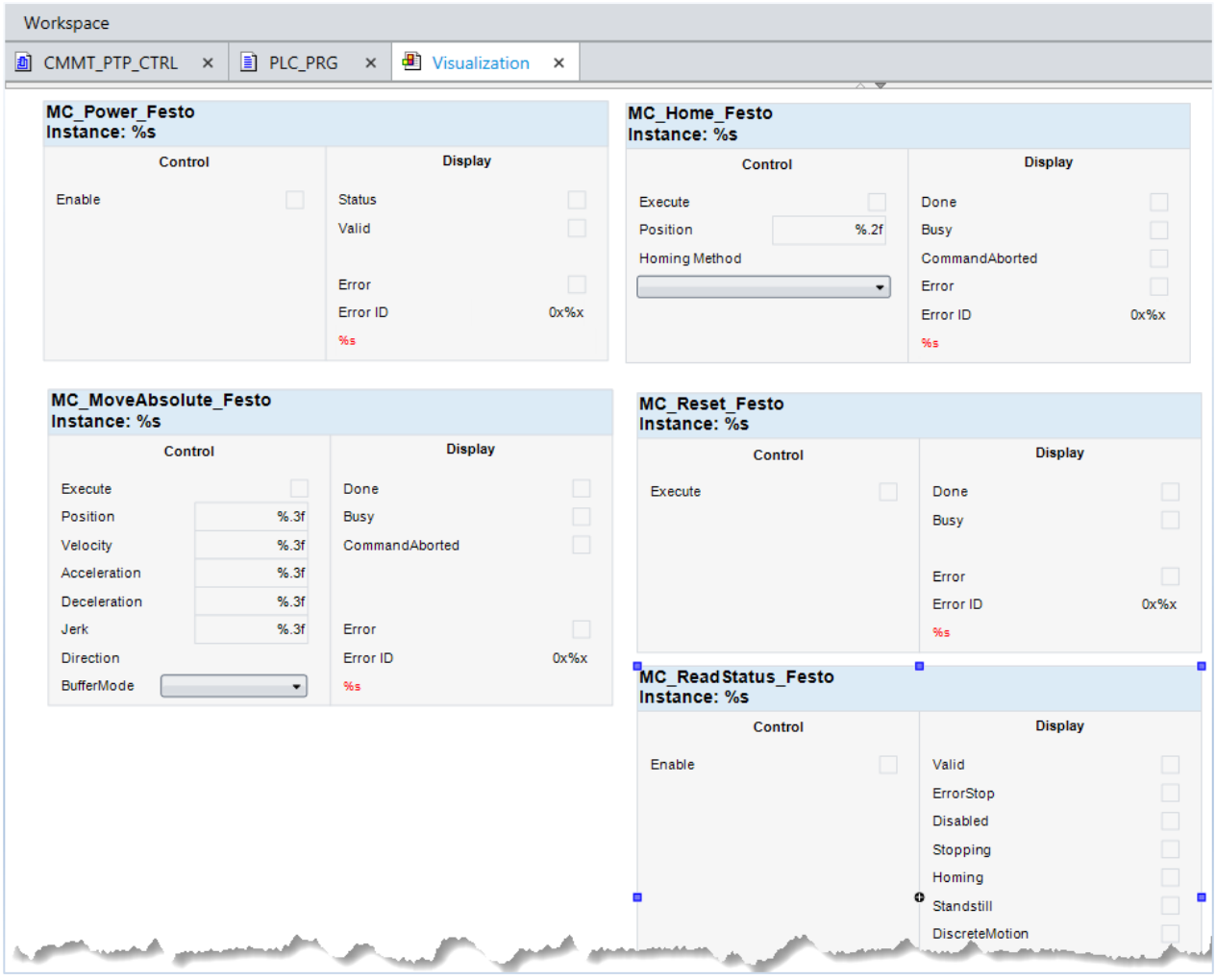
- In the Toolbox you find all Visu PtP elements.



The linking process is looking like this:



An easy visualization could look like this:



Step 3: Test your visualization in Online Mode: