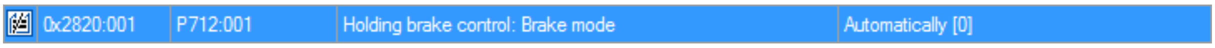
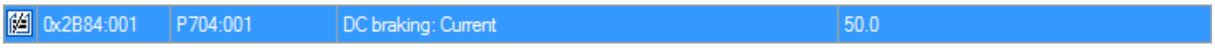
# Short documentation

# Integration of i550 into Beckhoff with EtherCAT



| | | | |
|---|---|---|---|
| 0x2820:001 | P712:001 | Holding brake control: Brake mode | Automatically [0] |



| | | | |
|---|---|---|---|
| 0x2B84:001 | P704:001 | DC braking: Current | 50.0 |

Software versions used:

Lenze Easy Starter V1.10.0.0
i550, EtherCAT Standard IO with FW 03.00.01.00
TwinCAT System Manager v2.11(Build 2272)
TwinCAT Version (Build 2254)
TwinCAT PLC Control v2.11(Build 2224)

| Version | Notes | Author / Date |
|---|---|---|
| V1.0 | First version | Fokkema / 29.12.2015 |
| V1.1 | Update FW and changed xResetError | Fokkema / 22.02.2016 |
| V2.0 | Update to Free Mapping | Fokkema / 25.07.2016 |
| | | |

## Contents:

# 1 i550 on EtherCAT

This documentation describes the integration of the i550 on Beckhoff, with the Lenze application sample “Beckhoff_AppSample_V02_TC2” project.

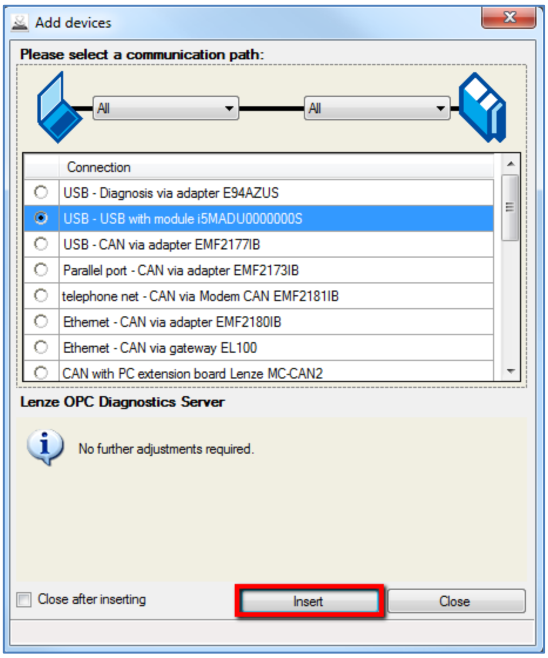
## 1.1 Parameter setting with the EASY Starter

For the general control via EtherCAT, only a few codes have to be set at the i550 via the keypad or the EASY Starter. The basic drive parameters such as base frequency or maximum current are also parameterised via the EASY Starter.

It is also possible to set these parameters through a StartUp-List in the TwinCAT system manager or to write all the parameters through EtherCAT with the PLC project using the Function Block “LenzeWriteBlockOfCodes_Index”. These options are described later in this manual.

When using the startup list, no additional parameterisation with i550 are necessary to operate the device with a PLC!

### 1.1.1 Establish a connection to the i550 via USB diagnostic interface



Please select a communication path:

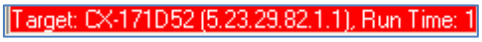
| | Connection |
|---|---|
| ○ | USB - Diagnosis via adapter E94AZUS |
| ● | USB - USB with module i5MADU0000000S |
| ○ | USB - CAN via adapter EMF2177IB |
| ○ | Parallel port - CAN via adapter EMF2173IB |
| ○ | telephone net - CAN via Modem CAN EMF2181IB |
| ○ | Ethernet - CAN via adapter EMF2180IB |
| ○ | Ethernet - CAN via gateway EL100 |
| ○ | CAN with PC extension board Lenze MC-CAN2 |

Lenze OPC Diagnostics Server

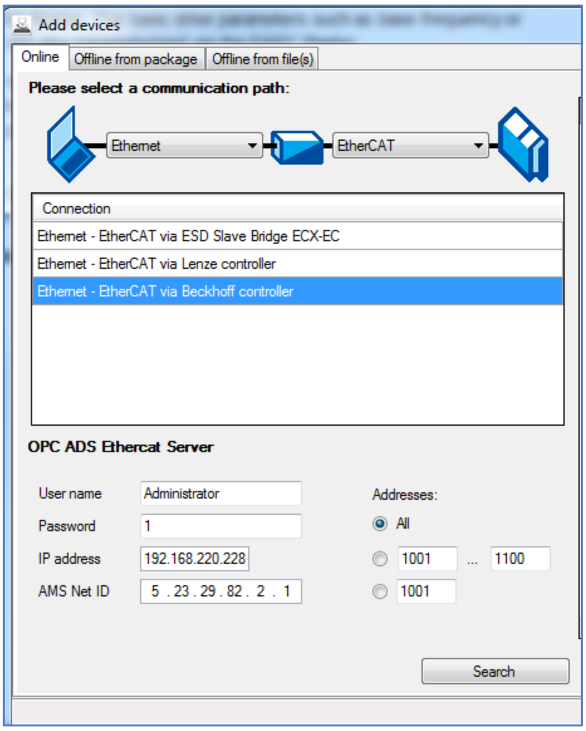
No further adjustments required.

□ Close after inserting

Alternatively you can go Online With EtherCAT Through Beckhoff PLC.



Target: CX-171D52 (5.23.29.82.1.1), Run Time: 1



Add devices

Online | Offline from package | Offline from file(s)

Please select a communication path:

| Connection |
|---|
| Ethernet - EtherCAT via ESD Slave Bridge ECX-EC |
| Ethernet - EtherCAT via Lenze controller |
| Ethernet - EtherCAT via Beckhoff controller |

OPC ADS Ethercat Server

User name: Administrator

Password: 1

IP address: 192.168.220.228

AMS Net ID: 5 . 23 . 29 . 82 . 2 . 1

Addresses:

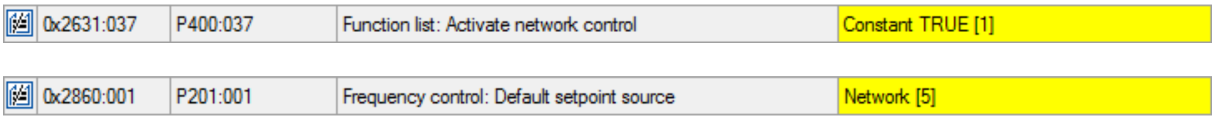
● All

○ 1001 ... 1100

○ 1001

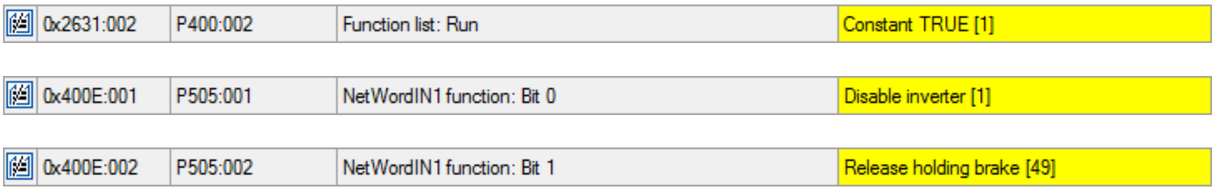
### 1.1.2 Setting of the required basic parameters

Select the Tab: “Parameter List” in order to change the necessary codes



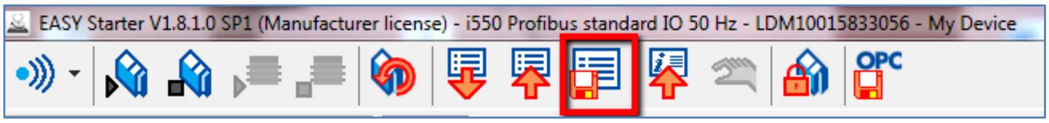
| | | | |
|---|---|---|---|
| 0x2631:037 | P400:037 | Function list: Activate network control | Constant TRUE [1] |
| 0x2860:001 | P201:001 | Frequency control: Default setpoint source | Network [5] |

(* ToDo*) Optioneel Input / volgorde van de code oplopend



| | | | |
|---|---|---|---|
| 0x2631:002 | P400:002 | Function list: Run | Constant TRUE [1] |
| 0x400E:001 | P505:001 | NetWordIN1 function: Bit 0 | Disable inverter [1] |
| 0x400E:002 | P505:002 | NetWordIN1 function: Bit 1 | Release holding brake [49] |

Finally, save the parameter set in the i550.



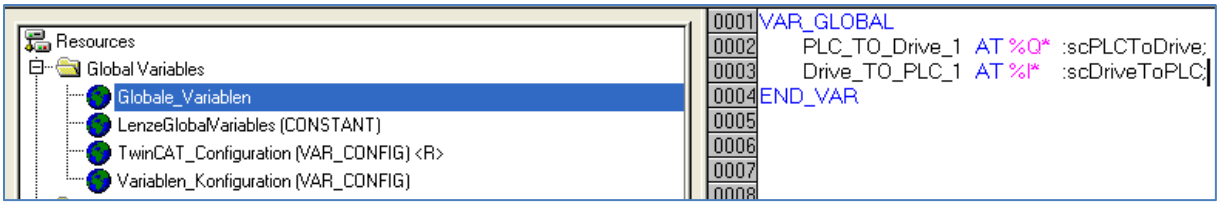
EASY Starter V1.8.1.0 SP1 (Manufacturer license) - i550 Profibus standard IO 50 Hz - LDM10015833056 - My Device

## 1.2 Integration under TwinCAT - PLC Control

### 1.2.1 Implementing the "LCB_ActuatorSpeed_V02" FB into the PLC

#### 1.2.1.1 Create communication variables

In order to create the right communication between the PLC program and the hardware configuration in the system manager, we need to declare these variables in the “Global Variables”


Resources
Global Variables
Globale_Variablen
LenzeGlobalVariables (CONSTANT)
TwinCAT_Configuration (VAR_CONFIG) <R>
Variablen_Konfiguration (VAR_CONFIG)

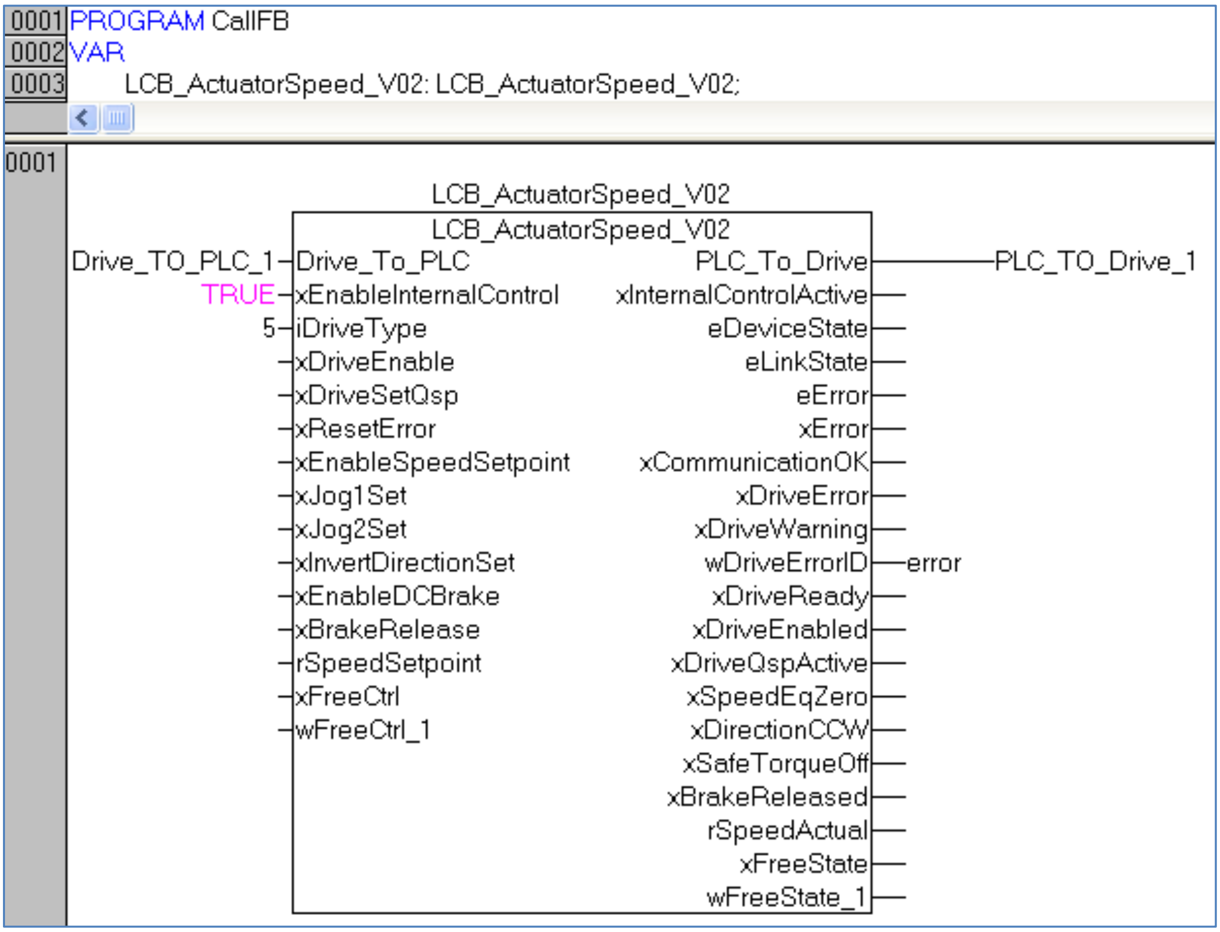
```
VAR_GLOBAL
    PLC_TO_Drive_1  AT %Q*  :scPLCToDrive;
    Drive_TO_PLC_1  AT %I*  :scDriveToPLC;
END_VAR
```

#### 1.2.1.2 Call Function block and link the inputs

Connect the structures.

xEnableDriveControl serves to operate the FB with the visualisation.

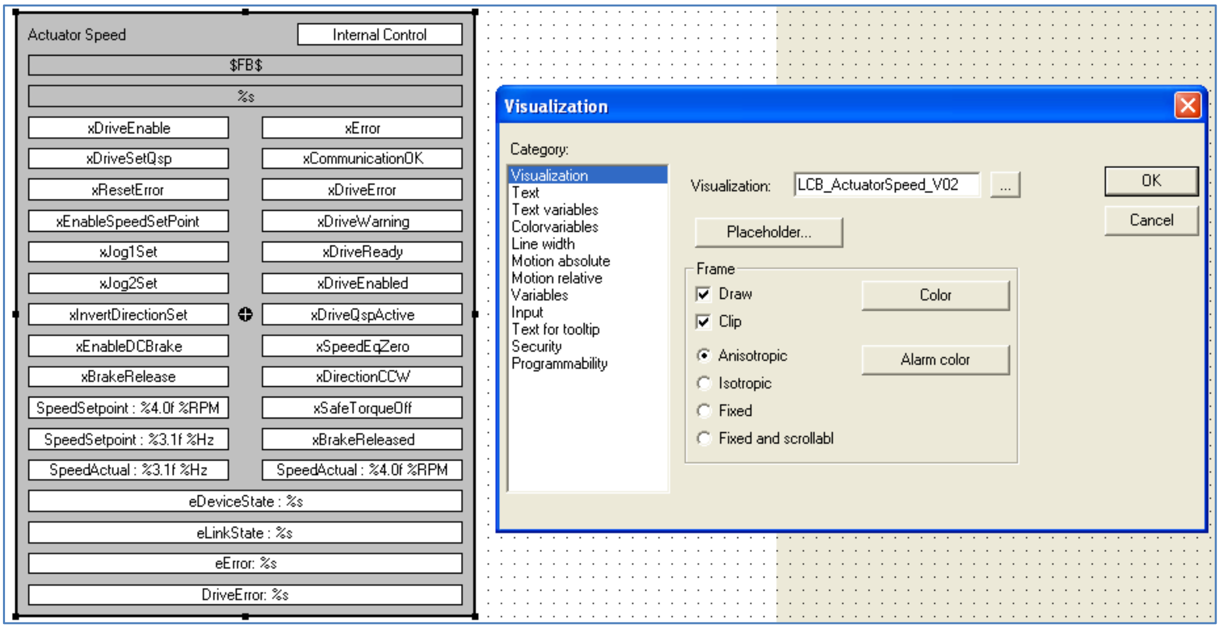
iDrive type must be “5” for i550.



```
PROGRAM CallFB
VAR
    LCB_ActuatorSpeed_V02: LCB_ActuatorSpeed_V02;
```

### 1.2.1.3 Create visualisation

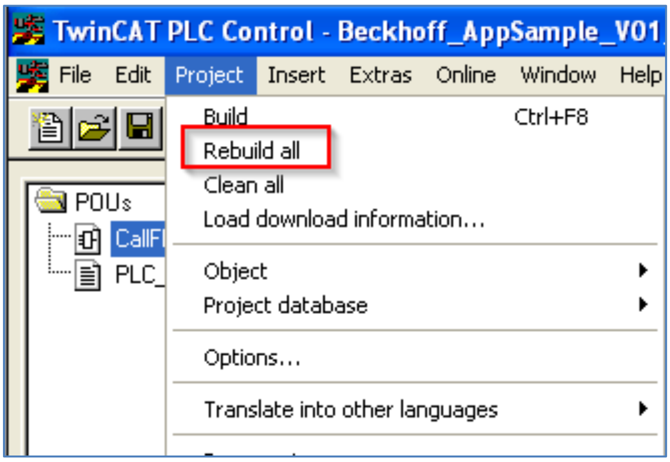
In the project there is a visualisation element available for the FB “LCB_ActuatorSpeed_V02”



Visualization: LCB_ActuatorSpeed_V02

Frame
☑ Draw
☑ Clip
● Anisotropic
○ Isotropic
○ Fixed
○ Fixed and scrollabl

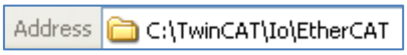
### 1.2.1.4 Rebuild to create SM.TPY file



## 1.3 Integration under TwinCAT – System Manager

The integration under TwinCAT requires the .XML description file of the i550. This file has to be integrated into the IO folder of the TwinCAT setup. The latest version can be downloaded from www.lenze.com

Copy i550 .XML file into the following folder :

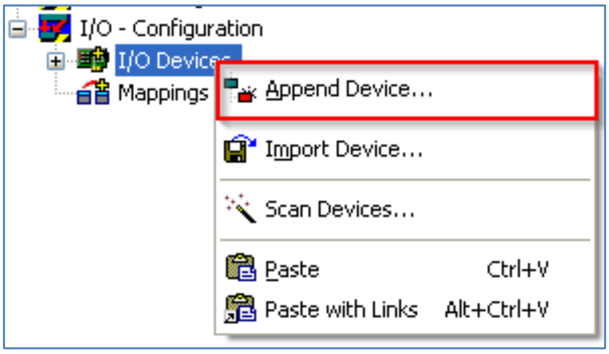


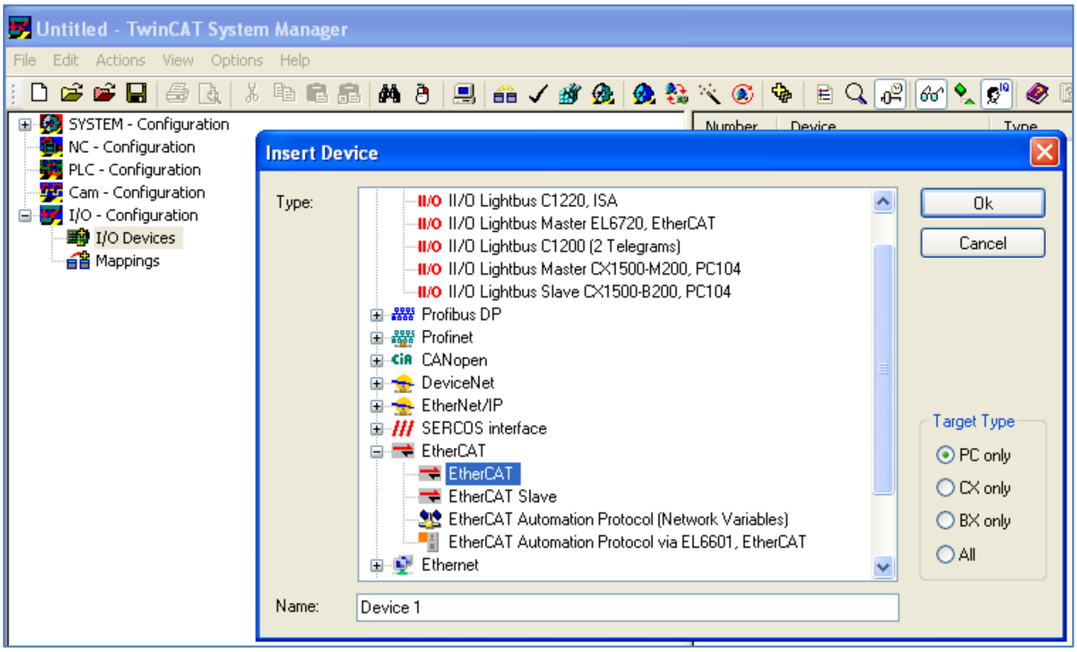
Address C:\TwinCAT\Io\EtherCAT

### 1.3.1 Hardware configuration

Open System Manager and insert i550

First Insert EtherCAT Master



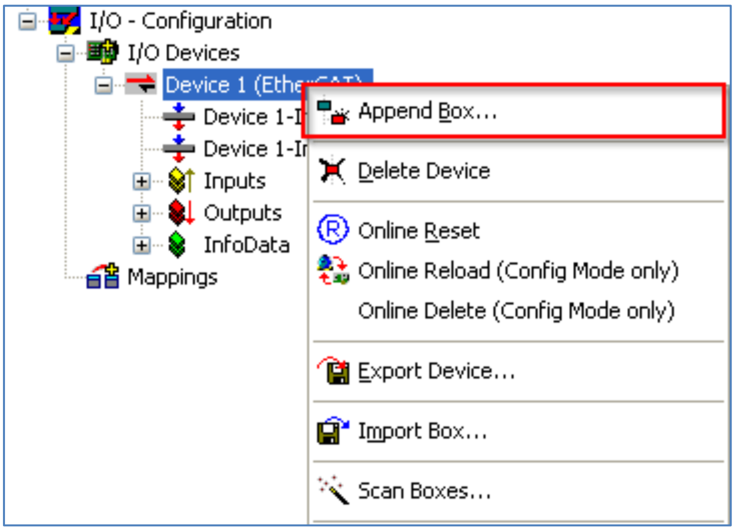

Untitled - TwinCAT System Manager
File Edit Actions View Options Help
SYSTEM - Configuration
NC - Configuration
PLC - Configuration
Cam - Configuration
I/O - Configuration
I/O Devices
Mappings
Number Device Type
Insert Device
II/O Lightbus C1220, ISA
II/O Lightbus Master EL6720, EtherCAT
II/O Lightbus C1200 (2 Telegrams)
II/O Lightbus Master CX1500-M200, PC104
II/O Lightbus Slave CX1500-B200, PC104
Profibus DP
Profinet
CANopen
DeviceNet
EtherNet/IP
SERCOS interface
EtherCAT
EtherCAT
EtherCAT Slave
EtherCAT Automation Protocol (Network Variables)
EtherCAT Automation Protocol via EL6601, EtherCAT
Ethernet
Ok
Cancel
CX only
BX only
All

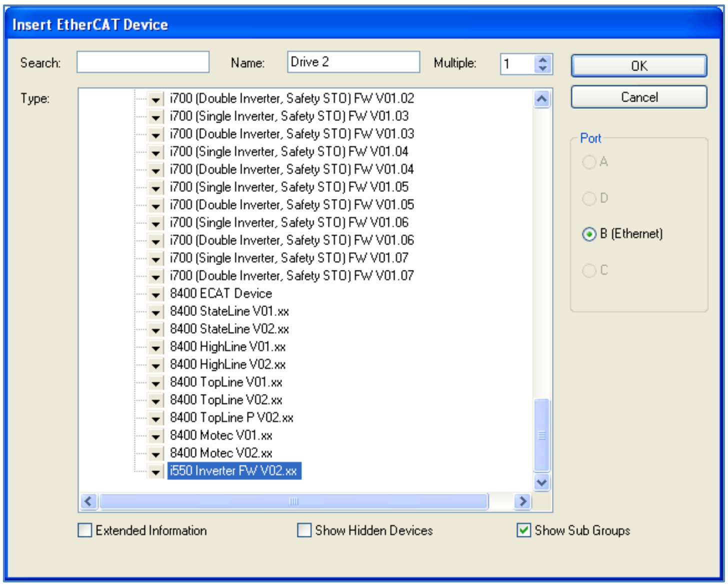
Type: EtherCAT

Target Type: ● PC only

Name: Device 1

Then Insert i550




Insert EtherCAT Device

Search:

Name: Drive 2

Multiple: 1

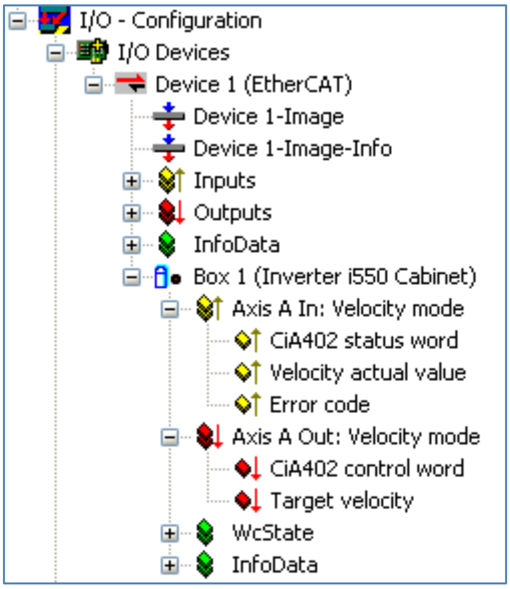
Type:

- i700 (Double Inverter, Safety STO) FW V01.02
- i700 (Single Inverter, Safety STO) FW V01.03
- i700 (Double Inverter, Safety STO) FW V01.03
- i700 (Single Inverter, Safety STO) FW V01.04
- i700 (Double Inverter, Safety STO) FW V01.04
- i700 (Single Inverter, Safety STO) FW V01.05
- i700 (Double Inverter, Safety STO) FW V01.05
- i700 (Single Inverter, Safety STO) FW V01.06
- i700 (Double Inverter, Safety STO) FW V01.06
- i700 (Single Inverter, Safety STO) FW V01.07
- i700 (Double Inverter, Safety STO) FW V01.07
- 8400 ECAT Device
- 8400 StateLine V01.xx
- 8400 StateLine V02.xx
- 8400 HighLine V01.xx
- 8400 HighLine V02.xx
- 8400 TopLine V01.xx
- 8400 TopLine V02.xx
- 8400 TopLine P V02.xx
- 8400 Motec V01.xx
- 8400 Motec V02.xx
- i550 Inverter FW V02.xx

Port: ○ A ○ D ● B (Ethernet) ○ C

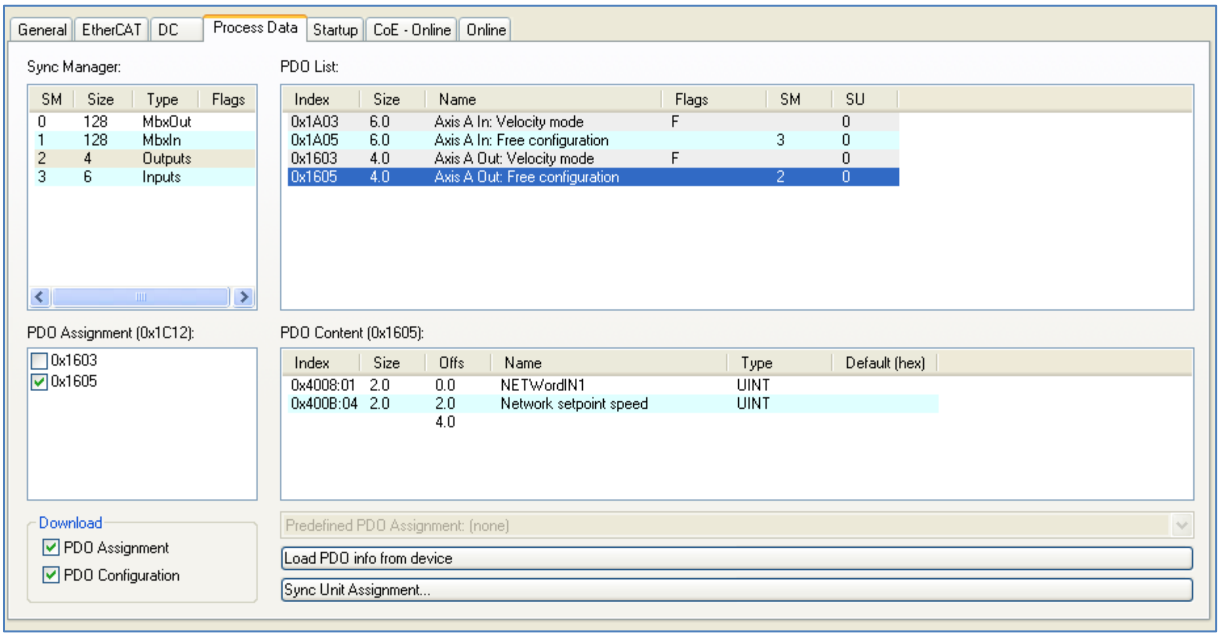
□ Extended Information □ Show Hidden Devices ☑ Show Sub Groups

You do not need to create an NC Axis result:



Change Mapping Manually in Processdata:

- **Outputs**
  - Here we Have the possibility to change the mapping of the speed setpoint from RPM to HZ (* setpoint in Hz  Index: 0x400B:003*)
  - Here we can Add the mapping for the Free Word available in the FB



Sync Manager:

| SM | Size | Type | Flags |
|---|---|---|---|
| 0 | 128 | MbxOut | |
| 1 | 128 | MbxIn | |
| 2 | 4 | Outputs | |
| 3 | 6 | Inputs | |

PDO List:

| Index | Size | Name | Flags | SM | SU |
|---|---|---|---|---|---|
| 0x1A03 | 6.0 | Axis A In: Velocity mode | F | | 0 |
| 0x1A05 | 6.0 | Axis A In: Free configuration | | 3 | 0 |
| 0x1603 | 4.0 | Axis A Out: Velocity mode | F | | 0 |
| 0x1605 | 4.0 | Axis A Out: Free configuration | | 2 | 0 |

PDO Assignment (0x1C12):

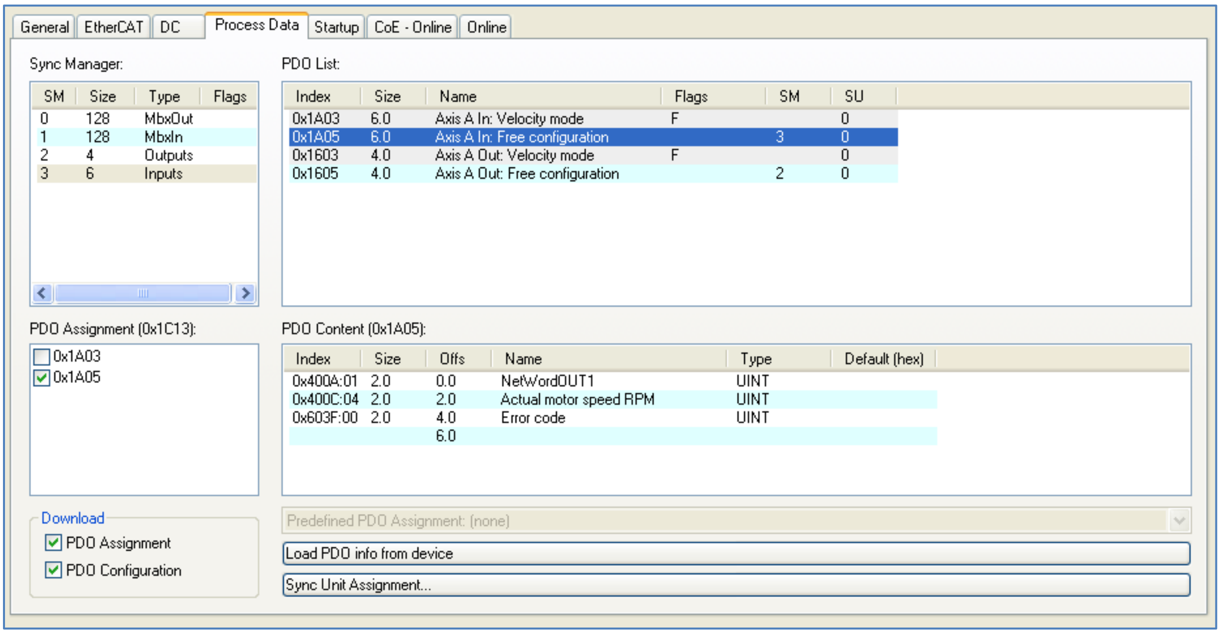
☐ 0x1603
☑ 0x1605

PDO Content (0x1605):

| Index | Size | Offs | Name | Type | Default (hex) |
|---|---|---|---|---|---|
| 0x4008:01 | 2.0 | 0.0 | NETWordIN1 | UINT | |
| 0x400B:04 | 2.0 | 2.0 | Network setpoint speed | UINT | |
| | | 4.0 | | | |

☑ PDO Assignment
☑ PDO Configuration

- **Inputs**
  - Here we Have the possibility to change the mapping of the Actual speed from RPM to HZ (* Actual in Hz  index: 0x400C:004*)



Sync Manager:

| SM | Size | Type | Flags |
|---|---|---|---|
| 0 | 128 | MbxOut | |
| 1 | 128 | MbxIn | |
| 2 | 4 | Outputs | |
| 3 | 6 | Inputs | |

PDO List:

| Index | Size | Name | Flags | SM | SU |
|---|---|---|---|---|---|
| 0x1A03 | 6.0 | Axis A In: Velocity mode | F | | 0 |
| 0x1A05 | 6.0 | Axis A In: Free configuration | | 3 | 0 |
| 0x1603 | 4.0 | Axis A Out: Velocity mode | F | | 0 |
| 0x1605 | 4.0 | Axis A Out: Free configuration | | 2 | 0 |

PDO Assignment (0x1C13):

☐ 0x1A03
☑ 0x1A05

PDO Content (0x1A05):

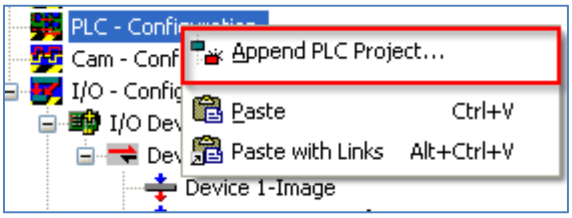
| Index | Size | Offs | Name | Type | Default (hex) |
|---|---|---|---|---|---|
| 0x400A:01 | 2.0 | 0.0 | NetWordOUT1 | UINT | |
| 0x400C:04 | 2.0 | 2.0 | Actual motor speed RPM | UINT | |
| 0x603F:00 | 2.0 | 4.0 | Error code | UINT | |
| | | 6.0 | | | |

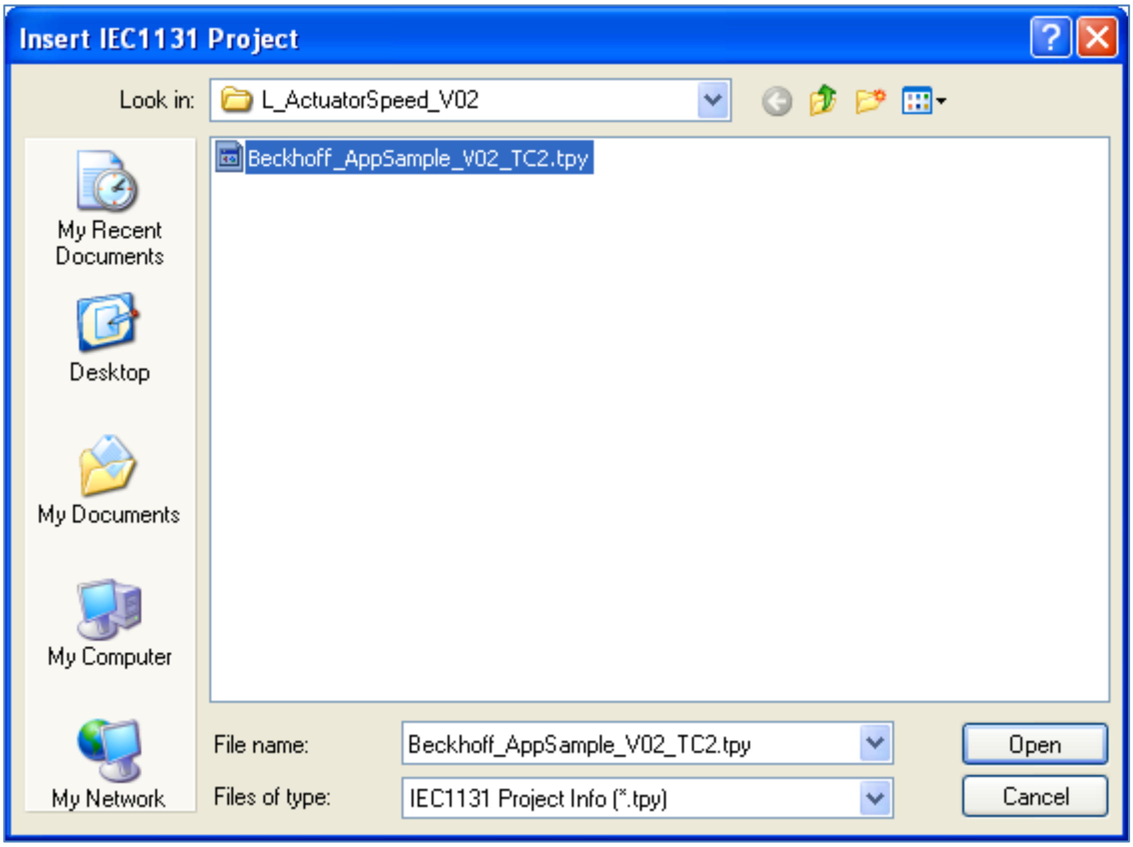
☑ PDO Assignment
☑ PDO Configuration

### 1.3.1.1 Adjusting the process data mapping

**In order to map the process data you need a description file from the PLC project “.tpy”**

Append PLC project .tpy file



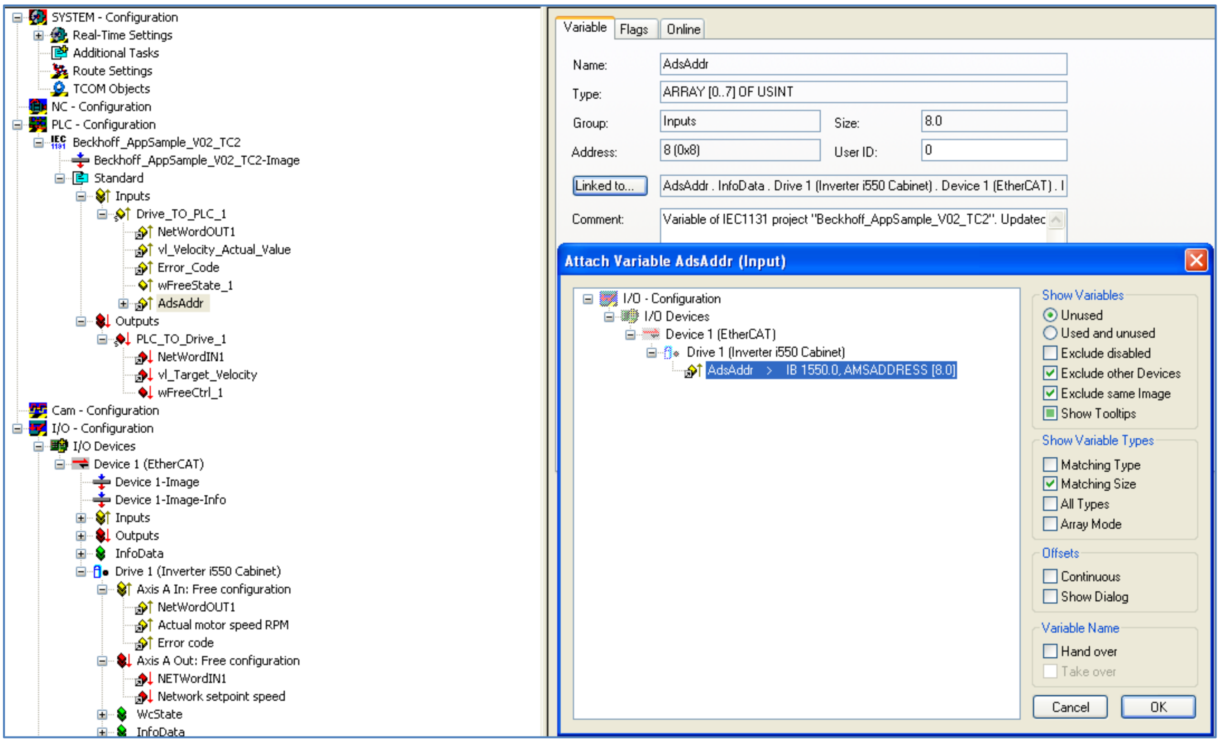


File name: Beckhoff_AppSample_V02_TC2.tpy

Files of type: IEC1131 Project Info (*.tpy)

### 1.3.1.2 Link variables

Select Process data word and create a link.



- SYSTEM - Configuration
  - Real-Time Settings
  - Additional Tasks
  - Route Settings
  - TCOM Objects
- NC - Configuration
- PLC - Configuration
  - Beckhoff_AppSample_V02_TC2
    - Beckhoff_AppSample_V02_TC2-Image
    - Standard
      - Inputs
        - Drive_TO_PLC_1
          - NetWordOUT1
          - vl_Velocity_Actual_Value
          - Error_Code
          - wFreeState_1
        - AdsAddr
      - Outputs
        - PLC_TO_Drive_1
          - NetWordIN1
          - vl_Target_Velocity
          - wFreeCtrl_1
- Cam - Configuration
- I/O - Configuration
  - I/O Devices
    - Device 1 (EtherCAT)
      - Device 1-Image
      - Device 1-Image-Info
      - Inputs
      - Outputs
      - InfoData
      - Drive 1 (Inverter i550 Cabinet)
        - Axis A In: Free configuration
          - NetWordOUT1
          - Actual motor speed RPM
          - Error code
        - Axis A Out: Free configuration
          - NETWordIN1
          - Network setpoint speed
        - WcState
        - InfoData

Variable | Flags | Online

Name: AdsAddr

Type: ARRAY [0..7] OF USINT

Group: Inputs    Size: 8.0

Address: 8 (0x8)    User ID: 0

Linked to... AdsAddr . InfoData . Drive 1 (Inverter i550 Cabinet) . Device 1 (EtherCAT) . I

Comment: Variable of IEC1131 project "Beckhoff_AppSample_V02_TC2". Updatec

**Attach Variable AdsAddr (Input)**

- I/O - Configuration
  - I/O Devices
    - Device 1 (EtherCAT)
      - Drive 1 (Inverter i550 Cabinet)
        - AdsAddr > IB 1550.0, AMSADDRESS [8.0]

Show Variables
- ● Unused
- ○ Used and unused
- □ Exclude disabled
- ☑ Exclude other Devices
- ☑ Exclude same Image
- ▨ Show Tooltips

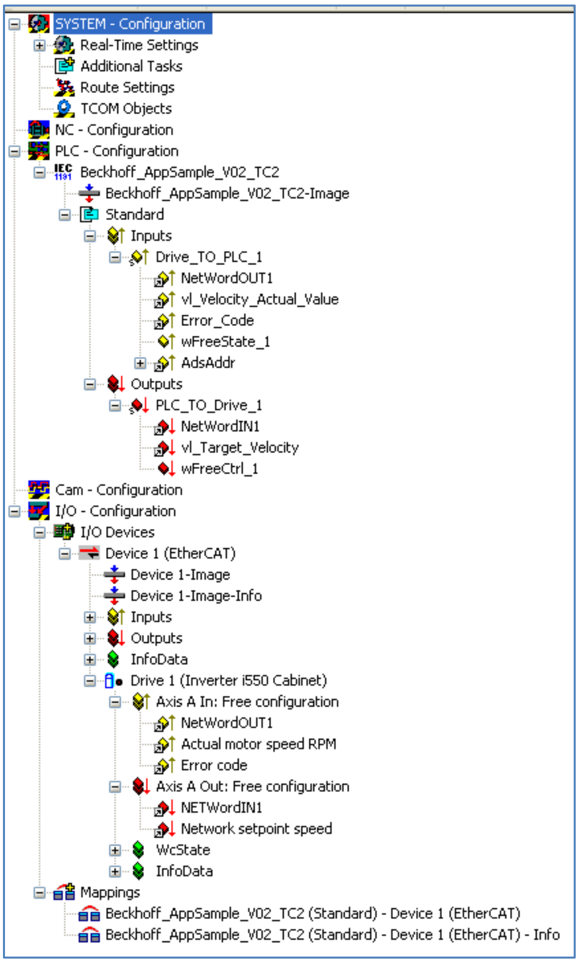
Show Variable Types
- □ Matching Type
- ☑ Matching Size
- □ All Types
- □ Array Mode

Offsets
- □ Continuous
- □ Show Dialog

Variable Name
- □ Hand over
- □ Take over

Cancel | OK

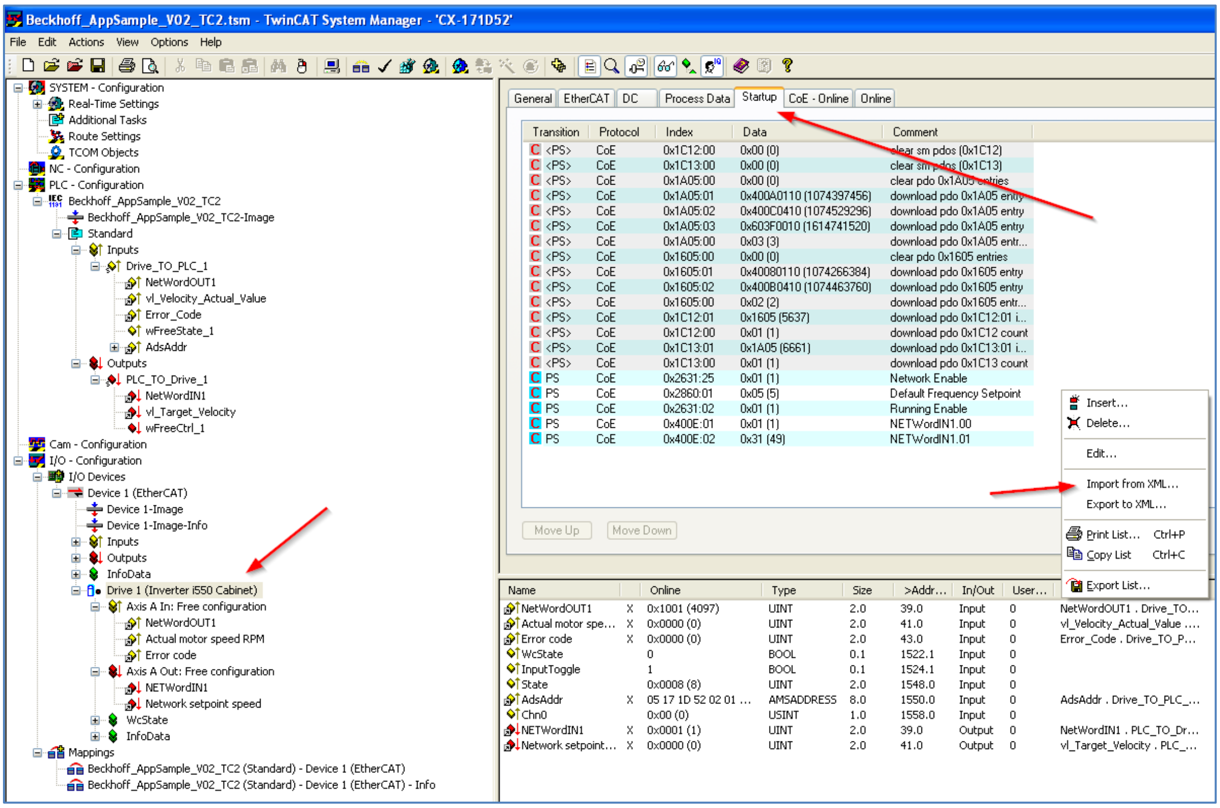
Result:



- SYSTEM - Configuration
  - Real-Time Settings
  - Additional Tasks
  - Route Settings
  - TCOM Objects
- NC - Configuration
- PLC - Configuration
  - Beckhoff_AppSample_V02_TC2
    - Beckhoff_AppSample_V02_TC2-Image
    - Standard
      - Inputs
        - Drive_TO_PLC_1
          - NetWordOUT1
          - vl_Velocity_Actual_Value
          - Error_Code
          - wFreeState_1
        - AdsAddr
      - Outputs
        - PLC_TO_Drive_1
          - NetWordIN1
          - vl_Target_Velocity
          - wFreeCtrl_1
- Cam - Configuration
- I/O - Configuration
  - I/O Devices
    - Device 1 (EtherCAT)
      - Device 1-Image
      - Device 1-Image-Info
      - Inputs
      - Outputs
      - InfoData
      - Drive 1 (Inverter i550 Cabinet)
        - Axis A In: Free configuration
          - NetWordOUT1
          - Actual motor speed RPM
          - Error code
        - Axis A Out: Free configuration
          - NETWordIN1
          - Network setpoint speed
        - WcState
        - InfoData
  - Mappings
    - Beckhoff_AppSample_V02_TC2 (Standard) - Device 1 (EtherCAT)
    - Beckhoff_AppSample_V02_TC2 (Standard) - Device 1 (EtherCAT) - Info

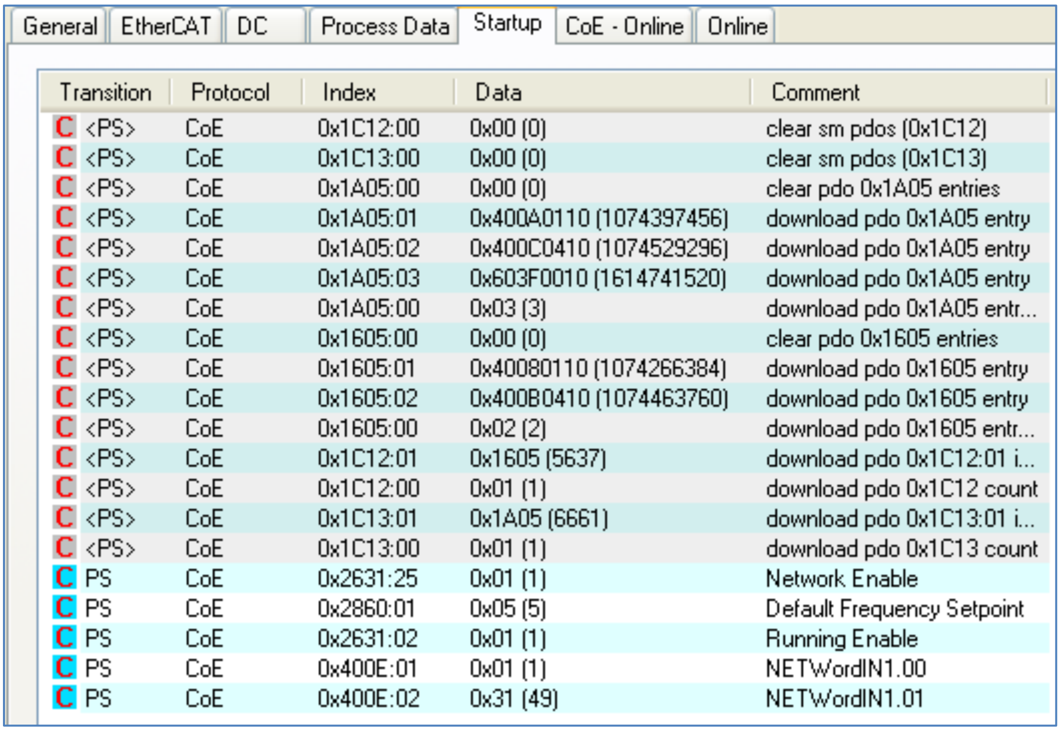
### 1.3.1.3 Import StartUp-List (Optional)

With the application sample there is a StartUp-List available which will automatically parameterize the drive during start up. This gives you the opportunity to operate the device from factory settings without any actions in the drive!



| Transition | Protocol | Index | Data | Comment |
|---|---|---|---|---|
| C <PS> | CoE | 0x1C12:00 | 0x00 (0) | clear sm pdos (0x1C12) |
| C <PS> | CoE | 0x1C13:00 | 0x00 (0) | clear sm pdos (0x1C13) |
| C <PS> | CoE | 0x1A05:00 | 0x00 (0) | clear pdo 0x1A05 entries |
| C <PS> | CoE | 0x1A05:01 | 0x400A0110 (1074397456) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:02 | 0x400C0410 (1074529296) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:03 | 0x603F0010 (1614741520) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:00 | 0x03 (3) | download pdo 0x1A05 entr... |
| C <PS> | CoE | 0x1605:00 | 0x00 (0) | clear pdo 0x1605 entries |
| C <PS> | CoE | 0x1605:01 | 0x40080110 (1074266384) | download pdo 0x1605 entry |
| C <PS> | CoE | 0x1605:02 | 0x400B0410 (1074463760) | download pdo 0x1605 entry |
| C <PS> | CoE | 0x1605:00 | 0x02 (2) | download pdo 0x1605 entr... |
| C <PS> | CoE | 0x1C12:01 | 0x1605 (5637) | download pdo 0x1C12:01 i... |
| C <PS> | CoE | 0x1C12:00 | 0x01 (1) | download pdo 0x1C12 count |
| C <PS> | CoE | 0x1C13:01 | 0x1A05 (6661) | download pdo 0x1C13:01 i... |
| C <PS> | CoE | 0x1C13:00 | 0x01 (1) | download pdo 0x1C13 count |
| C PS | CoE | 0x2631:25 | 0x01 (1) | Network Enable |
| C PS | CoE | 0x2860:01 | 0x05 (5) | Default Frequency Setpoint |
| C PS | CoE | 0x2631:02 | 0x01 (1) | Running Enable |
| C PS | CoE | 0x400E:01 | 0x01 (1) | NETWordIN1.00 |
| C PS | CoE | 0x400E:02 | 0x31 (49) | NETWordIN1.01 |

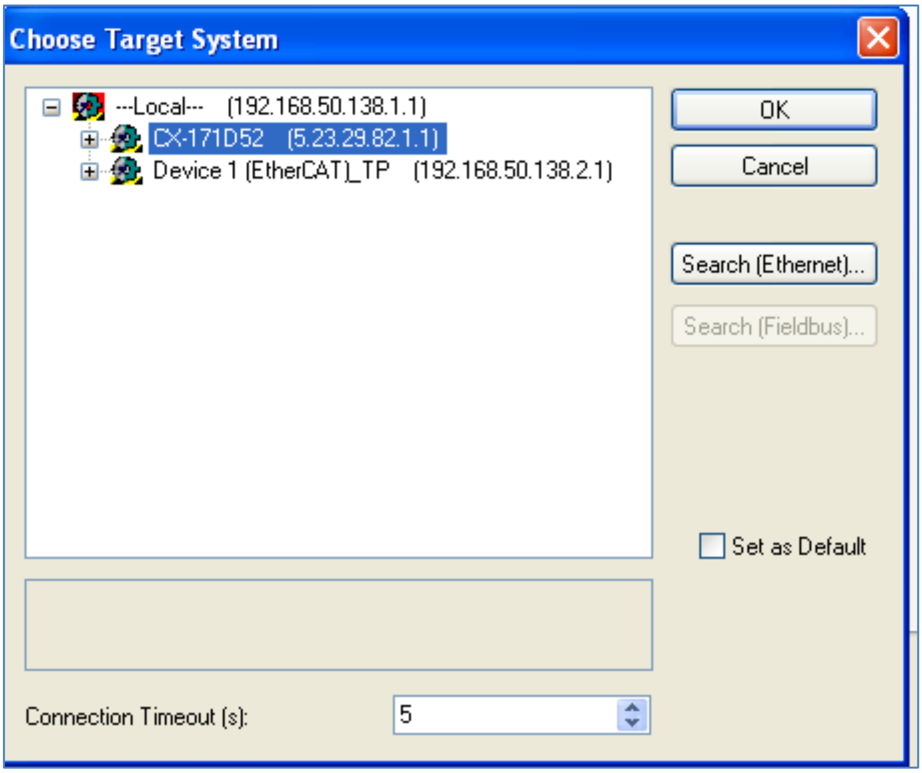
| Name | | Online | Type | Size | >Addr... | In/Out | User... | |
|---|---|---|---|---|---|---|---|---|
| NetWordOUT1 | X | 0x1001 (4097) | UINT | 2.0 | 39.0 | Input | 0 | NetWordOUT1 . Drive_TO... |
| Actual motor spe... | X | 0x0000 (0) | UINT | 2.0 | 41.0 | Input | 0 | vl_Velocity_Actual_Value .... |
| Error code | X | 0x0000 (0) | UINT | 2.0 | 43.0 | Input | 0 | Error_Code . Drive_TO_P... |
| WcState | | 0 | BOOL | 0.1 | 1522.1 | Input | 0 | |
| InputToggle | | 1 | BOOL | 0.1 | 1524.1 | Input | 0 | |
| State | | 0x0008 (8) | UINT | 2.0 | 1548.0 | Input | 0 | |
| AdsAddr | X | 05 17 1D 52 02 01 ... | AMSADDRESS | 8.0 | 1550.0 | Input | 0 | AdsAddr . Drive_TO_PLC_... |
| Chn0 | | 0x00 (0) | USINT | 1.0 | 1558.0 | Input | 0 | |
| NETWordIN1 | X | 0x0001 (1) | UINT | 2.0 | 39.0 | Output | 0 | NetWordIN1 . PLC_TO_Dr... |
| Network setpoint... | X | 0x0000 (0) | UINT | 2.0 | 41.0 | Output | 0 | vl_Target_Velocity . PLC_... |



| Transition | Protocol | Index | Data | Comment |
|---|---|---|---|---|
| C <PS> | CoE | 0x1C12:00 | 0x00 (0) | clear sm pdos (0x1C12) |
| C <PS> | CoE | 0x1C13:00 | 0x00 (0) | clear sm pdos (0x1C13) |
| C <PS> | CoE | 0x1A05:00 | 0x00 (0) | clear pdo 0x1A05 entries |
| C <PS> | CoE | 0x1A05:01 | 0x400A0110 (1074397456) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:02 | 0x400C0410 (1074529296) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:03 | 0x603F0010 (1614741520) | download pdo 0x1A05 entry |
| C <PS> | CoE | 0x1A05:00 | 0x03 (3) | download pdo 0x1A05 entr... |
| C <PS> | CoE | 0x1605:00 | 0x00 (0) | clear pdo 0x1605 entries |
| C <PS> | CoE | 0x1605:01 | 0x40080110 (1074266384) | download pdo 0x1605 entry |
| C <PS> | CoE | 0x1605:02 | 0x400B0410 (1074463760) | download pdo 0x1605 entry |
| C <PS> | CoE | 0x1605:00 | 0x02 (2) | download pdo 0x1605 entr... |
| C <PS> | CoE | 0x1C12:01 | 0x1605 (5637) | download pdo 0x1C12:01 i... |
| C <PS> | CoE | 0x1C12:00 | 0x01 (1) | download pdo 0x1C12 count |
| C <PS> | CoE | 0x1C13:01 | 0x1A05 (6661) | download pdo 0x1C13:01 i... |
| C <PS> | CoE | 0x1C13:00 | 0x01 (1) | download pdo 0x1C13 count |
| C PS | CoE | 0x2631:25 | 0x01 (1) | Network Enable |
| C PS | CoE | 0x2860:01 | 0x05 (5) | Default Frequency Setpoint |
| C PS | CoE | 0x2631:02 | 0x01 (1) | Running Enable |
| C PS | CoE | 0x400E:01 | 0x01 (1) | NETWordIN1.00 |
| C PS | CoE | 0x400E:02 | 0x31 (49) | NETWordIN1.01 |

## 1.4 Run System

### 1.4.1 Connect to target system.



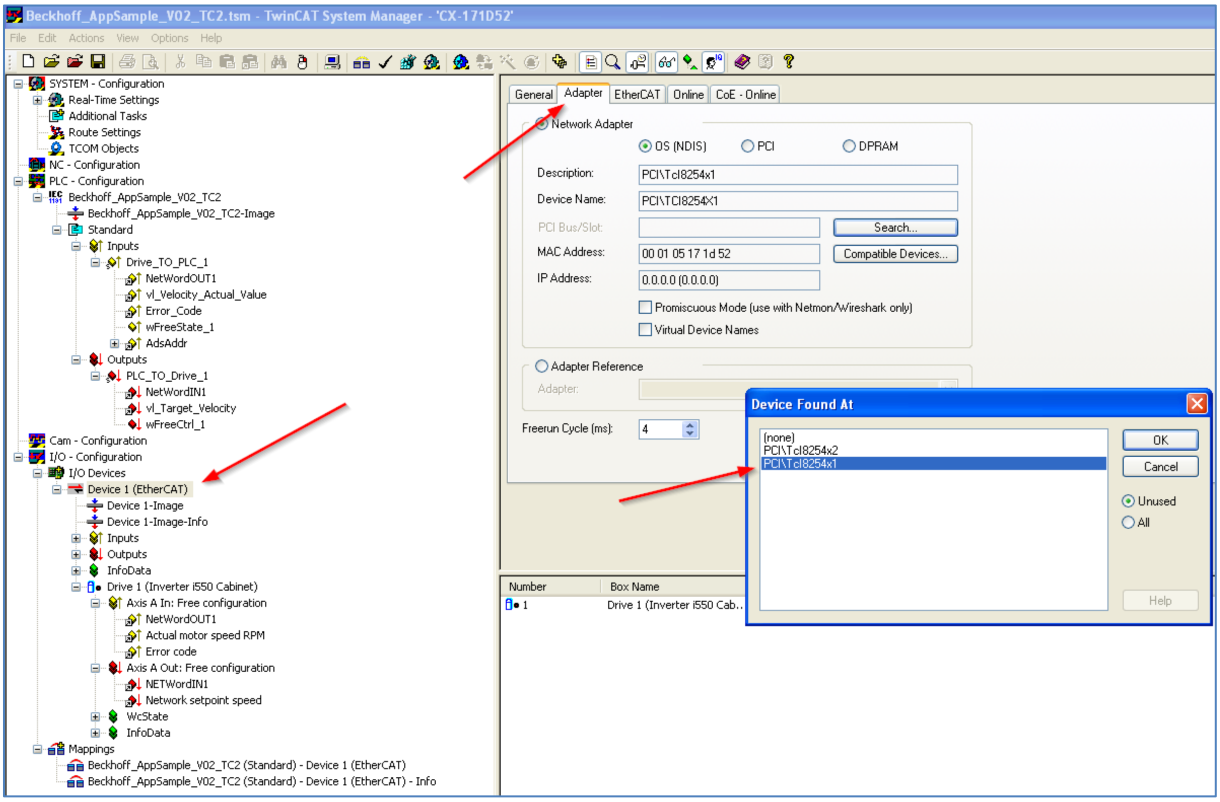
Choose Target System

```
⊟ ---Local---    (192.168.50.138.1.1)
   ⊞ CX-171D52    (5.23.29.82.1.1)
   ⊞ Device 1 (EtherCAT)_TP    (192.168.50.138.2.1)
```

☐ Set as Default

Connection Timeout (s): 5

### 1.4.2 Configure EtherCAT adapter



Beckhoff_AppSample_V02_TC2.tsm - TwinCAT System Manager - 'CX-171D52'

```
⊟ SYSTEM - Configuration
   ⊞ Real-Time Settings
     Additional Tasks
     Route Settings
     TCOM Objects
  NC - Configuration
⊟ PLC - Configuration
   ⊟ Beckhoff_AppSample_V02_TC2
        Beckhoff_AppSample_V02_TC2-Image
      ⊟ Standard
         ⊟ Inputs
            ⊟ Drive_TO_PLC_1
                 NetWordOUT1
                 vl_Velocity_Actual_Value
                 Error_Code
                 wFreeState_1
               ⊞ AdsAddr
         ⊟ Outputs
            ⊟ PLC_TO_Drive_1
                 NetWordIN1
                 vl_Target_Velocity
                 wFreeCtrl_1
  Cam - Configuration
⊟ I/O - Configuration
   ⊟ I/O Devices
      ⊟ Device 1 (EtherCAT)
           Device 1-Image
           Device 1-Image-Info
         ⊞ Inputs
         ⊞ Outputs
         ⊞ InfoData
         ⊟ Drive 1 (Inverter i550 Cabinet)
            ⊟ Axis A In: Free configuration
                 NetWordOUT1
                 Actual motor speed RPM
                 Error code
            ⊟ Axis A Out: Free configuration
                 NETWordIN1
                 Network setpoint speed
            ⊞ WcState
            ⊞ InfoData
   ⊟ Mappings
        Beckhoff_AppSample_V02_TC2 (Standard) - Device 1 (EtherCAT)
        Beckhoff_AppSample_V02_TC2 (Standard) - Device 1 (EtherCAT) - Info
```

● Network Adapter

● OS (NDIS) ○ PCI ○ DPRAM

Description: PCI\Tcl8254x1

Device Name: PCI\TCI8254X1

PCI Bus/Slot:

MAC Address: 00 01 05 17 1d 52

IP Address: 0.0.0.0 (0.0.0.0)

☐ Promiscuous Mode (use with Netmon/Wireshark only)

☐ Virtual Device Names

○ Adapter Reference

Adapter:

Freerun Cycle (ms): 4

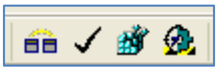
| Number | Box Name |
|---|---|
| 1 | Drive 1 (Inverter i550 Cab... |

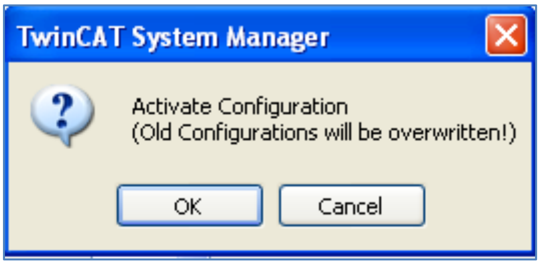
Device Found At

(none)
PCI\Tcl8254x2
PCI\Tcl8254x1

● Unused
○ All

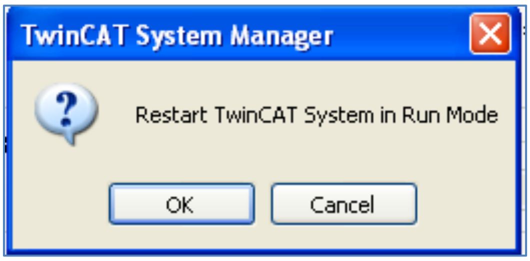
### 1.4.3 Activate configuration and set run mode in System manager





TwinCAT System Manager

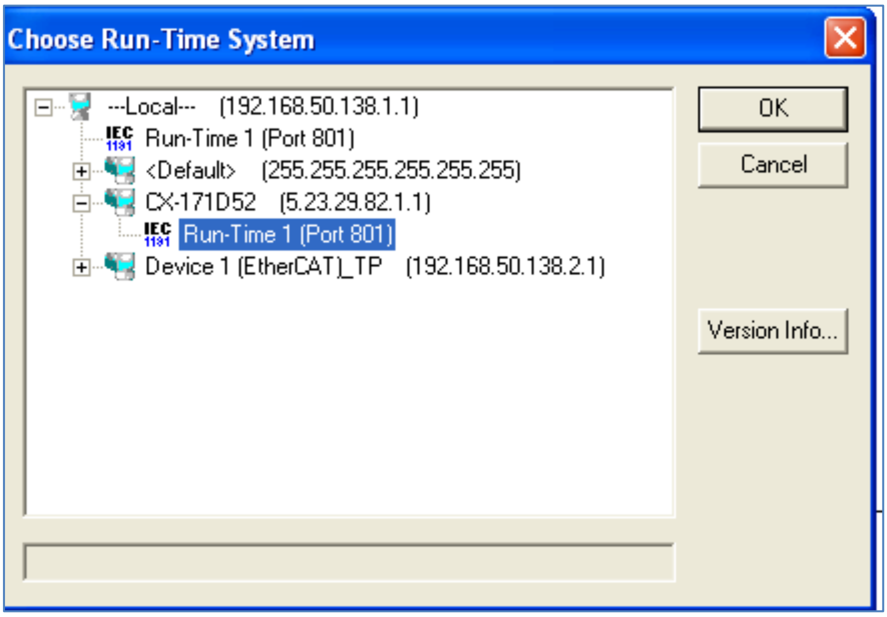
Activate Configuration
(Old Configurations will be overwritten!)

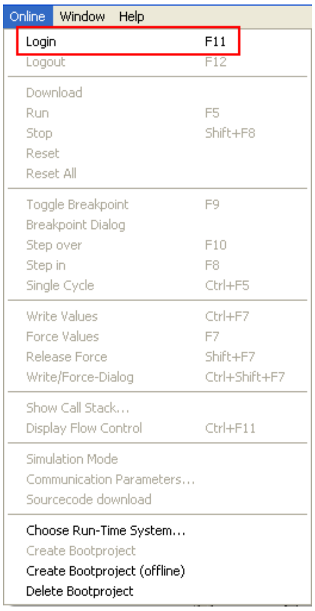


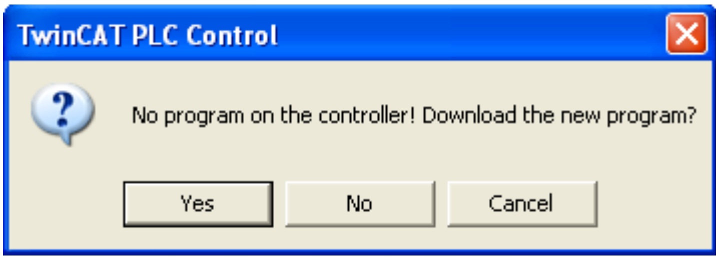
TwinCAT System Manager

Restart TwinCAT System in Run Mode

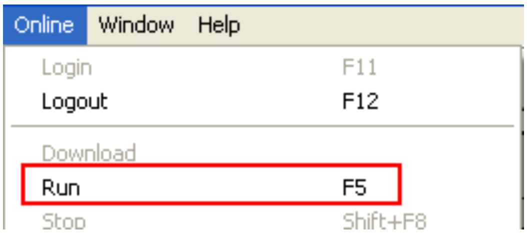
### 1.4.4 Choose runtime system and run project


Choose Run-Time System
---Local--- (192.168.50.138.1.1)
Run-Time 1 (Port 801)
<Default> (255.255.255.255.255.255)
CX-171D52 (5.23.29.82.1.1)
Run-Time 1 (Port 801)
Device 1 (EtherCAT)_TP (192.168.50.138.2.1)
OK
Cancel
Version Info...





No program on the controller! Download the new program?



## 1.5 Additional writing of parameters with PLC

We already saw the possibility to parameterize the system manually with EasyStarter, and also automatically with the StartUp-list.

There is also the possibility to do this with a function within the PLC.
The FB is integrated in the library and is called “LenzeWriteBlockOfCodes_Index”
*(This is rewritten from the original FB for the application sample for 8400 and 9400. And switched from Code level operation to Index.)*

In order to create a list of codes that should be downloaded there is this initialisation function to create a parameter array: “LenzeInitializeBlockOfCodesWr_Index”

This gives you the possibility to write 10 codes at once. If more is necessary you can easily re-create this function from the library.

There is also an example to read or write a single code.