

## Faulhaber CO @ Beckhoff

### Summary

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This application note describes the necessary steps to control a FAULHABER MC V 2.5 / V3.0 CANopen version using a TwinCat based PLC. The MC is connected via CANopen to the PLC

### Applies To

Faulhaber Motion Controller CO (Firmware Version C), Beckhoff SPS with NC kernel, TwinCat 3

### Description

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Before it is possible to use the Motion Controller in a PLC environment, following configurations have to be done with the Motion Manager:

- Configure baudrate and set node number

At the first start-up of the MC the baudrate and the node number have to be set via LSS-protocol (Motion Manager).

Later the baudrate of the CANopen Gateway needs to be set on the same value.

- Deactivate Heartbeat

0x1017 Producer heartbeat                    := 0;

0x1016 Consumer Heartbeat                := 0;

- Activate Node Guarding

0x100C Guard Time                    z.B.                := 100;

0x100D Life Time Factor            z.B.                := 3;

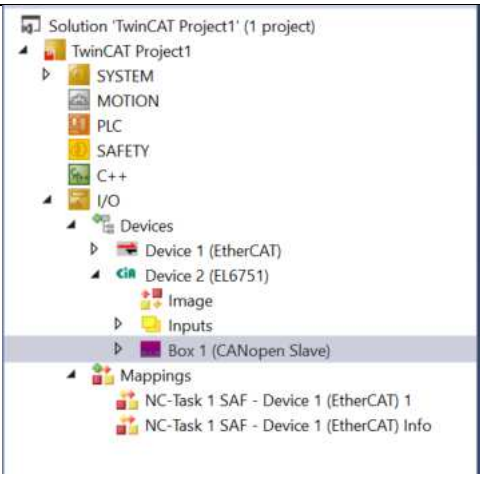
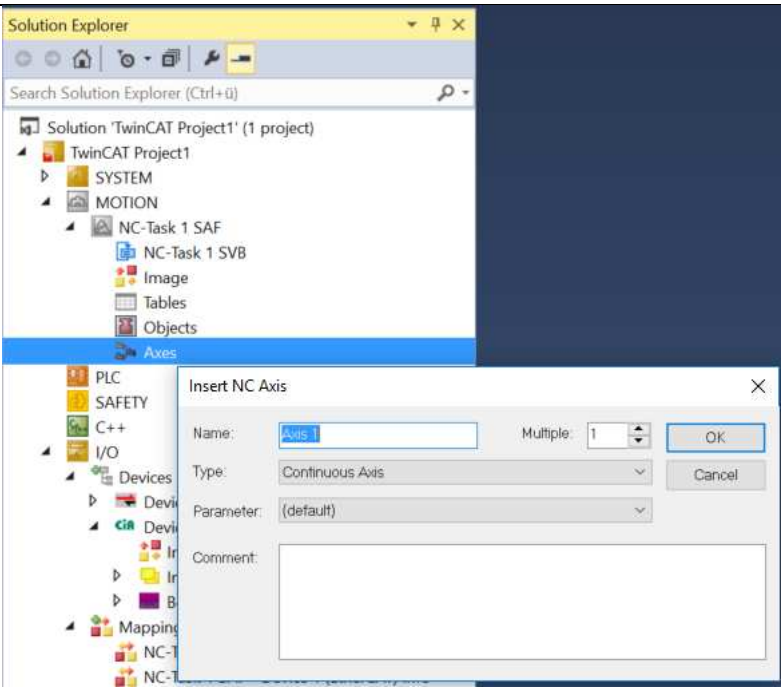
It is possible to configure the heartbeat and node guarding with the object dictionary of the Motion Manager or the CoE Object dictionary of the TwinCat System.

### Important:

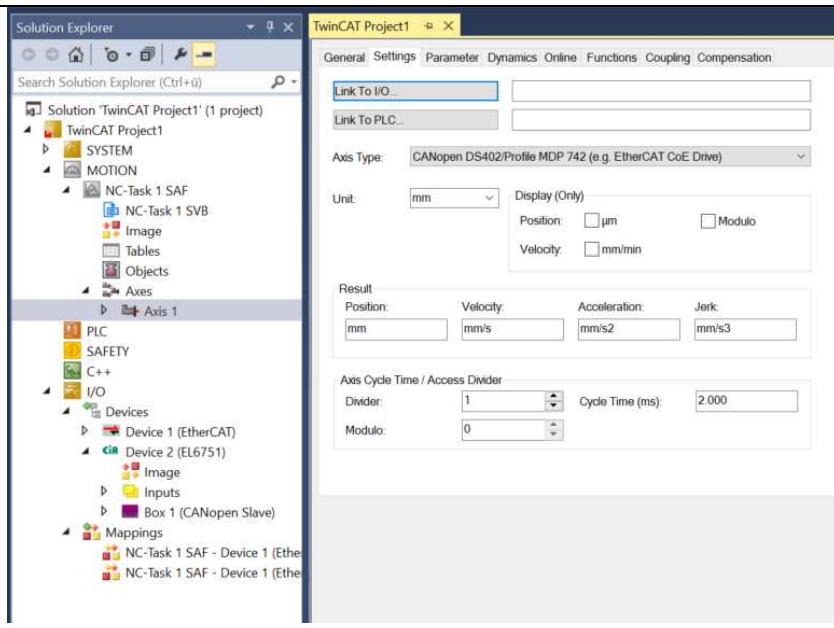
In case that a homing sequence is necessary for the application, it has to be executed by the PLC Master.

In this constellation we don't recommend to use the Faulhaber homing methods.

After the pre-configuration of the MC is done, you can continue with the configuration of the PLC master.

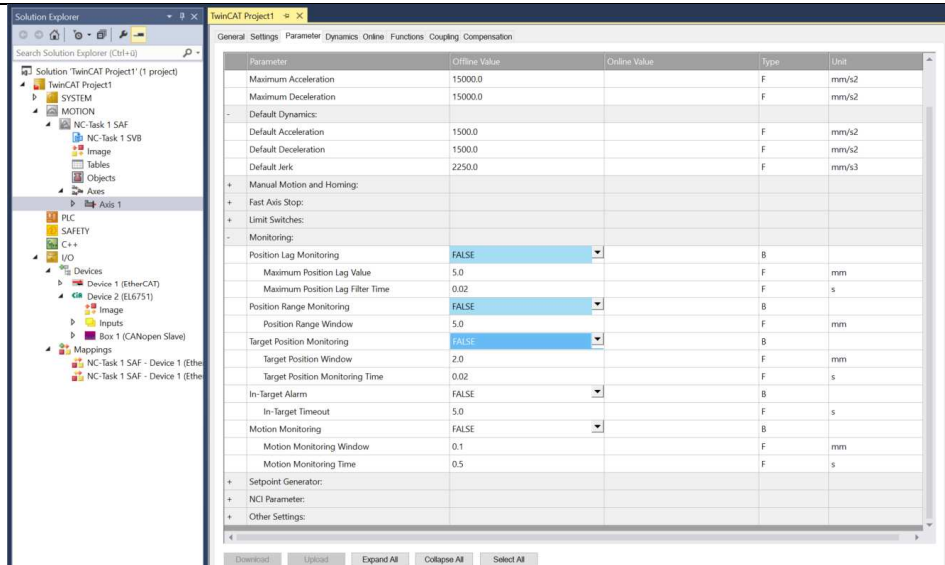
Nr	Screenshot	Description
1		<ul style="list-style-type: none"> <li>- Create new Twin-Cat solution</li> <li>- Add BUS slaves with „Scan“ function or manually</li> </ul>
2		<ul style="list-style-type: none"> <li>- Create NC Motion Task as „NC/PTP NCI Configuration“)</li> <li>- Add „Continuous Axis“</li> </ul>

3

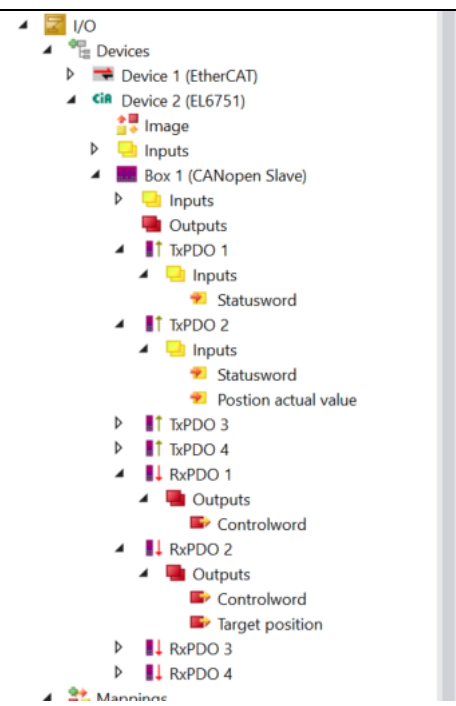
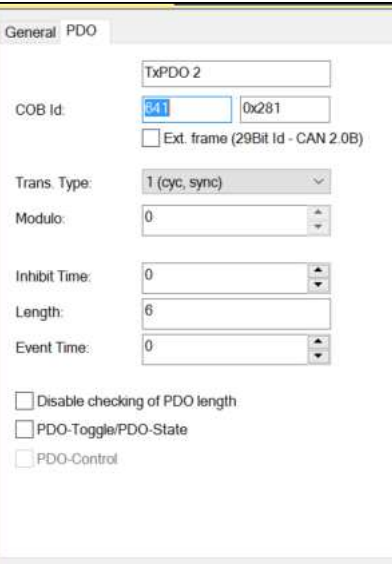
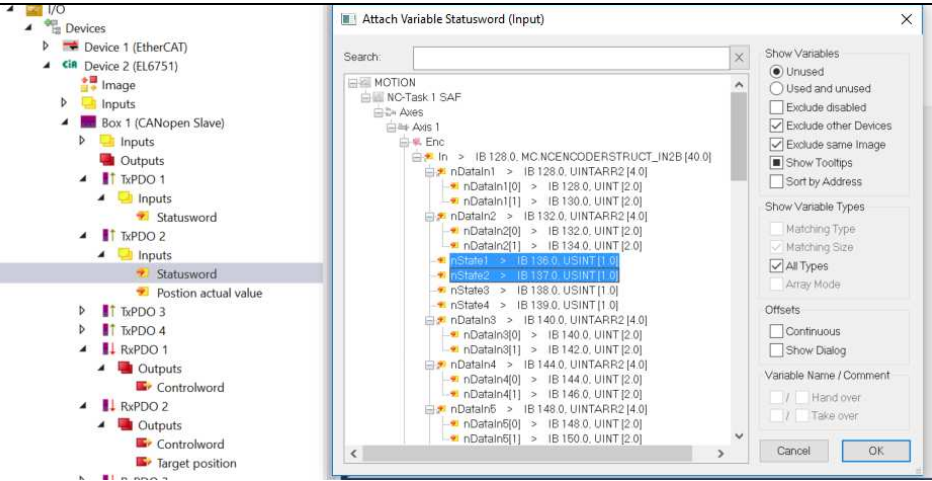


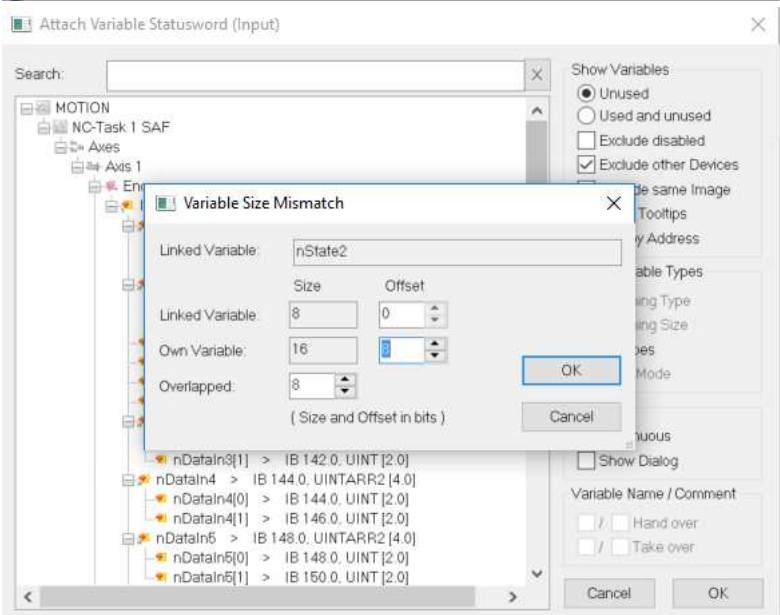
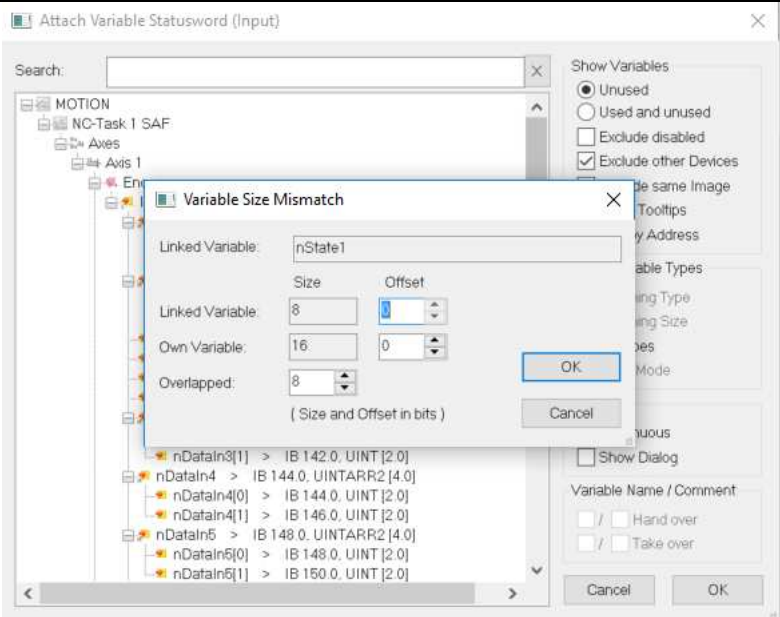
- Define NC Axis as DSP402 type

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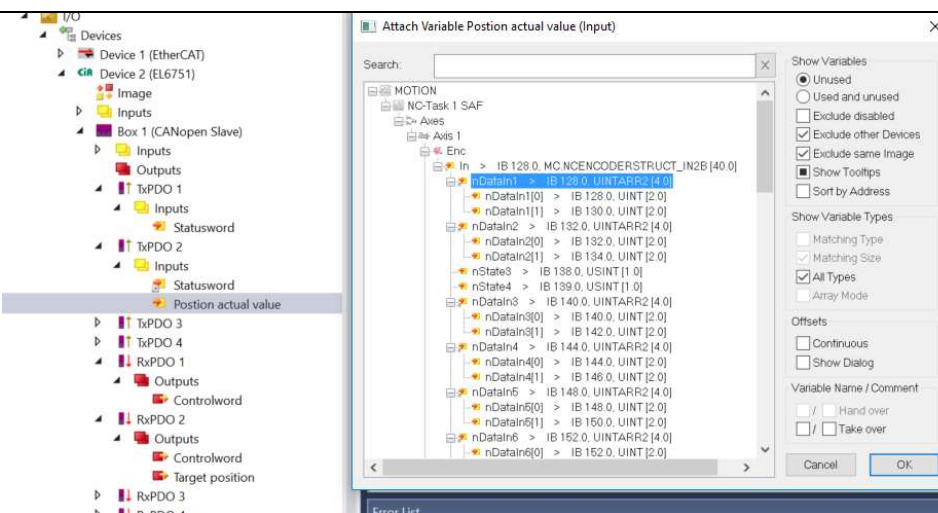


- Deactivate position lag monitoring functions

5		<ul style="list-style-type: none"> <li>- Load PDO's from esi File, if necessary</li> <li>- C:\Program Files (x86)\Faulhaber\Motion Manager 6\EDS</li> </ul>
6		<ul style="list-style-type: none"> <li>- Change Transmission Type of TxPDO2 to 1</li> </ul>
7		<ul style="list-style-type: none"> <li>- Link Statusword (TxPDO2) with Axis1_Drive nStatus1 &amp; nStatus2</li> <li>- Offset of 8 Bit is necessary</li> </ul>

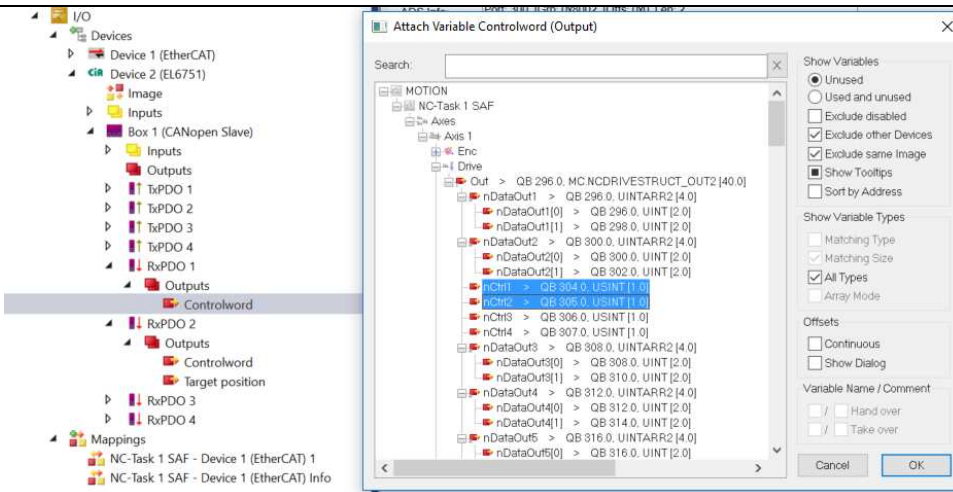


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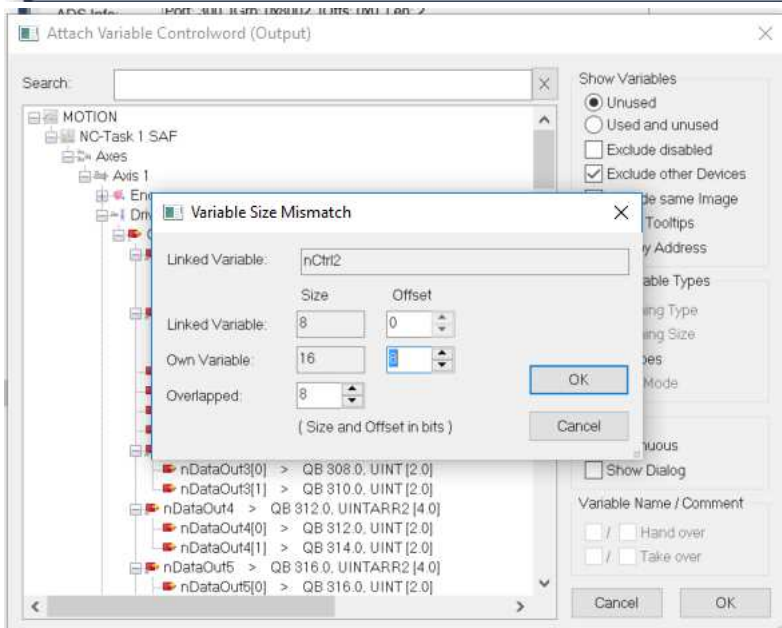
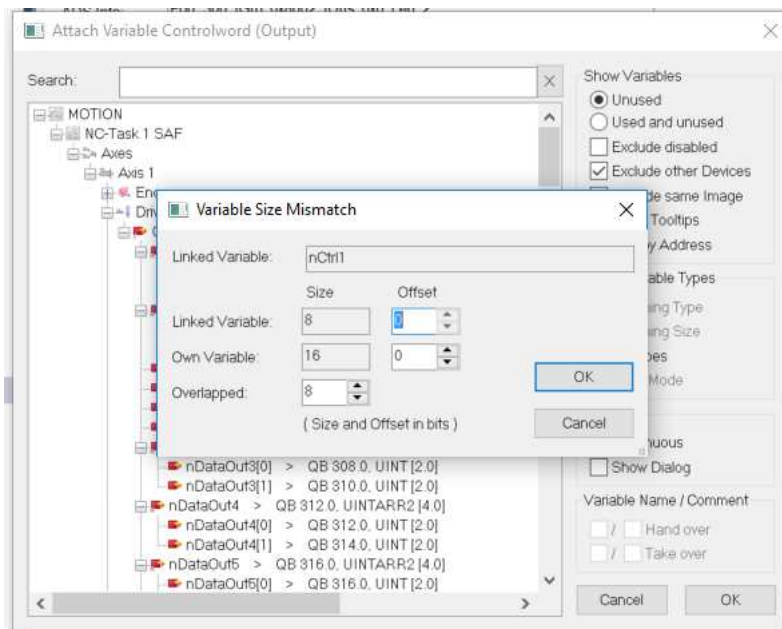


- Link Position actual value (TxPDO2) to Achse 1\_Enc nDataIn1

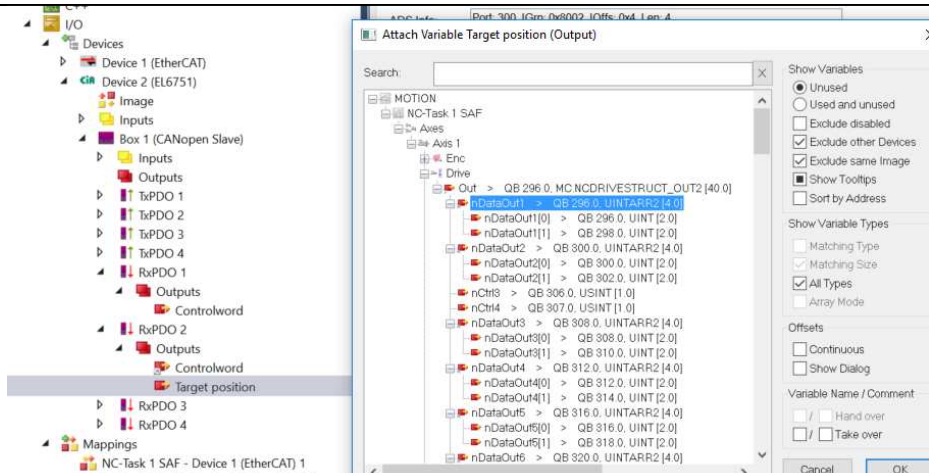
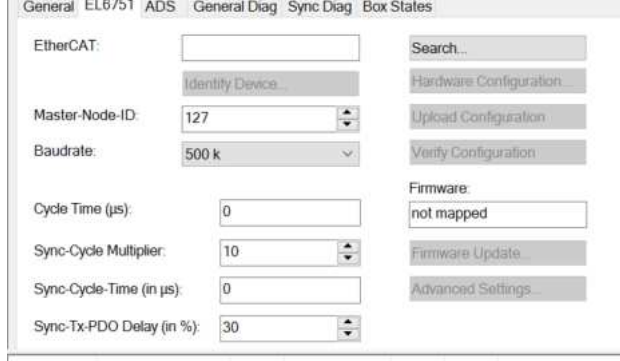

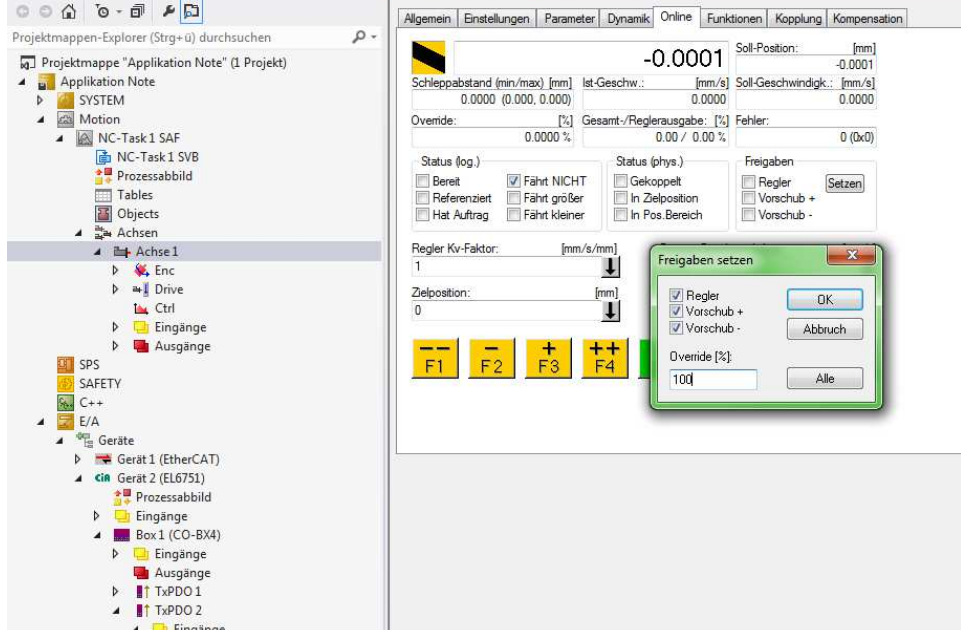
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






- Link Controlword (RxPDO2) to Achse1\_Drive nCtrl1 & nCtrl2
- Offset of 8 Bit is necessary





10		<ul style="list-style-type: none"> <li>- Link Target Position (RxPOD2) to Achse 1_Drive nOutData1</li> </ul>
11		<ul style="list-style-type: none"> <li>- Set Synch-Cycle Multiplier to 10</li> </ul>
12		<ul style="list-style-type: none"> <li>- Activate configuration and run the PLC</li> </ul>
13		<ul style="list-style-type: none"> <li>- Enable the NC Drive</li> </ul>

14	       	<ul style="list-style-type: none"> <li>- After the drive is enabled reset the NC axis with F6, then activate the NC axis with F5</li> <li>- From that point on it is possible to run the motor with F1 – F4</li> </ul>
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