



AC DRIVES

AC30 Series

Application Note CANOpen with PAC120

05.04.2025



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Non-warranty clause

We checked the contents of this publication for compliance with the associated hardware and software. We can, however, not exclude discrepancies and do therefore not accept any liability for the exact compliance. The information in this publication is regularly checked, necessary corrections will be part of the subsequent publications.

English Master created.

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1 Introduction

1.1 About this document

1.1.1 Definitions

In this documentation the product Variable Frequency Drive AC30 is referred to as A30.

1.1.2 Terms and abbreviations

AC30	AC30 general purpose drive
PAC120	Parker Automation Controller
RTC	Real Time Clock –
Application	A customer specific use of Parker hardware and software

1.1.3 This revision

This revision replaces all previous revisions of this document. Parker has made every effort to ensure that this document is complete and accurate at the time of printing. In accordance with our policy of continuous product improvement, all data in this document is subject to change or correction without prior notice.

1.1.4 Scope

This document shows how to setup an AC30 drive with the CANopen communication to the PAC120 Parker Automation Controller.

The aim of this application note is to demonstrate the correct way, how to use the CANopen communication between an AC30 Drive and the PAC120.

The example shows the way of defining and using free programmable values in the process data communication via the CAN Bus between the 2 devices.

Please note: **The application is based in the CODESYS environment.**

The PAC120 is programmed with CODESYS V3.5 SP20 Patch1

The AC30 uses the PDQ programming tool V 3.12.66.1

Before continuing with this application note, ensure the Start-up and Commissioning section from the AC30 Hardware manual has been completed and is fully understood.

Also, the complete installation and knowledge of CODESYS and PDQ-package is mandatory!

1.1.5 Related Documents

For more information about the AC Drive and PAC120, see the following related documents.

Reference number	Document	Description
1	HA501718U001-8-AC30-manual	AC30 Product manual
2	HA503711U001_AC30_Hardware_Installation_Manual_Frames_D-J	AC30 Hardware manual Frames D-J
3	HA503711U002_AC30_Hardware_Installation_Manual_Frames_K-N	AC30 Hardware manual Frames K-N
4	HA503711U003_AC30_Software_Reference	AC30 Software Reference
5	PAC120-5715-719UK	PAC120 User manual
6	HA501841U001	AC30 CANopen Technical manual

Table 1 References

2 Test components

2.1 AC30 V Controller Board with CANopen Option board



Firmware version 1.19.4

2.2 PAC120



PAC120_MXS01_3X_XX_XX

The application is programmed with CODESYS V3.5 SP20 Patch1 and PDQ Package Version: 3.12.66.1 for CoDeSys V3.5 SP6 onwards

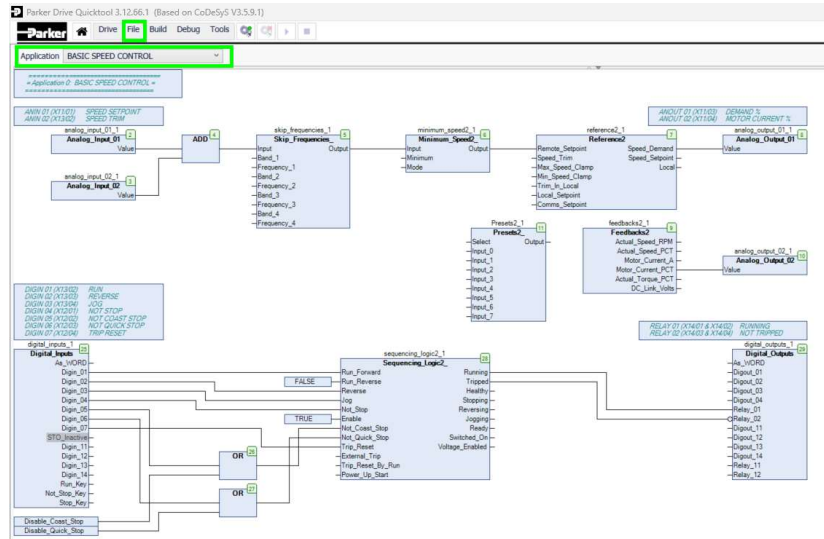
The basic functions are coming from the standard template:
App_0_Basic_Speed_Control

2.3 Mandatory connections

1. Connect PAC120 and AC30 to 24V control voltage
2. Connect AC30 CAN Bus connector to PAC120 CAN Bus connector
3. Connect AC30 Ethernet to PC PDQ Tool
4. Connect PAC120 X2 LAN Ethernet to PC CODESYS Tool

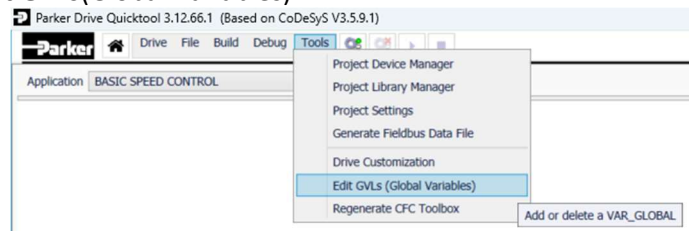
3 AC30 commissioning with PDQ

3.1. Open New Project “BASIC SPEED CONTROL”

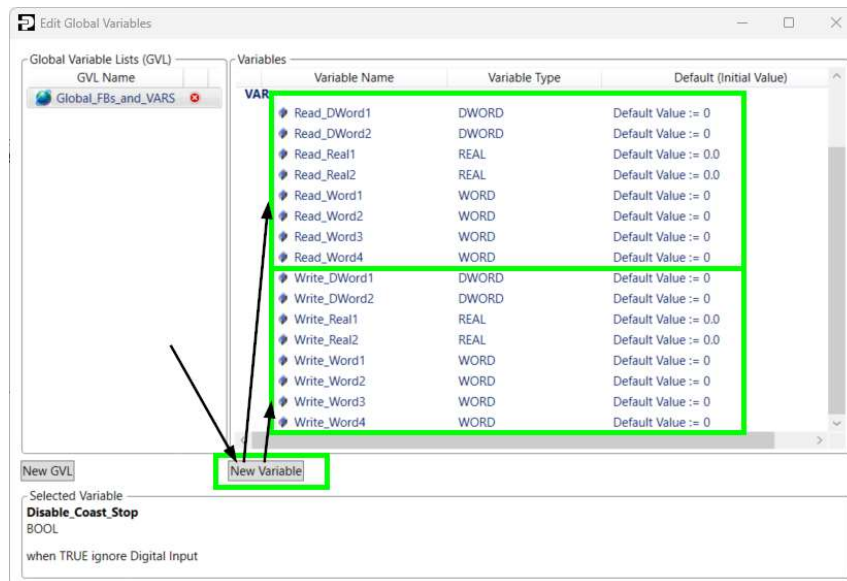


3.2. Define the Global Variables

Go to Tools → Edit GVLs (Global Variables)

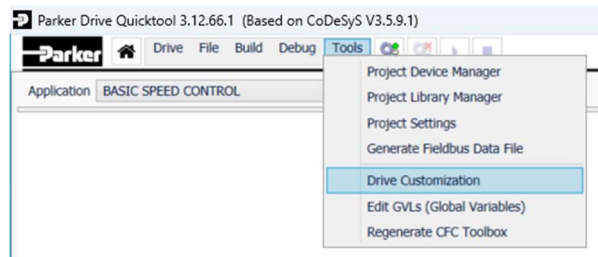


Create with “New Variable” the “Variable names” for Read and Write with the right “Variable Type”

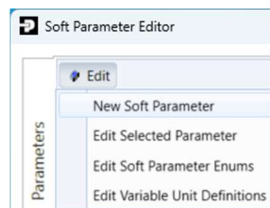


3.3. Assign Global Variables to Drive Customization Variables

Go to Tools → Drive Customization

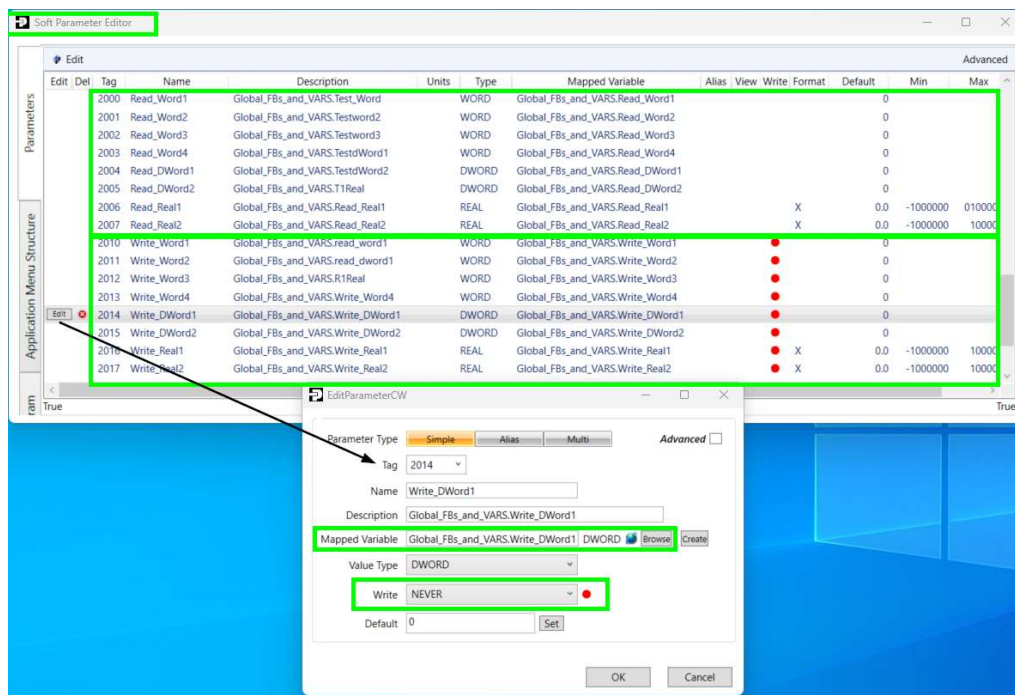


Create the customized variable with Edit → New Soft parameter



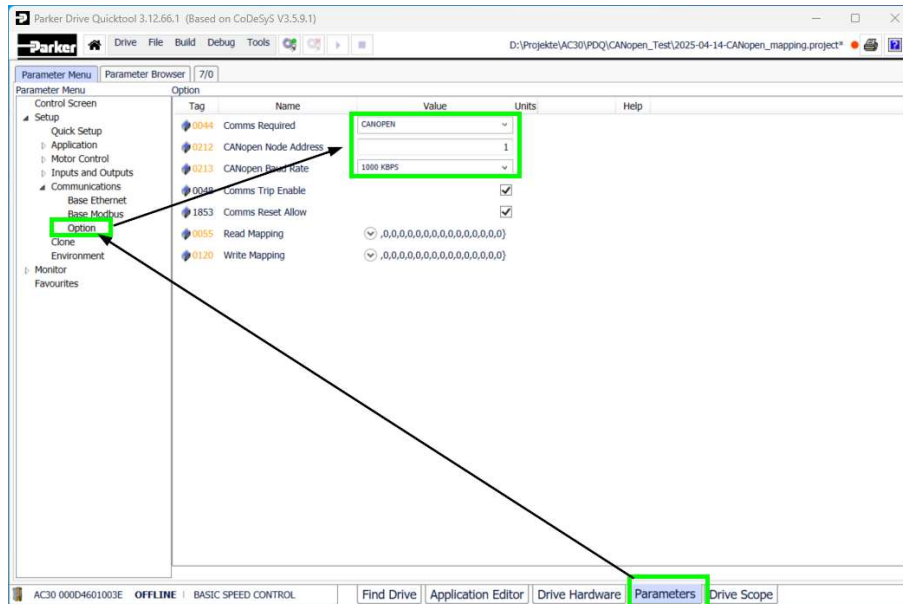
Create all parameters and connect them with “Browse” corresponding to the GVL list.

Important Note: The Parameters for the “Write Mapping” send to PLC must be defined as “NEVER” in the Write definition section!!!

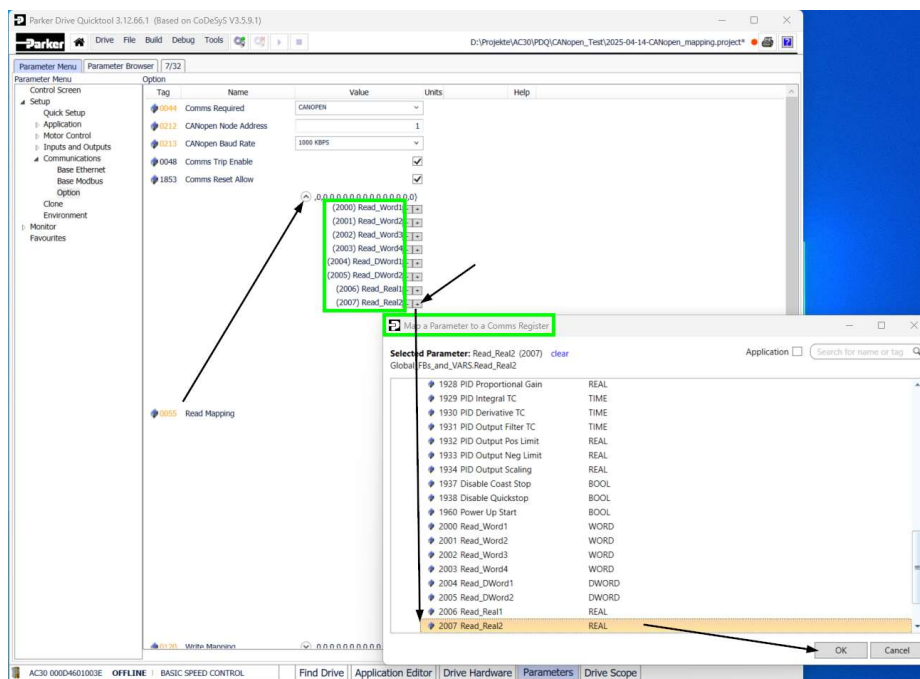


3.4. Define the AC30 CANopen Commissioning

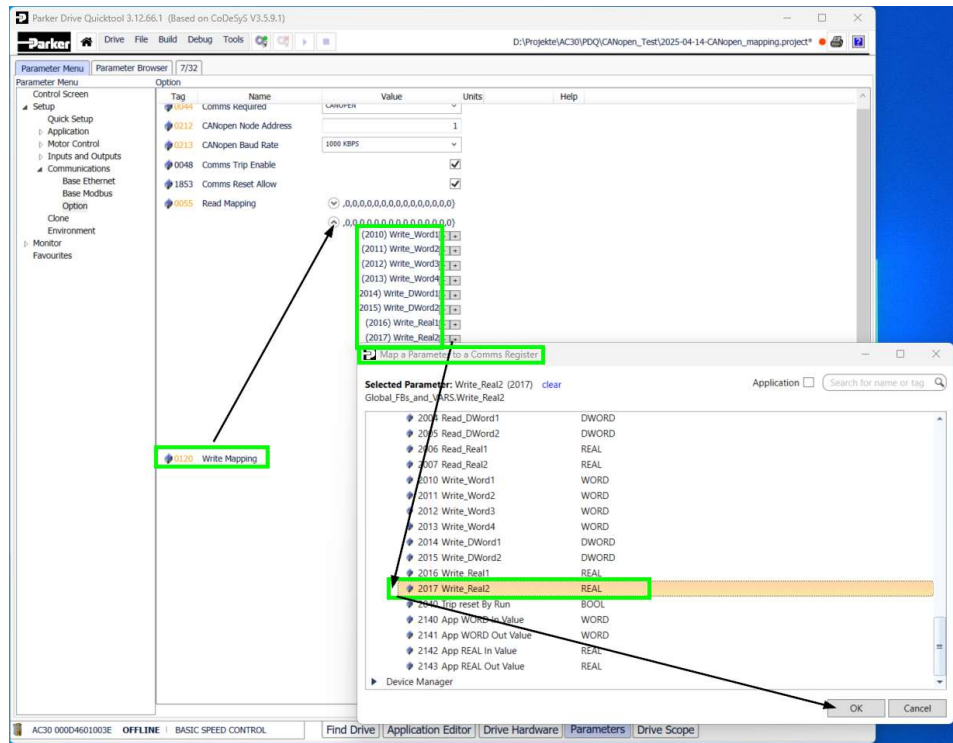
3.4.1. Define the CANopen Basic Parameter



3.4.2. Define the CANopen Read Mapping

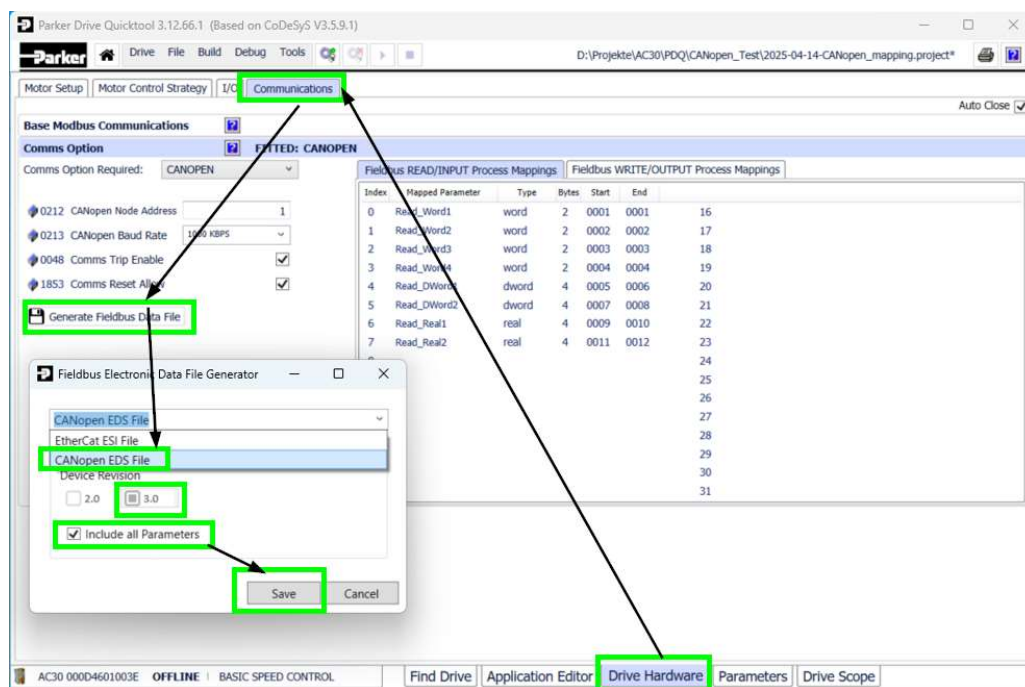


3.4.3. Define the CANopen Write Mapping



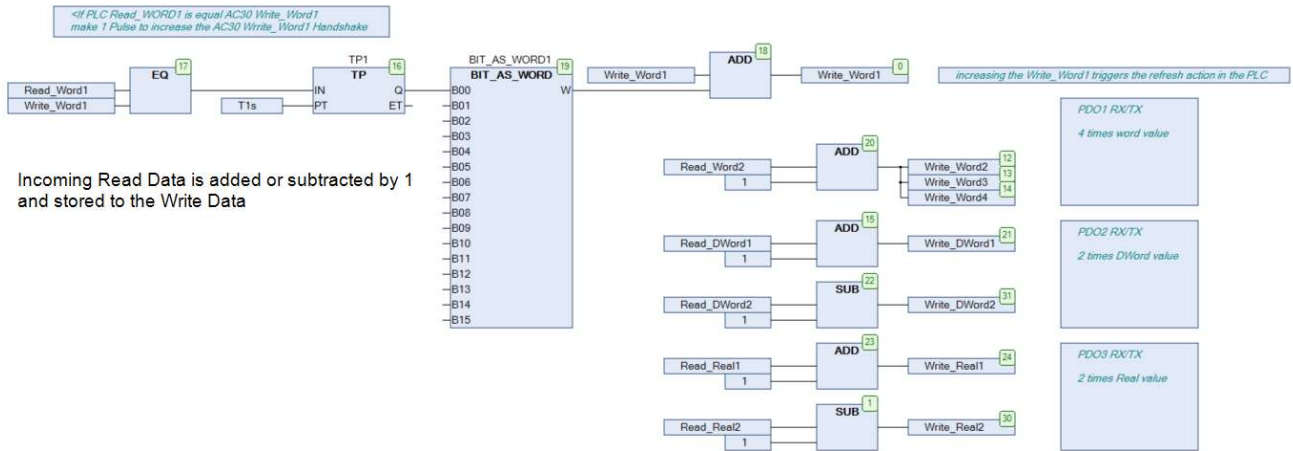
3.5. Create the AC30 customized CANopen EDS file

Go to Drive Hardware → Communications → Generate Fieldbus Data File → CANopen EDS file



Save the File to your computer. See chapter 4.2. for reuse.

3.6. Program the Data exchange in the PDQ Application

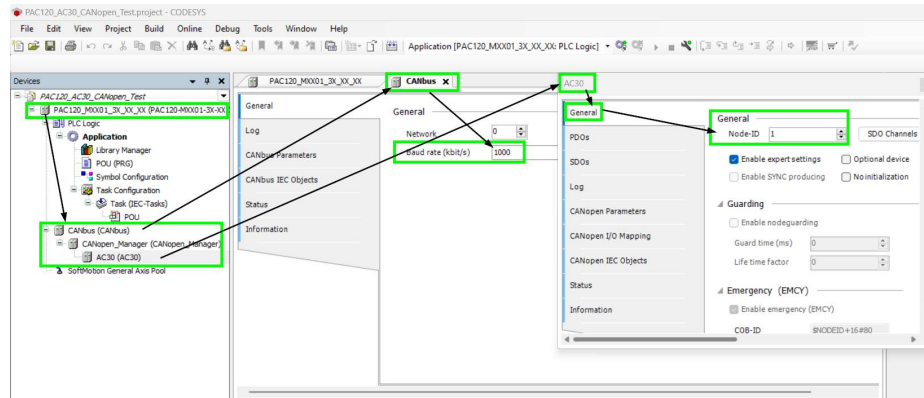


4 PAC120 commissioning with CODESYS

4.1. Create project

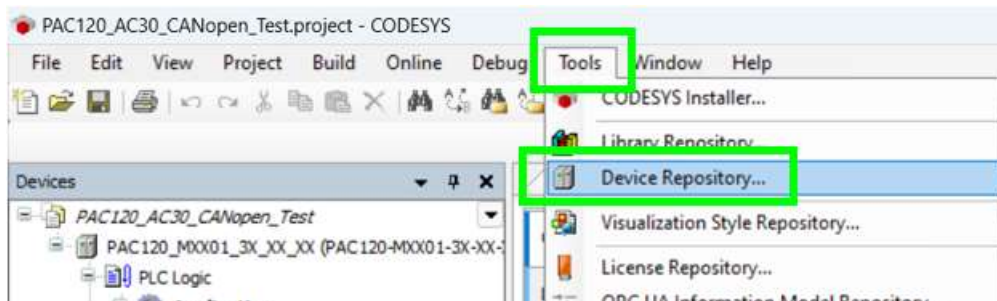
Create the PAC120 application with the CANbus → CANopen Manager and add the AC30 Device

- Define the Baud rate in the **Canbus General**
- Define the Node-ID in the **AC30 General** setup

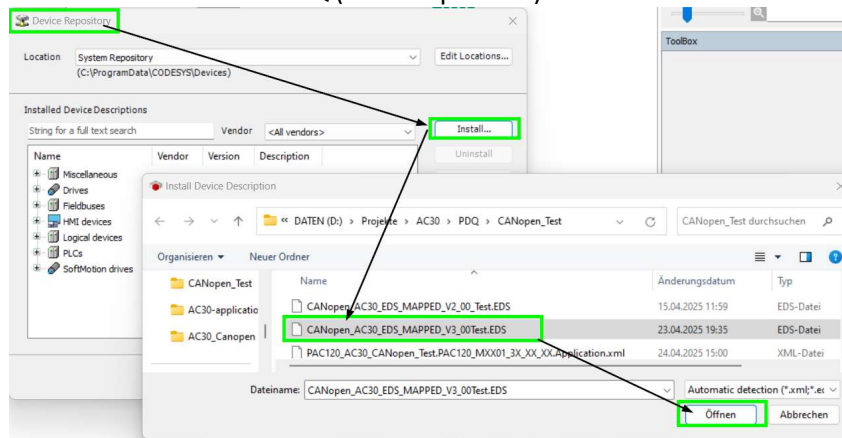


4.2. Install the AC30 device description

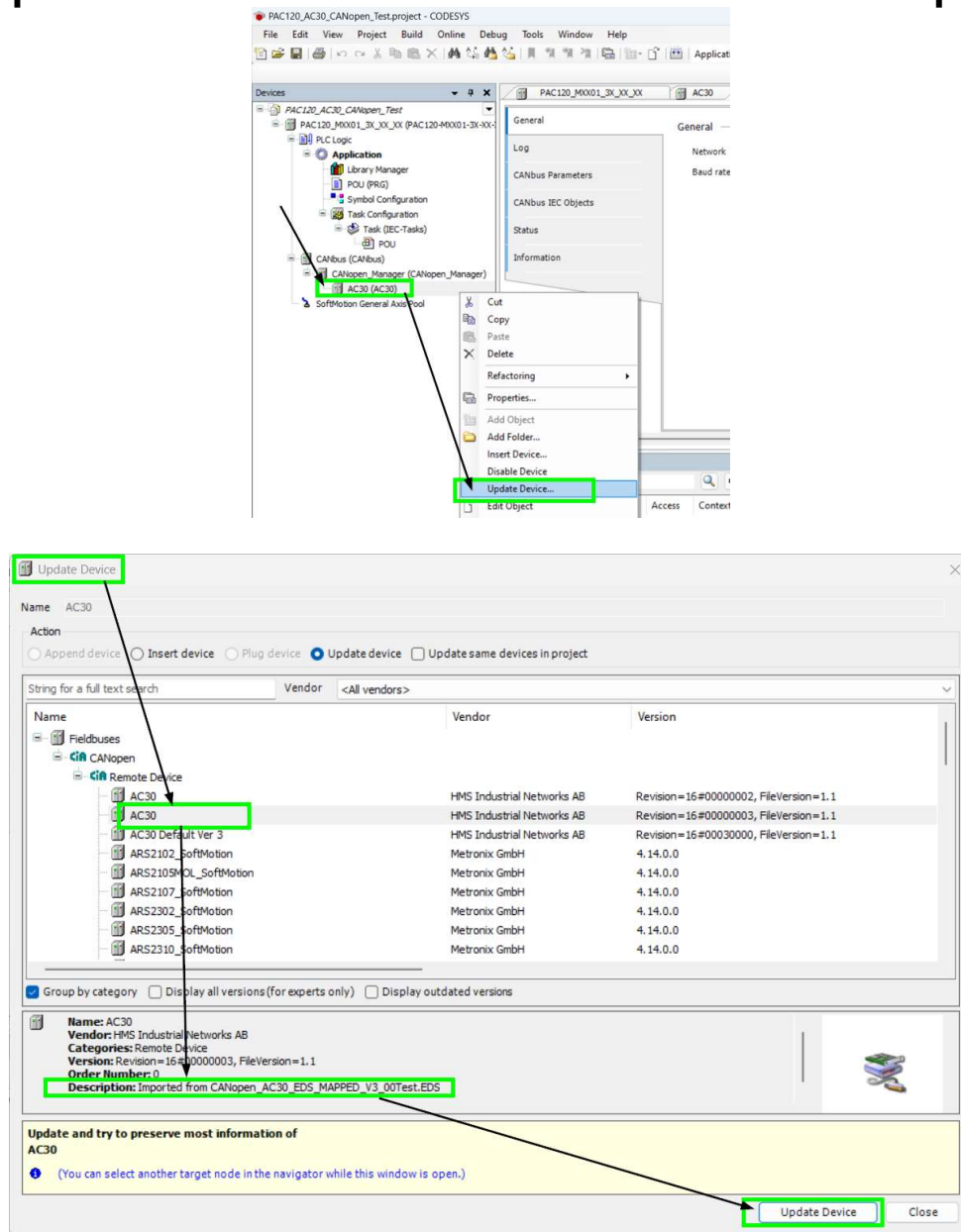
Go to Tools → Device Repository



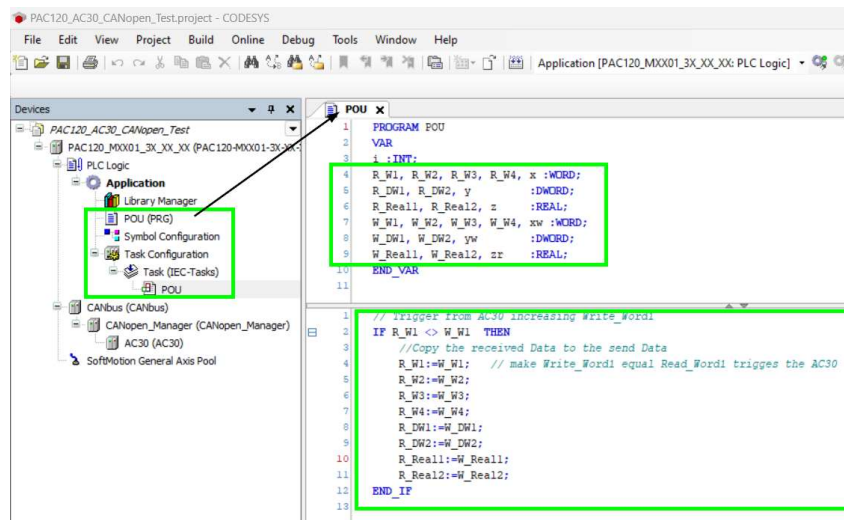
Install the EDS file saved from the PDQ (see chapter 3.5)



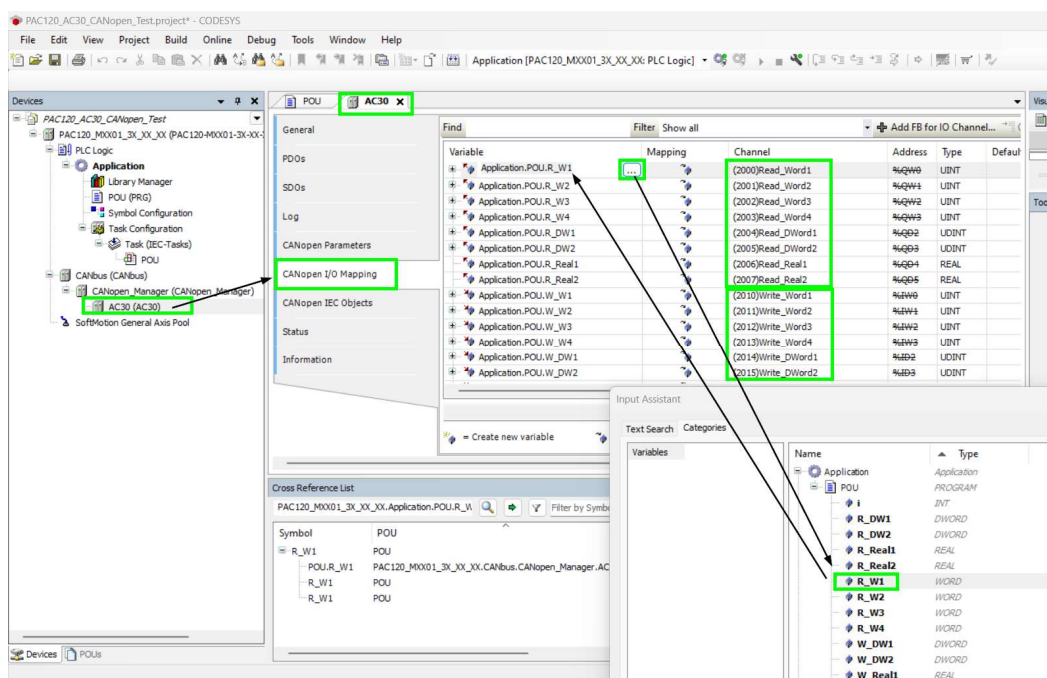
4.3. Update AC30 device with the new device description



4.4. Create a short program copying the data

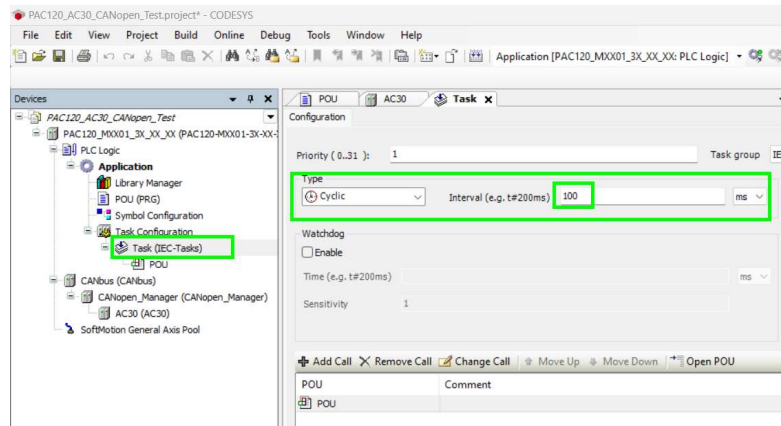


4.5. Assign the program data to the CANopen mapping data

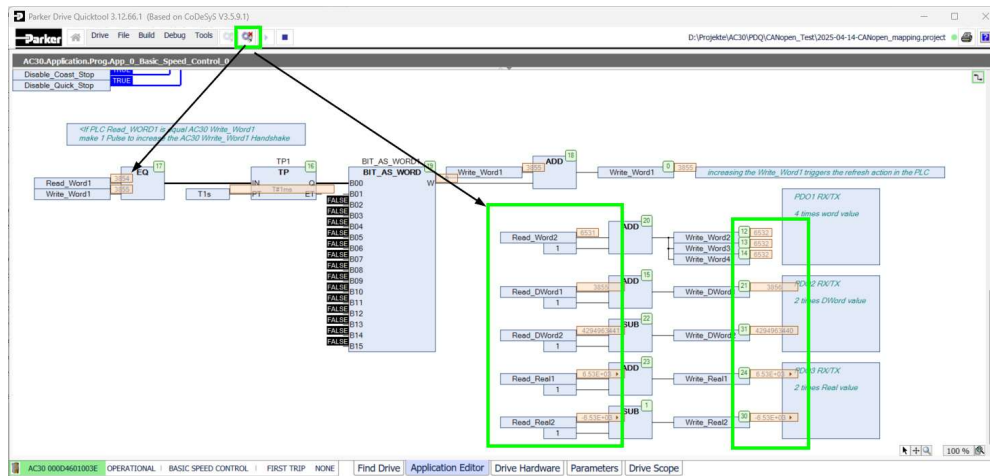
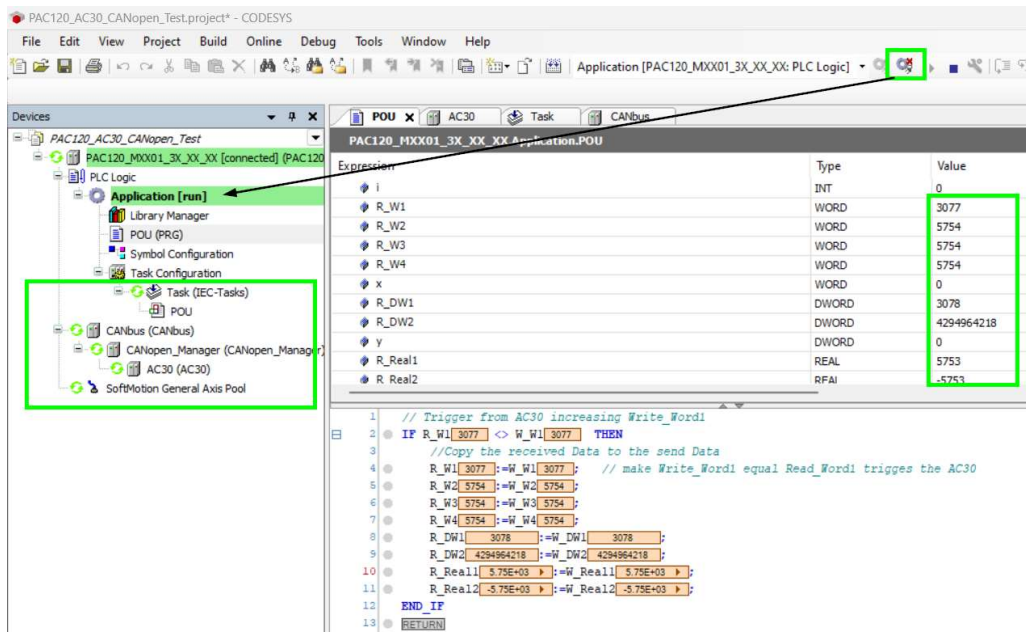


4.6. Set the POU cycle time to 100ms

The counter update rate in the application is then increment by 10 every second.



5 Run the application on CODESYS and PDQ



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