

Description for hipecs pt100 demo project

The hipecs pt100 demo project is a Example for functions available for the modular pt100/pt1000 extension of the hipecs PLC12XX.

Introduction

For this demo application you need a hipecs PLC12XX with the extension card for temperature measurement.

Preparation

No special hardware preparation necessary but an external pt100/pt1000 sensor connected to a measurement channel.

hipecs setup

When using a frenzel + berg Visu-P Panel, you have to use the COM3 (RS422) interface for the SGI connection to the panel. Baudrate is 460.000 Baud. Please check Visu-Panel DIP switches, too.

The "app_hipecsplc_pt100_v1r1_en.prj" file is the CoDeSys PLC program for this example. The communication parameters are COM15 and 57600 Baud. **This must be changed to your demands!**

Adding the modular PT100/PT1000 extension card to your PLC configuration

The PT100/PT1000 extension is a modular PCB for the hipecs PLC1000 series. It is connected to the PLC system via the internal CANopen bus. Therefore it must be configured by the user in order to activate the card. If you use the demo project it is only necessary to do step 1 (adding the eds-file), since the rest is already done by the project.

Only a few steps are necessary to configure the card.

1.: *Add the eds file to your configuration files*

Copy the "hipecs_CIO_PLCP01.eds" file into the CoDeSys "PLCconf" directory. Depending on your CoDeSys installation the path should be: "C:\programs\3S Software\CoDeSys V2.3\Library\PLCConf".

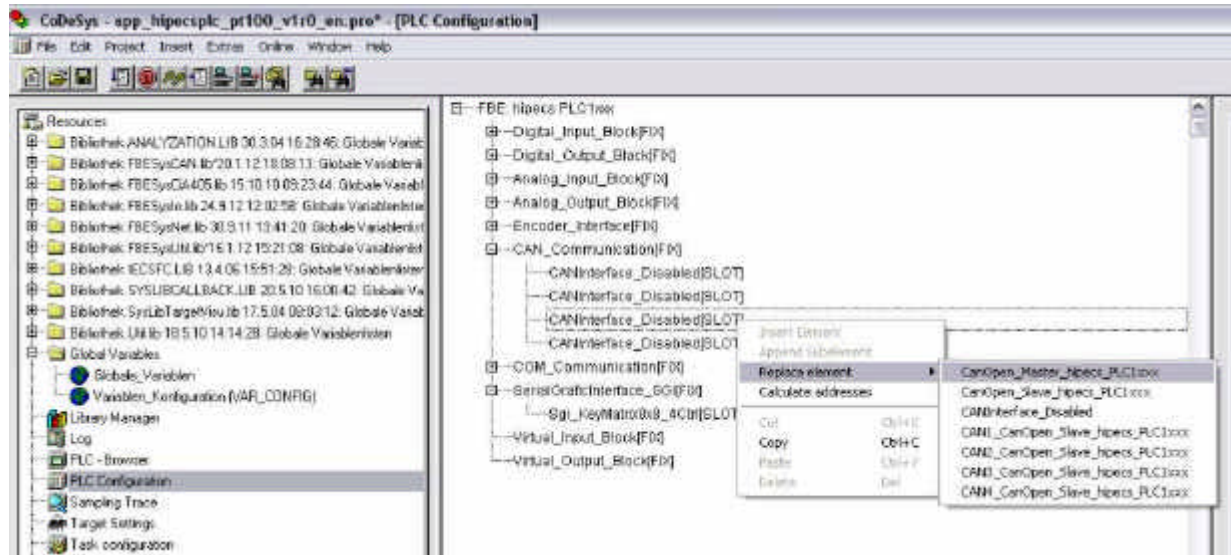
The .eds-file is available on the frenzel + berg electronic homepage under:
http://www.frenzel-berg.com/support/eds_files.html " and is called hipecs CIO + PLC"

Now the CoDeSys demo project should work. If you decide to start a new project, the following steps are required to activate the temperature extension

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2.: Activate the internal CANopen-Master of the hipecs PLC

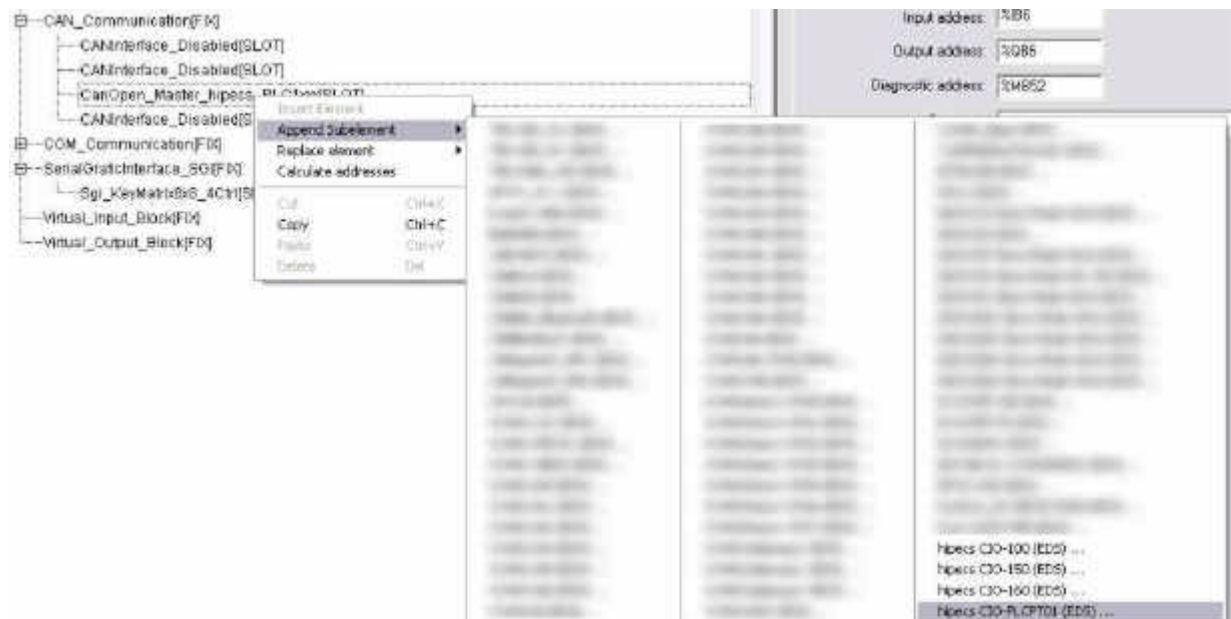
This can be done in "PLC configuration" in CoDeSys. Right click on "CANInterface_Disabled" and choose "CANopen_Master_hipecs_PLC1000"



Attention! Make sure to select the **THIRD** interface which is the internal onboard CAN.

3.: Append the temperature measurement sub element

The element is called "hipecs CIO-PLCPT01". (right click on "CanInterface_Master...")



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4.: Set parameters for CANopen Master.

The following parameters must be set:

- baud rate: 500 kBit/sec
- Support DSP301: checked

The screenshot shows a software interface for configuring a CANopen Master. It has three tabs: 'Base parameters', 'CAN parameters', and 'Module parameters'. The 'CAN parameters' tab is active. The parameters are as follows:

Parameter	Value	Notes
baud rate:	500000	Selected from a dropdown menu
Com. Cycle Period (µsec):	0	Text input field
Sync. Window Length (µsec):	0	Text input field
Sync. COB-ID:	128	Text input field
activate:	<input checked="" type="checkbox"/>	Checkbox
Node-Id:	1	Text input field
Automatic startup	<input checked="" type="checkbox"/>	Checkbox
Support DSP301, V4.01 and DSP306	<input checked="" type="checkbox"/>	Checkbox
Heartbeat Master (ms):	0	Text input field

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5.: Set parameters for CAN node.

The following parameters must be set:

- Node ID: 2
- Nodeguarding or heartbeat are optional but must never be activated at the same time!

Base parameters | CAN parameters | Receive PDO-Mapping | Send PDO-Mapping | Service Data Objects

General

Node ID:

Write DCF: ☐ Create all SDO's ☐

Reset Node: ☐

Node guard

☒ Nodeguarding

Guard COB-ID:

Guard time (ms):

Life time factor:

Heartbeat settings

☐ Activate heartbeat generation

Heartbeat producer time: ms

☐ Activate heartbeat consumer

Emergency telegram

☒ Emergency

COB-ID:

Communication Cycle

☐ Cycle

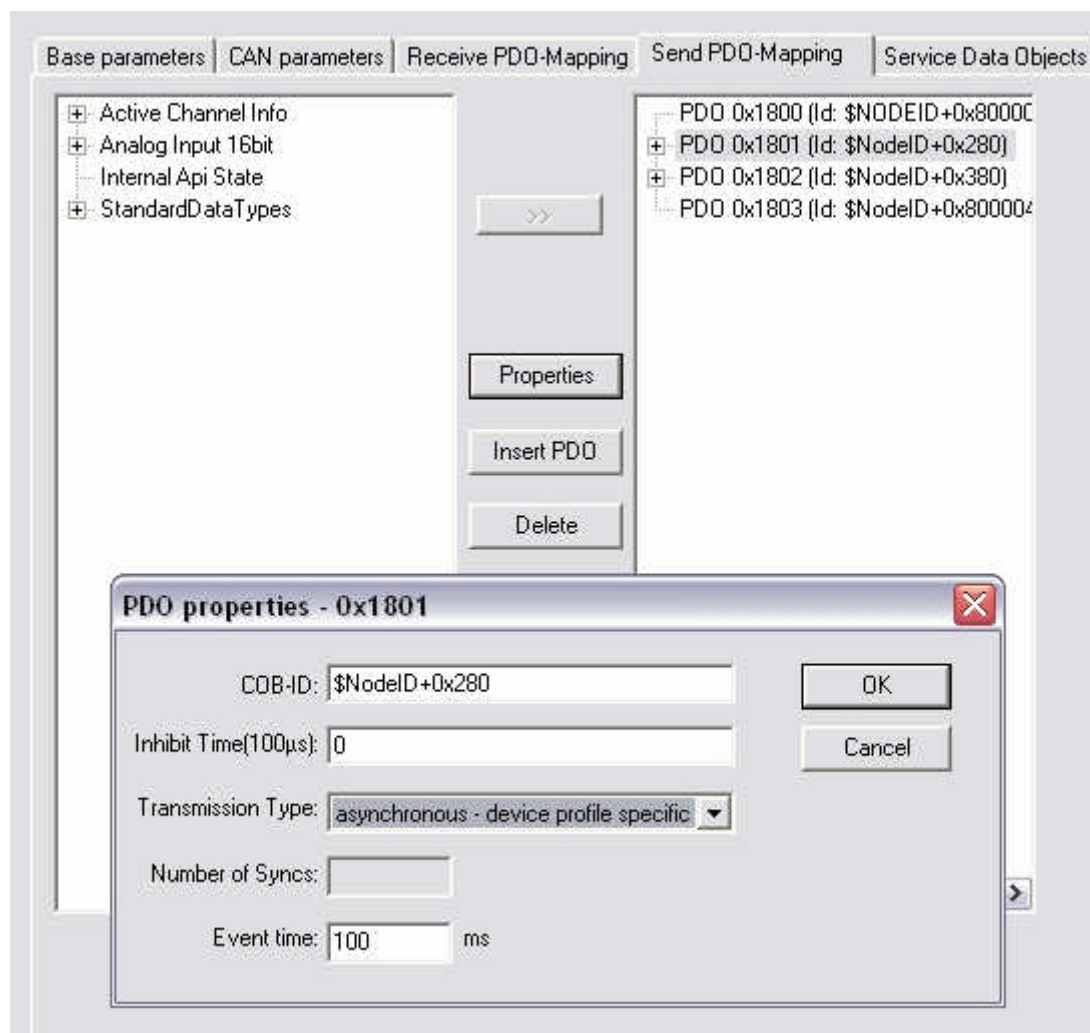
Period (µsec):

Info...

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6.: Set PDO parameters of the CAN node.

The PDOs 0x1801 and 0x1802 must be activated in order to receive the temperature values of the extension module. Therefore choose the section "Send PDO-Mapping", mark the PDO and click on "Properties". A window will open and then you can set the time interval (Event Time), the card sends it values.



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Starting and using the demo project

It is possible to use a target visualisation with VISU-panel or the CoDeSys Visualization to operate the demo application. In the "PLC_VISU" visualization, there are several pink areas. These areas show the sensor values and additional values.

The different CoDeSys POU's and functions

PLC_PRG

The only action for the PLC_PRG is to call the POU's.

PRG_OutPattern

This POU generates a running light at the digital outputs to indicate, that the PLC is running.

PRG_CAN_ReadInfo

In this POU the main application is running and handles the data of the temperature measurement.

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Visu

hipecs PLC-PT1

INIT

2101.00 : ApiConfig

0

Active Channels

0

1

2

3

4

5

Temp. 0

0

Temp. 1

0

Temp. 2

0

Temp. 3

0

Temp. 4

0

Temp. 5

0

Restart Node

Button	Function
Restart Node	Send a NMT Command to the node and restarts it.