Setup Instructions for TwinCAT3 with the AKD

Jimmy Coleman
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Date of Change	Change
9/8/2022	XML file naming conventions

Overview

Setting up TwinCAT3 for operation with the AKD drive is almost identical to TwinCAT2. Some of the terminology is different and the xml file goes in a different location. But the general process is the same.

There are two XML files for the AKD drive. One is for TwinCAT version 2 and the other is for version 3.

Original Naming Convention:
- TwinCAT3 XML file: "AKD EtherCAT Device Description.xml"
- TwinCAT2 XML file: "AKD_TwinCAT.xml"

New Naming Convention:
- TwinCAT3 XML file: "AKD.xml"
- TwinCAT2 XML file: "AKD_TwinCAT2.xml"

The "AKD.xml" file is also for all currently supported EtherCAT masters. The file for TwinCAT2 is specific to TwinCAT2.
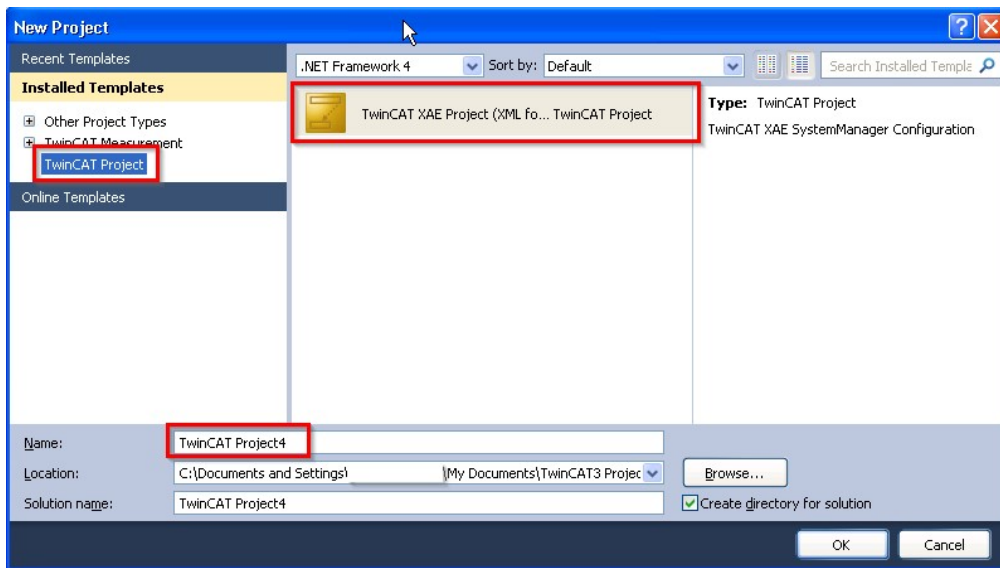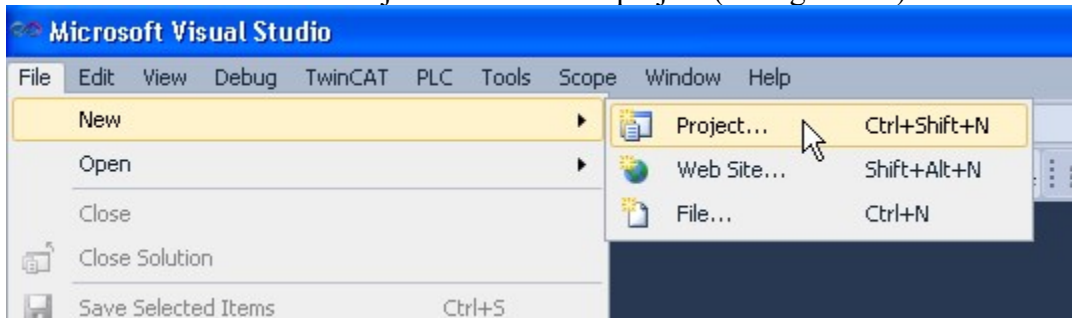
Procedure

1. Place the xml file called "AKD.xml" or "AKD EtherCAT Device Description.xml" in the directory, "C:\TwinCAT\3.1\Config\Io\EtherCAT."

2. Click on the TwinCAT icon in the system tray and click "TwinCAT XAE" to start the TwinCAT software. This is equivalent to the System Manager in TwinCAT2.
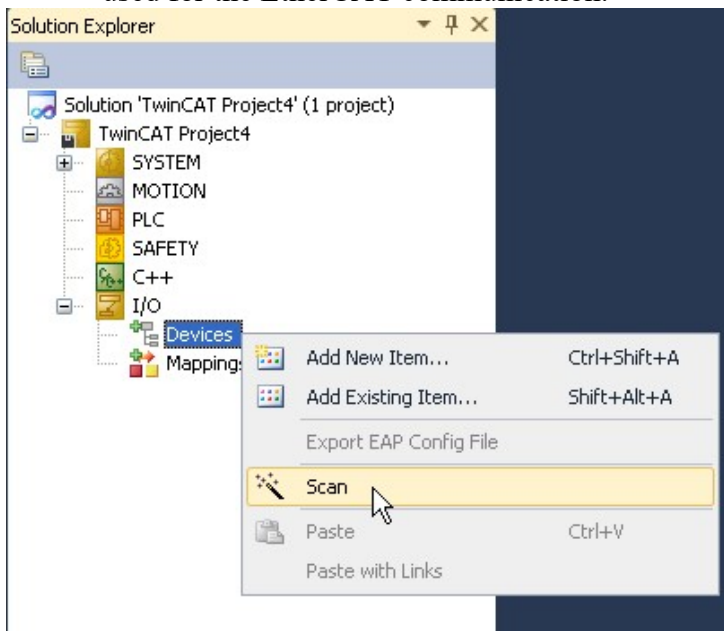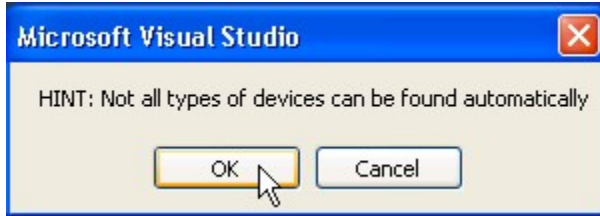
Start screen of TwinCAT3
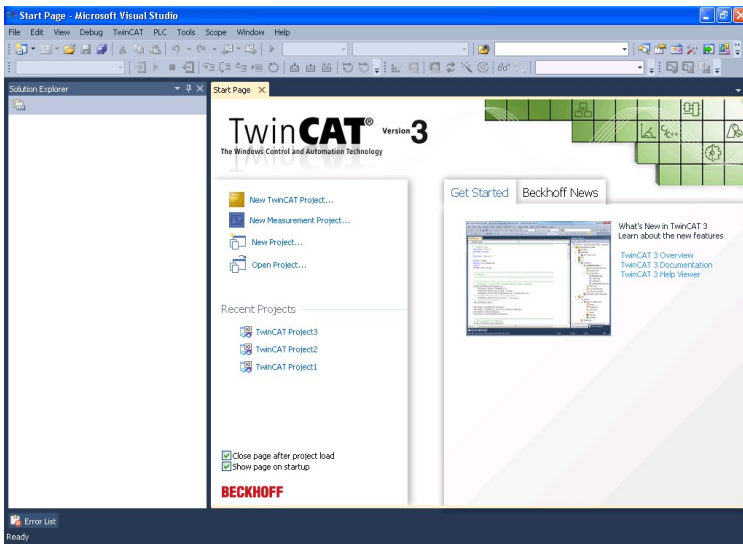
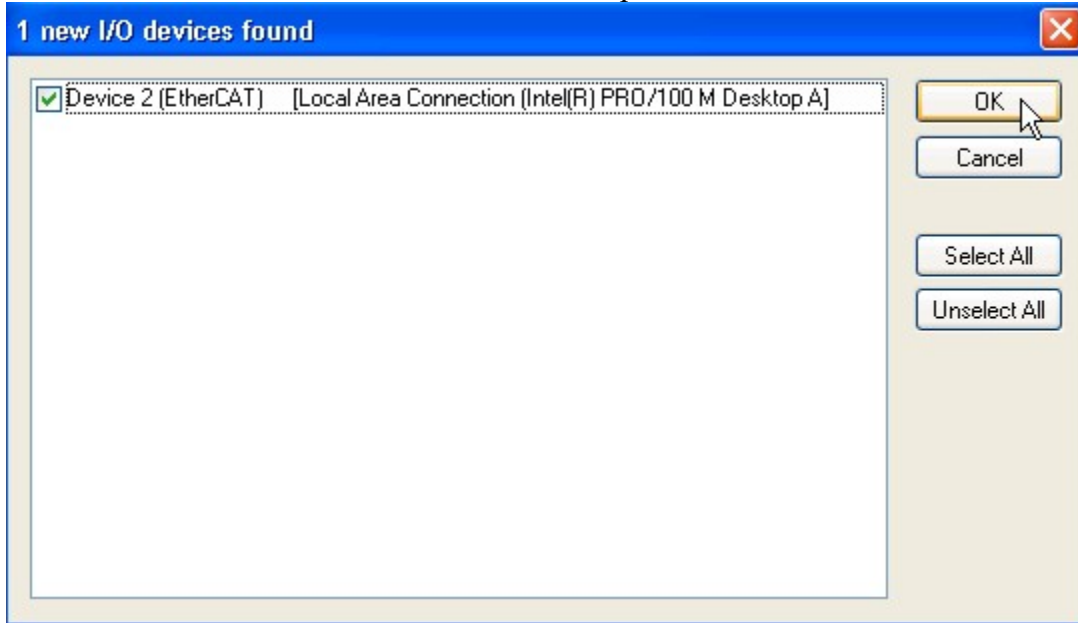3. Click File / New / Project to start a new project (configuration).

4. Right click on Devices and click Scan to scan for the Ethernet adapter that will be used for the EtherCAT communication.
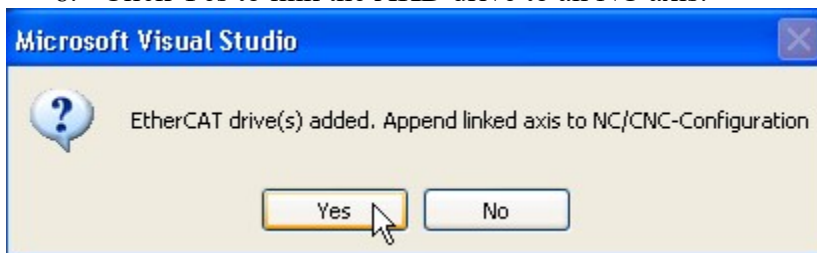
5. Click OK.

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HINT: Not all types of devices can be found automatically

[OK]   [Cancel]

6. Select the Intel® Pro/100M network adapter and click OK.

1 new I/O devices found

☑ Device 2 (EtherCAT)   [Local Area Connection (Intel(R) PRO/100 M Desktop A]

[OK]
[Cancel]

[Select All]
[Unselect All]

7. Click Yes to scan for boxes (AKD drives).

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? Scan for boxes

[Yes]   [No]

8. Click Yes to link the AKD drive to an NC axis.

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? EtherCAT drive(s) added. Append linked axis to NC/CNC-Configuration

[Yes]   [No]

9. Click Yes to activate free run mode.

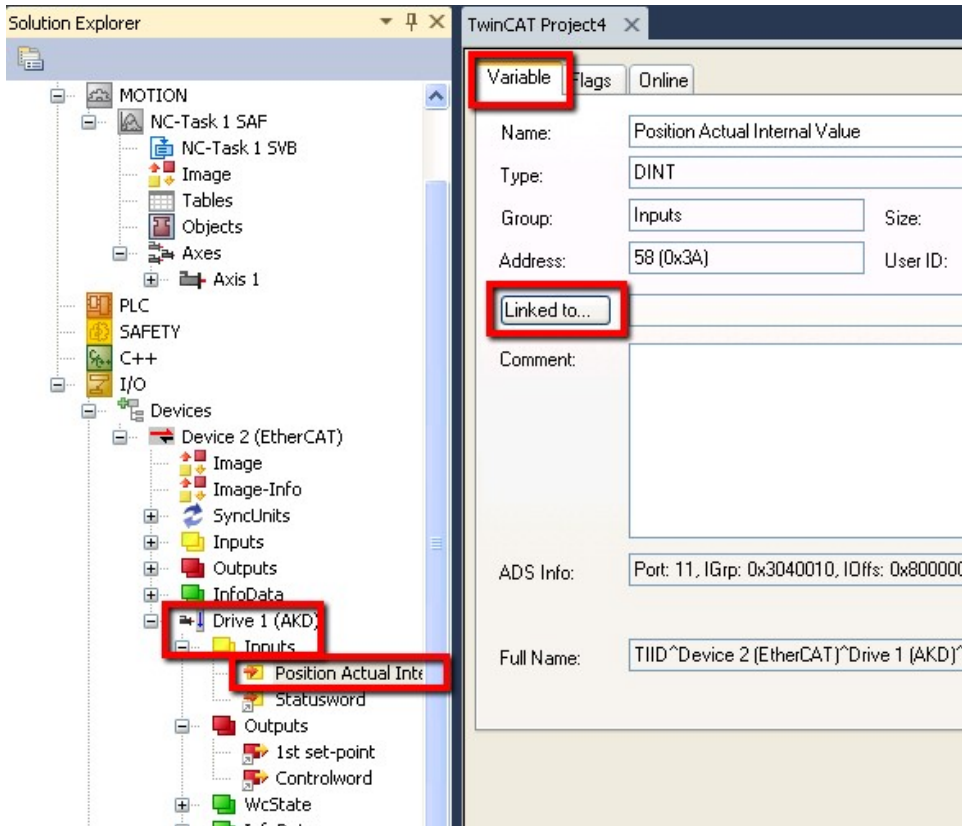Navigation tree with NC-Task, Axis, and Drive 1 (AKD).
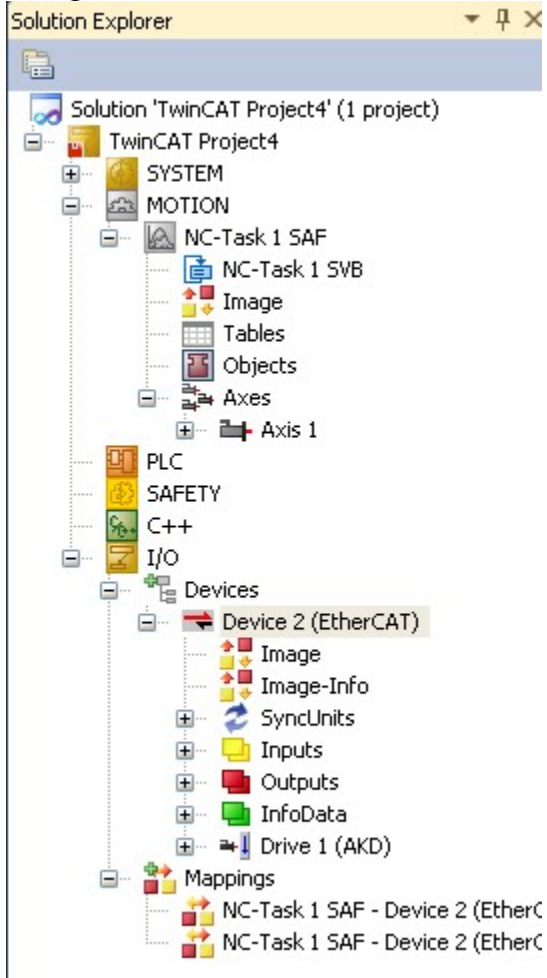
10. Double-click on "Drive 1 (AKD)" and click on the Process Data tab. Check both boxes for PDO Assignment and PDO Configuration. The default output assignment of 0x1701 is the one you need. Notice the objects 60C1sub01 and 6040 are mapped to this PDO.
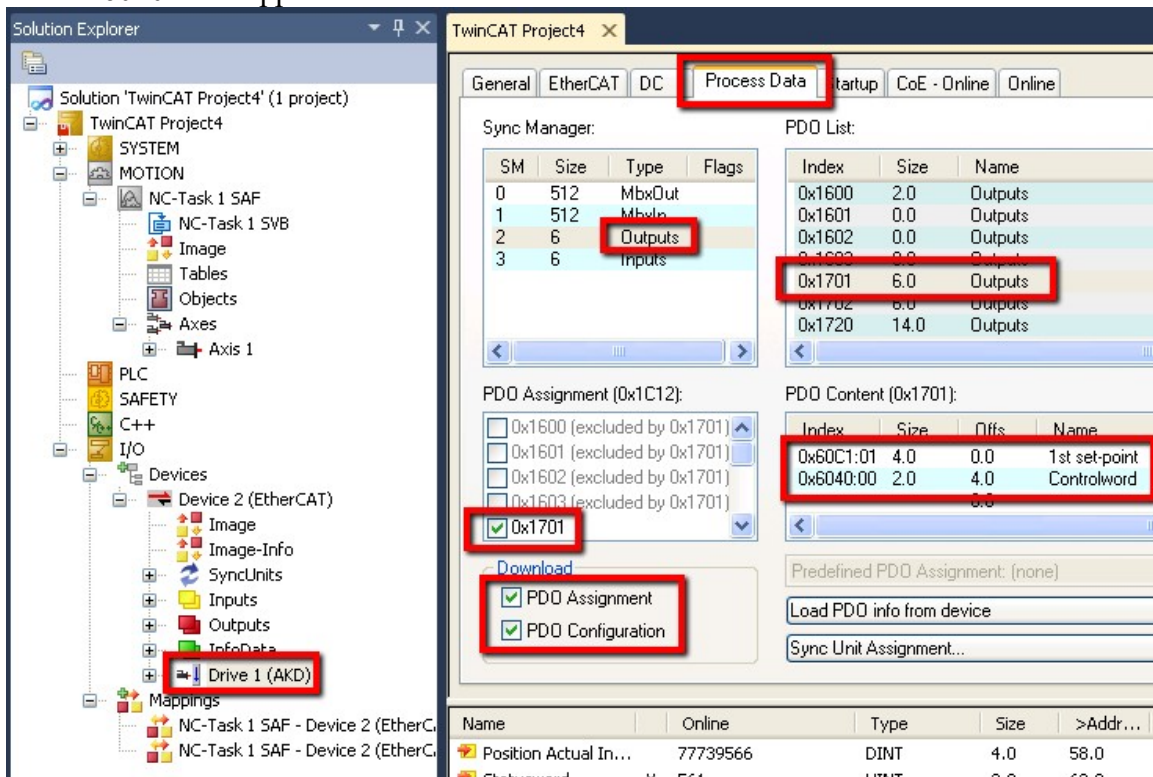
The default input PDO assignment of 0x1B01 is the one you need. Notice the objects 6063 and 6041 are mapped to this PDO.
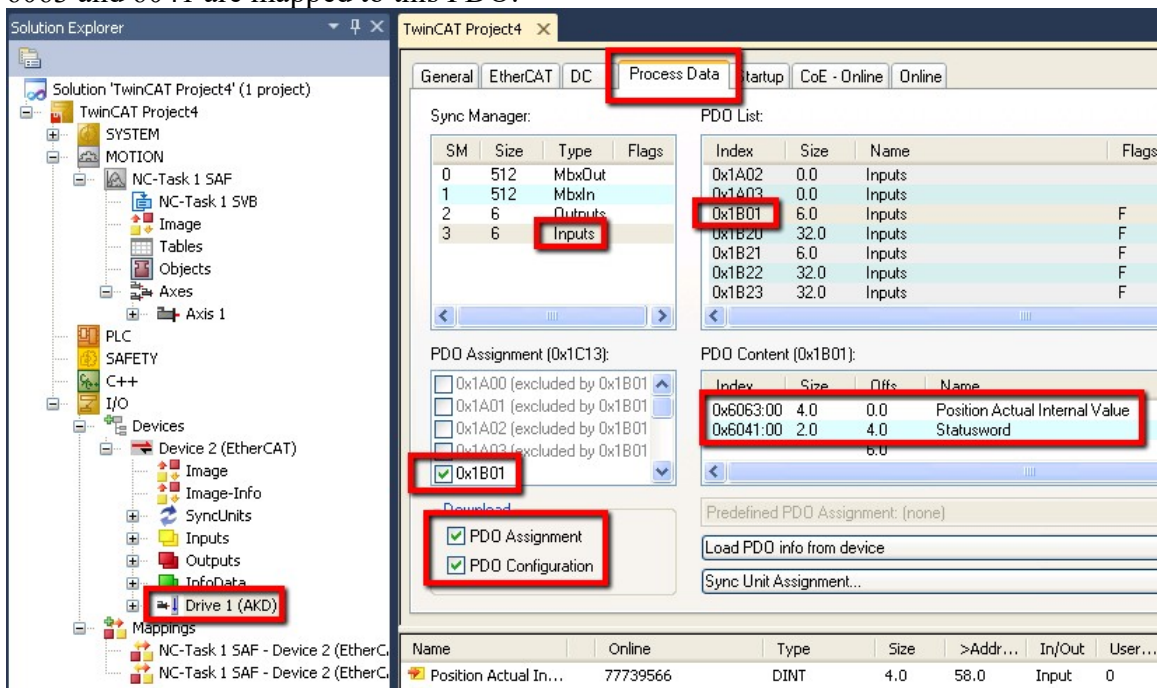
11. Link a data word to the Position Actual Internal Value PDO.
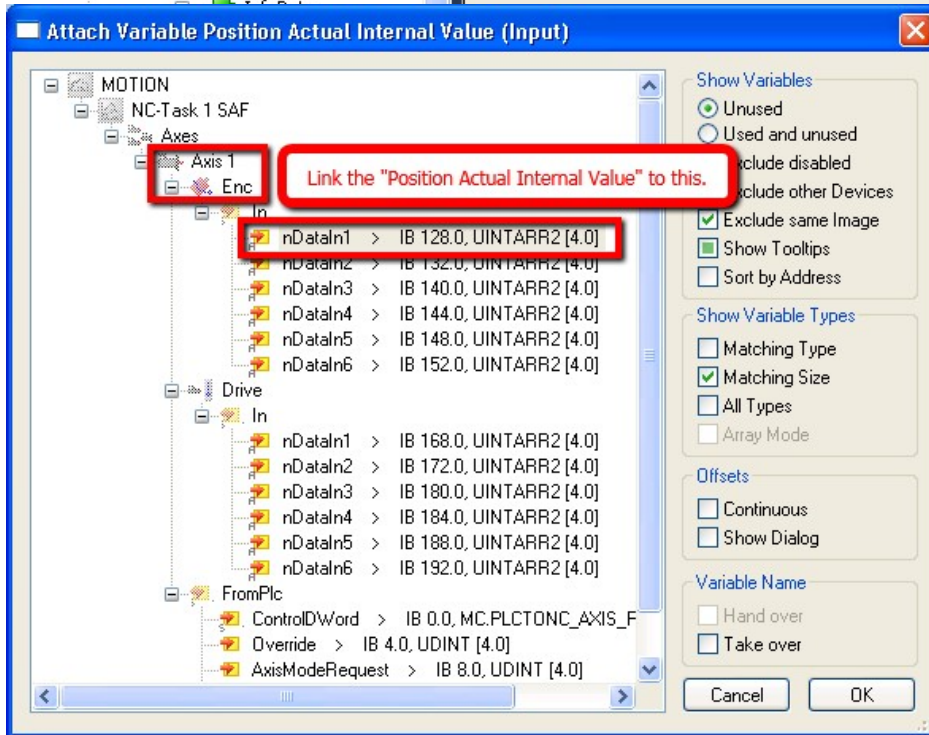
12. Link a data word to the 1st set-point PDO.

13. Right-click "Mappings" and click "Generate Mappings."
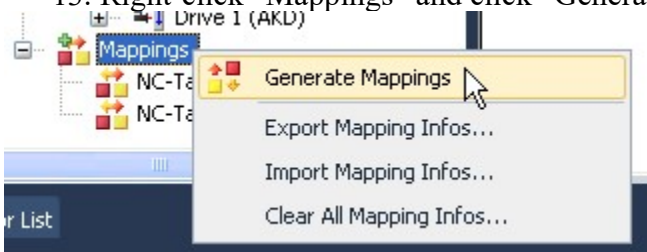
14. Click Activate Configuration.
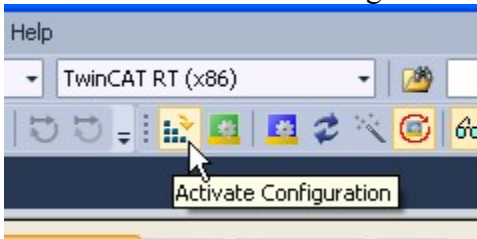
15. Click OK to activate the configuration.

16. Click OK to start run mode.

The TwinCAT3 icon in the system tray will turn green for run mode.

Main motion control interface for NC-Task Axis 1.

17. Disable the position error monitoring.

18. Enable the drive.

19. Start a position move. Position scaling for 60C1sub01 and 6063 is based on 2^(FB1.PSCALE) per revolution. Default value is 20, so 2^20 counts per rev.