

Automation for a Changing World

AX-864E Package Installation User Manual

Copyright notice

©Delta Electronics, Inc. All rights reserved.

All information contained in this user manual is the exclusive property of Delta Electronics Inc. (hereinafter referred to as "Delta ") and is protected by copyright law and all other laws. Delta retains the exclusive rights of this user manual in accordance with the copyright law and all other laws. No parts in this manual may be reproduced, transmitted, transcribed, translated or used in any other ways without the prior consent of Delta.

Limitation of Liability

The contents of this user manual are only for the use of the DIA 選擇 or manufactured by Delta. Except as defined in special mandatory laws, Delta provides this user manual “as is” and does not offer any kind of warranty through this user manual for using the product, either express or implied, including but not limited to the following:

- (i) this product will meet your needs or expectations;
- (ii) the information contained in the product is current and correct;
- (iii) the product does not infringe any rights of any other person. You shall bear your own risk to use this product.

In no event shall Delta, its subsidiaries, affiliates, managers, employees, agents, partners and licensors be liable for any direct, indirect, incidental, special, derivative or consequential damages (including but not limited to the damages for loss of profits, goodwill, use or other intangible losses) unless the laws contains special mandatory provisions to the contrary.

Delta reserves the right to make changes to the user manual and the products described in the user manual without prior notice and afterwar

Table of Content

Chapter 1: Package Installation	3
1.1 Overview	3
1.2 Software and Package Download	3
1.3 Package Installation	3
1.4 Open AX8 Series Configuration	6
1.5 AX8 Series Parameter	8
Chapter 2: CODESYS variables share to DIAScreen	14
2.1 Overview	14
2.2 Export Variable in Codesys.....	14
2.3 DIAScreen with PAC AX-8 Series.....	18
2.4 DIAScreen with PAC AX-8 Series.....	22

Chapter 1: Package Installation

1.1 Overview

This document describes how to install the AX-8xxEP0 Series_1.0.0.0 package in the CODESYS V3.5 SP14 software. After the installation, the device related configuration will build-in CODESYS software and user can use the IEC program, configuration, and functions to implement the project.

1.2 Software and Package Download

Please download the Codesys software as below link.


- Codesys standard software
<http://www.deltaww.com/services/DownloadCenter2.aspx?seclD=8&pid=2&tid=0&CID=06&itemID=060210&typeID=1&downloadID=&title=&dataType=8;3;&check=1&lang=en-US>
- Package: AX-8xxEP0 Series_1.0.0.0



1.3 Package Installation

Please install the Codesys software first and follow the below step to install package.

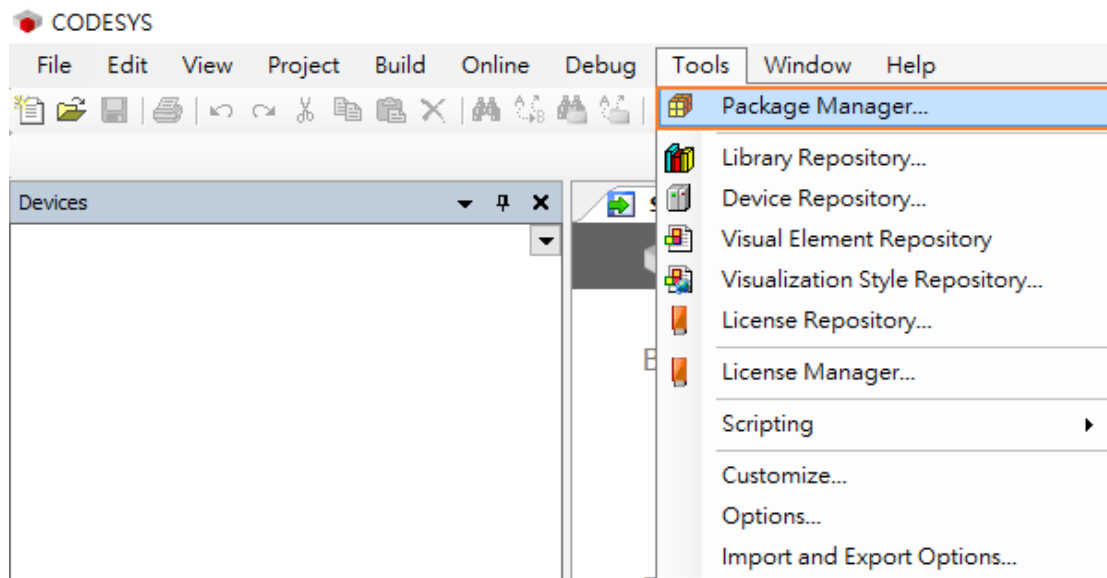
1. Download the Package in Delta download center

 AX-8xxEP0 Series_1.0.0.0.package

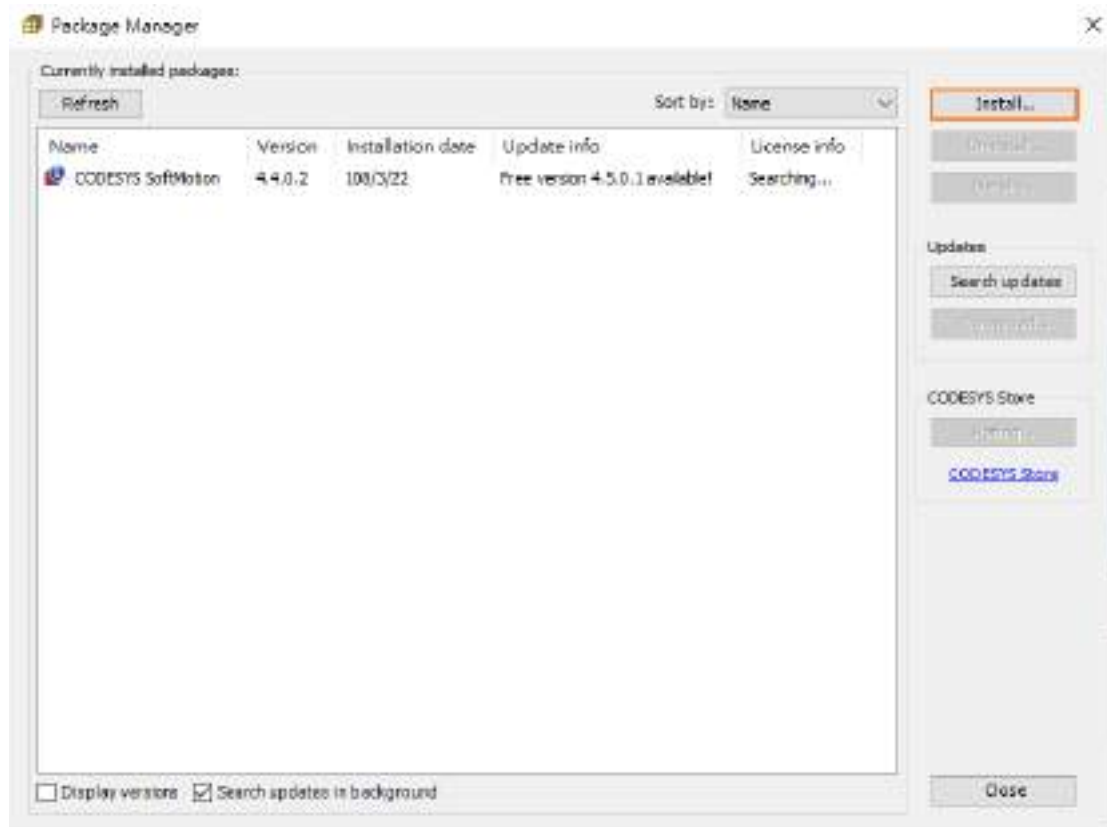
2. Open the Codesys Development Software



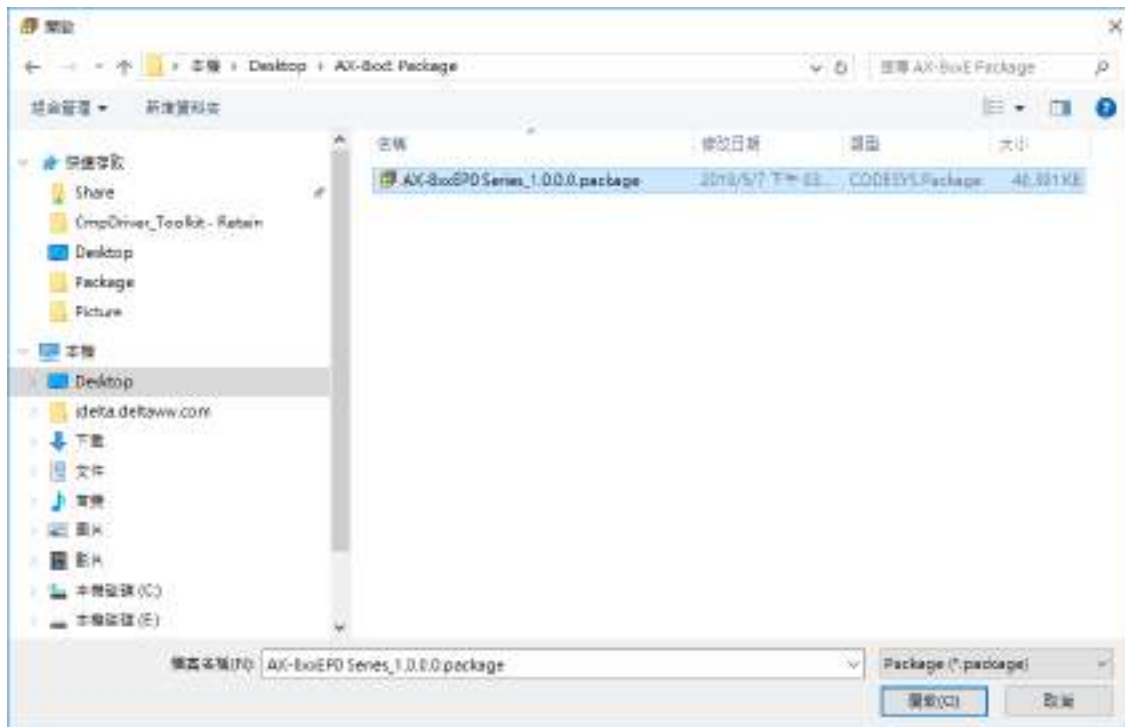
3. Click "Tools" → "Package Manager"



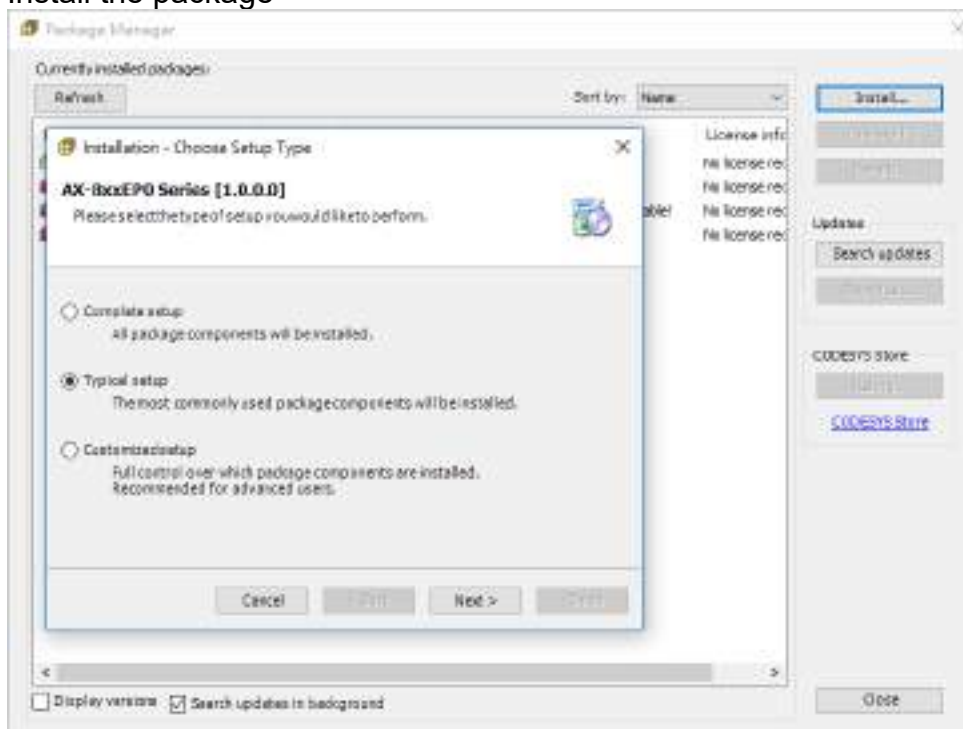
4. Click "Install"



5. Select the Package - AX-8xxEP0 Series_1.0.0.0



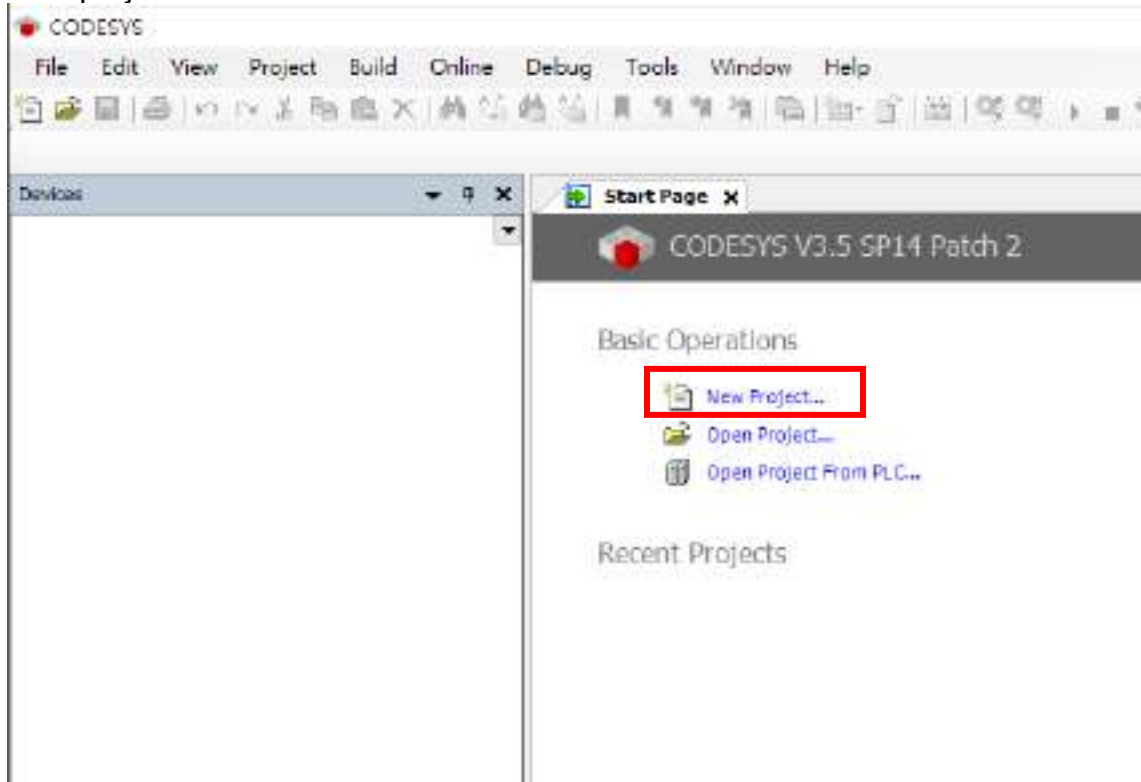
6. Install the package



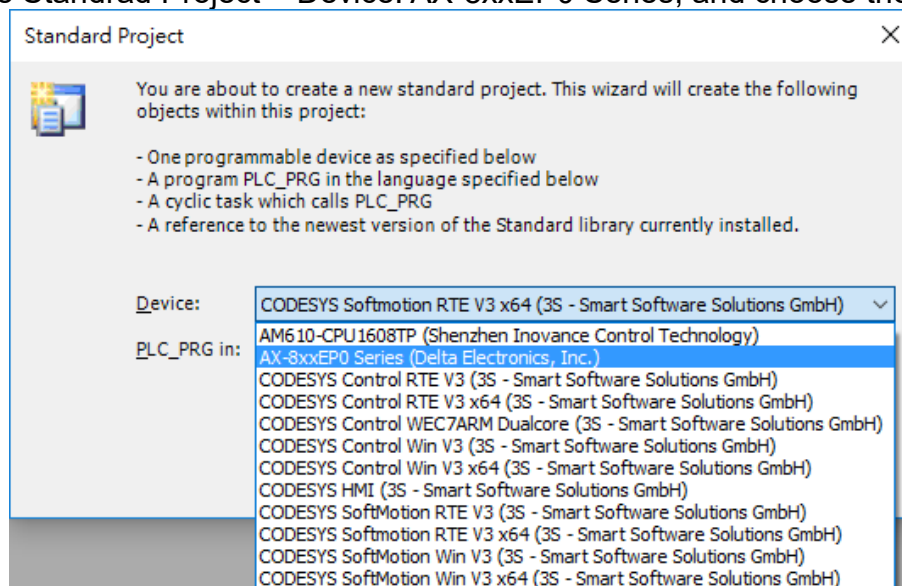
1.4 Open AX-8 Series Configuration

After the package installation, user can follow the below steps to create the AX8 series project and config the related program, function, and configuration.

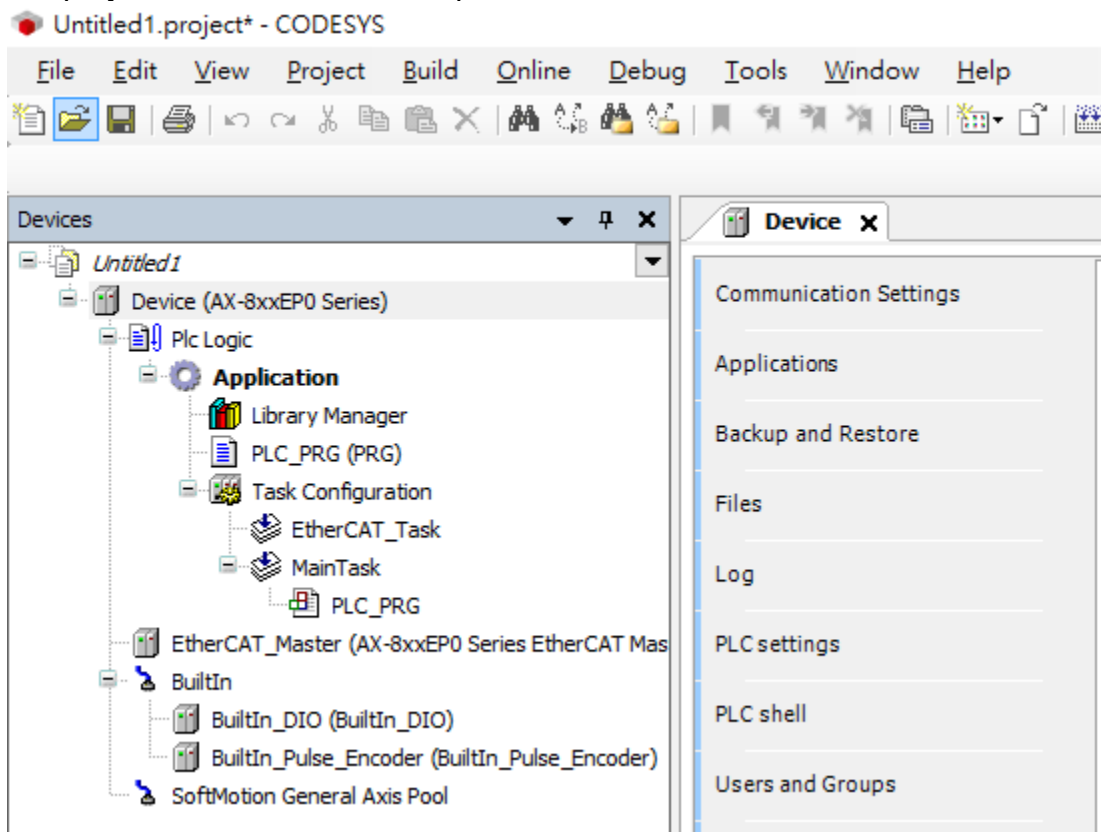
1. New project



2. Choose Standard Project > Device: AX-8xxEP0 Series, and choose the PLC_PRG.



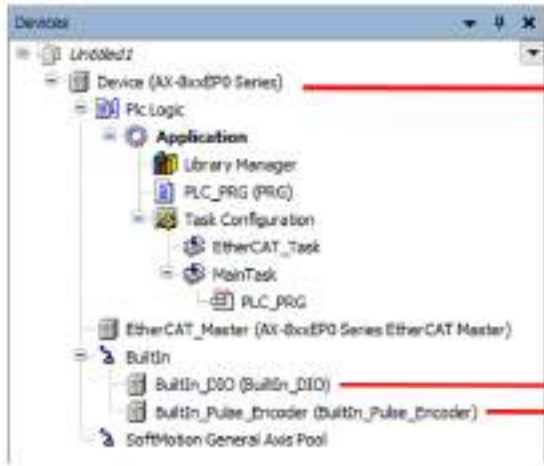
3. The project will create ad below picture.



1.5 AX-8 Series Parameter

AX-8 Controller parameter setting in Codesys software.

1. Open project



AX-8xxE Operating Parameter Setting

BuiltIn_DIO Setting

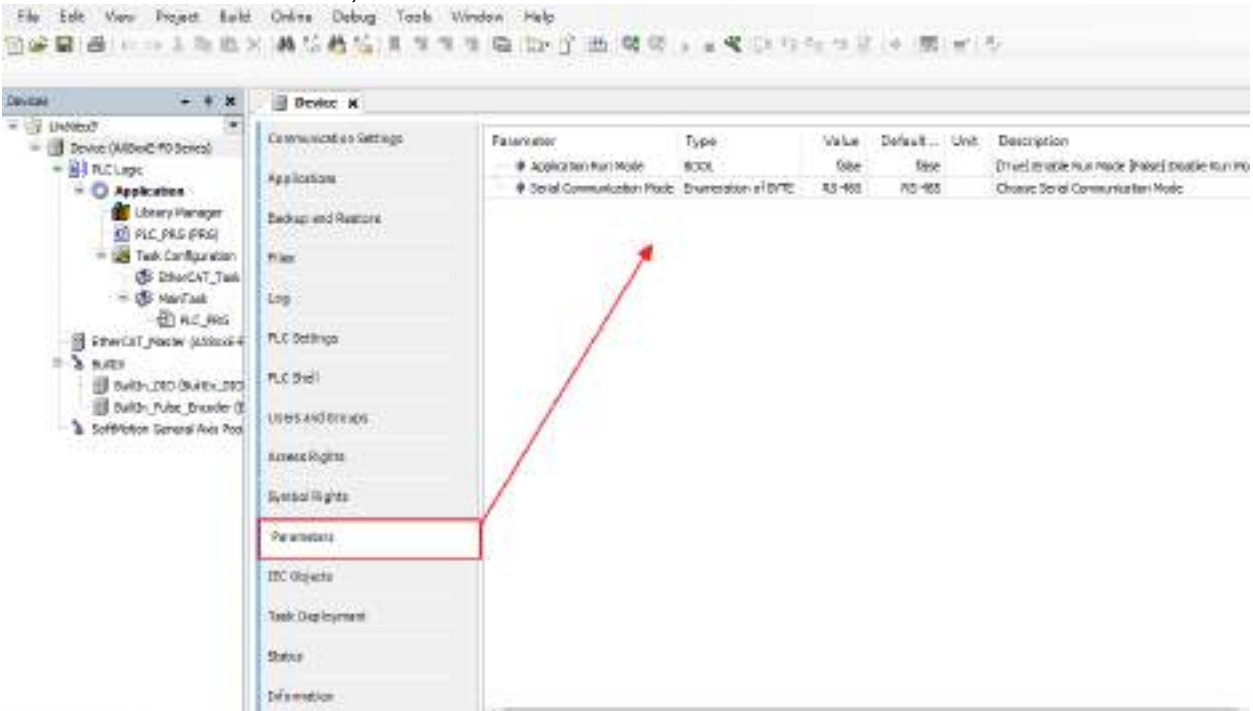
- DI/DO Parameter Setting
- DI/DO Mapping

BuiltIn_Pulse_Encoder Setting

- Pulse_Encoder Parameter Setting
- Pulse_Encoder Mapping

4. Application Run Mode : Set RTE and PLC “Run” status when controller active

- Setting Value : True, False
- Default Value : False
- Offline can change the setting
- After Download, the status will run.



Parameter	Type	Value	Default...	Unit	Description
Application Run Mode	BOOL	False	False	None	(True) enable run mode (False) disable run mo
Serial Communication Mode	Enumeration of BYTE	R3-160	R3-160	None	Choose Serial Communication Mode

5. Serial Communication Mode :

- Setting Value : RS-485, RS-422, SSI
- Default Value : RS-485
- Offline can change the setting
- After Download, the status will run.
- Windows device administrator default comport : COM3

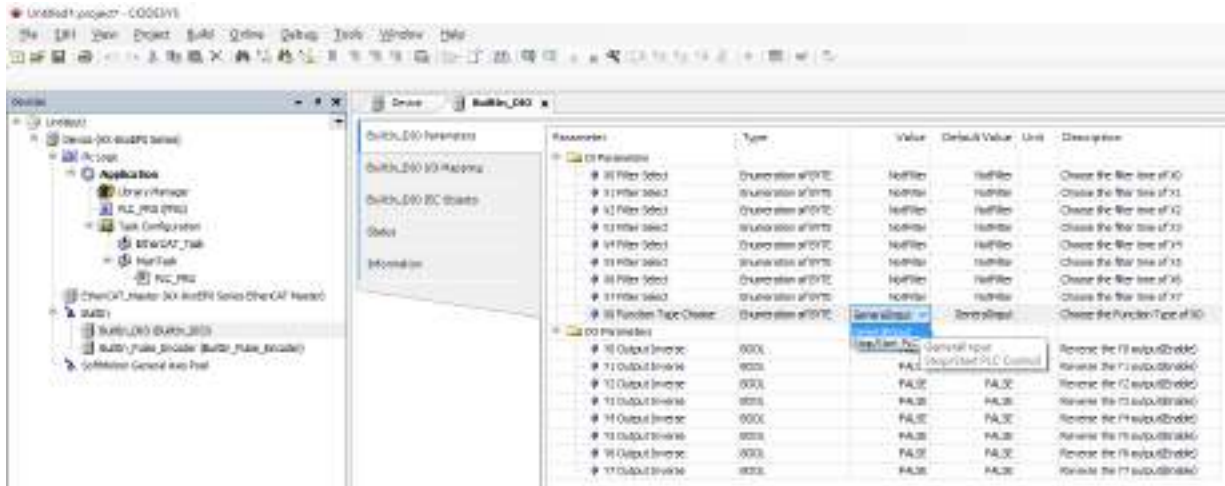
Parameter	Type	Value	Default Value	Unit	Description
Application Run Mode	BOOL				[True] Enable Run Mode [False] Double Run Mode
Serial Communication Mode	Enumeration of BYTE	RS-485	RS-485		Choose Serial Communication Mode

6. BuiltIn_DIO Parameter:

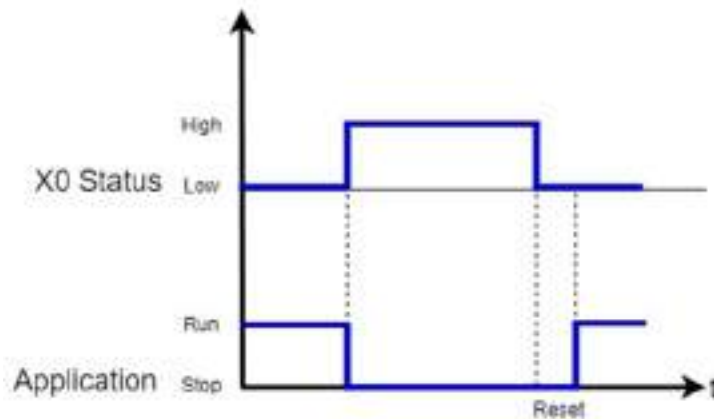
- DI Filter Select : Set X0~X7 input filter time
 - ◆ Setting Value : Not Filter 、 0.1ms 、 0.5ms 、 1ms
 - ◆ Default Value : Not Filter
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.
- DO Output Inverse : Set Y0~Y7 out reserve
 - ◆ Setting Value : True 、 False
 - ◆ Default Value : False
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.

Parameter	Type	Value	Default Value	Unit	Description
DI Parameters					
DI Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X0
X1 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X1
X2 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X2
X3 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X3
X4 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X4
X5 Filter Select	Enumeration of BYTE	0.1ms	No Filter		Choose the filter time of X5
X6 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X6
X7 Filter Select	Enumeration of BYTE	No Filter	No Filter		Choose the filter time of X7
DO Parameters					
DO Function Type Choose	Enumeration of BYTE	General Output	General Output		Choose the Function Type of Y0
Y0 Output Inverse	BOOL	False	False		Invert the Y0 output (enable)
Y1 Output Inverse	BOOL	False	False		Invert the Y1 output (enable)
Y2 Output Inverse	BOOL	False	False		Invert the Y2 output (enable)
Y3 Output Inverse	BOOL	False	False		Invert the Y3 output (enable)
Y4 Output Inverse	BOOL	False	False		Invert the Y4 output (enable)
Y5 Output Inverse	BOOL	False	False		Invert the Y5 output (enable)
Y6 Output Inverse	BOOL	False	False		Invert the Y6 output (enable)
Y7 Output Inverse	BOOL	False	False		Invert the Y7 output (enable)

- X0 Function Type Choose : Set X0 as general output or special software functions
 - ◆ Setting Value :
 - A. General Input
 - B. Stop/Start PLC Control
 - ◆ Default Value : General Input
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.



- ◇ Note: Stop/Start PLC Control Timing diagram
 - ◆ Whne X0 is Low, Application→Reset →Run
 - ◆ When X0 is High, Application Stop



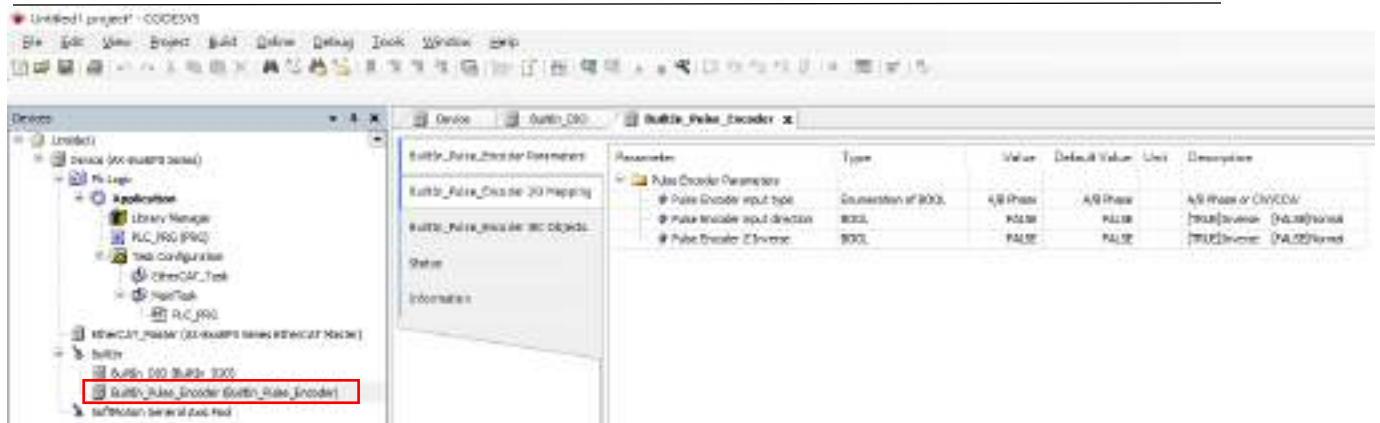
7. BuiltIn_DIO I/O Mapping :

- I/O Mapping : Input or output Mapping
 - ◆ Input 0 or Output 0 Mapping (Type: Byte)
 - ◆ X0~X7 or Y0~Y7 Single in/output Mapping(Type: BOOL)

Variable	Mapping	Channel	Address	Type	Unit	Description
In0		In0	%IB0	BYTE		8-CH Digital Input
X0		X0	%IX0.0	BOOL		
X1		X1	%IX0.1	BOOL		
X2		X2	%IX0.2	BOOL		
X3		X3	%IX0.3	BOOL		
X4		X4	%IX0.4	BOOL		
X5		X5	%IX0.5	BOOL		
X6		X6	%IX0.6	BOOL		
X7		X7	%IX0.7	BOOL		
Out0		Out0	%QB0	BYTE		8-CH Digital Output
Y0		Y0	%QX0.0	BOOL		
Y1		Y1	%QX0.1	BOOL		
Y2		Y2	%QX0.2	BOOL		
Y3		Y3	%QX0.3	BOOL		
Y4		Y4	%QX0.4	BOOL		
Y5		Y5	%QX0.5	BOOL		
Y6		Y6	%QX0.6	BOOL		
Y7		Y7	%QX0.7	BOOL		

8. BuiltIn_Pulse_Encoder Parameter:

- Pulse Encoder input type :
 - ◆ Setting Value : A/B Phase 、 CW/CCW
 - ◆ Default Value : A/B Phase
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.
 - Pulse Encoder input direction :
 - ◆ Setting Value : True(Inverse) 、 False(Normal)
 - ◆ Default Value : False
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.
 - Pulse Encoder Z Inverse :
 - ◆ Setting Value : True(Inverse) 、 False(Normal)
 - ◆ Default Value : False
 - ◆ Offline can change the setting
 - ◆ After Download, the status will run.
-

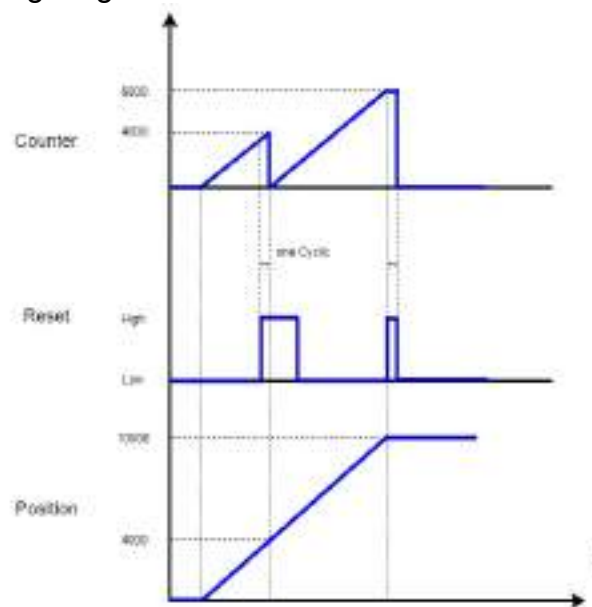


9. BuiltIn_Pulse_Encoder I/O Mapping:

- Pulse_Encoder Mapping : Pulse Encoder Input and Reset Mapping
 - ◆ Counter (Type : DINT)
 - ◆ Reset (Type: BOOL & Execution)

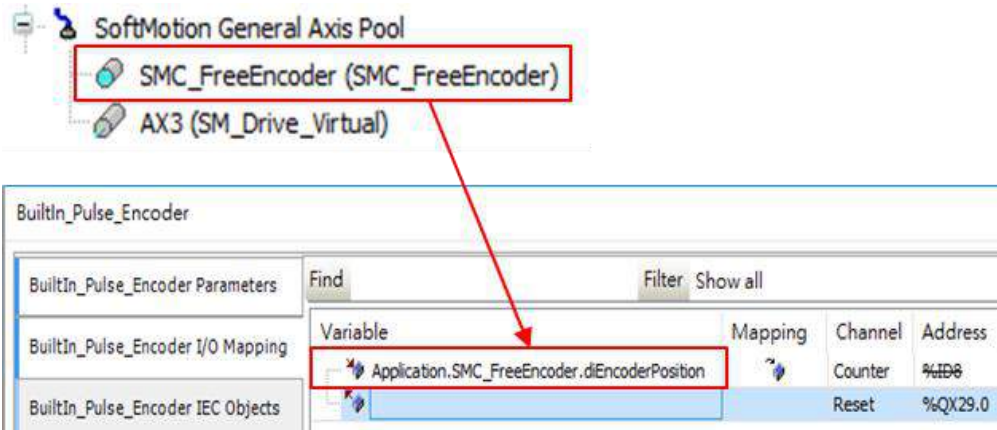
Variable	Mapping	Channel	Address	Type	Unit	Description
		Counter	%MD1	DINT		Counter value
		Reset	%QX1.0	BOOL		Reset Counter value(Execution)

- ◆ ResetTiming diagram

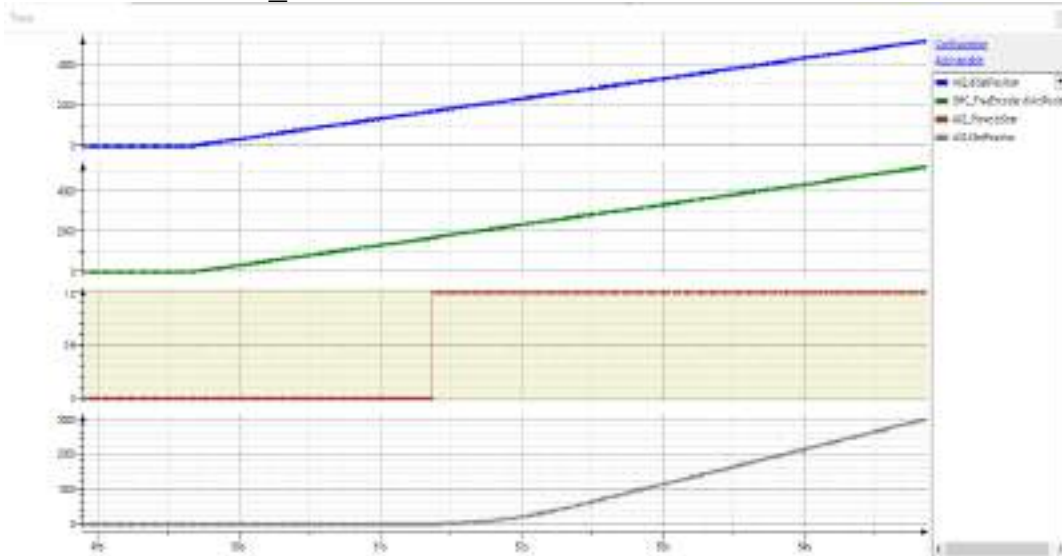


■ Pulse_Encoder example :

- Add Device → Add “SMC_FreeEncode” and map with Counter 做



- Use Encoder of R1-EC5621 as output to AX-8xxE Pulse Encoder
- Use SMC_FreeEncoder as master axis and do GarIn with virtual axis.



Chapter 2: CODESYS variables share to DIAScreen

2.1 Overview

DIAScreen have support to import variables of Codesys software. User can define the variables in Codesys development software and export the xml file of symbol configuration. Import the xml to DIAScreen to communicate between controller and Delta HMI functions.

Please download DIAScreen Installation in Website

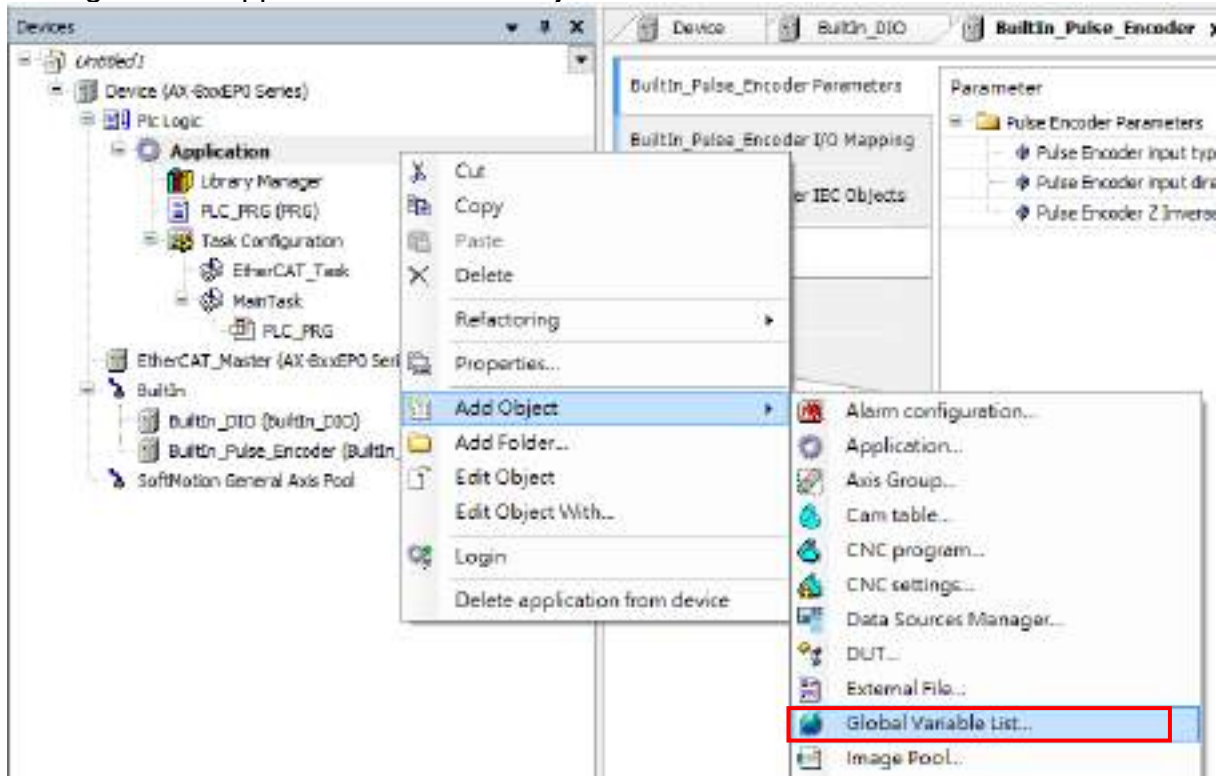
<http://www.deltaww.com/services/DownloadCenter2.aspx?secID=8&pid=2&tid=0&CID=06&itemID=060210&typeID=1&downloadID=&title=&dataType=&check=0&hl=zh-TW>

Support PAC AX-8 series and DOP-100 series.

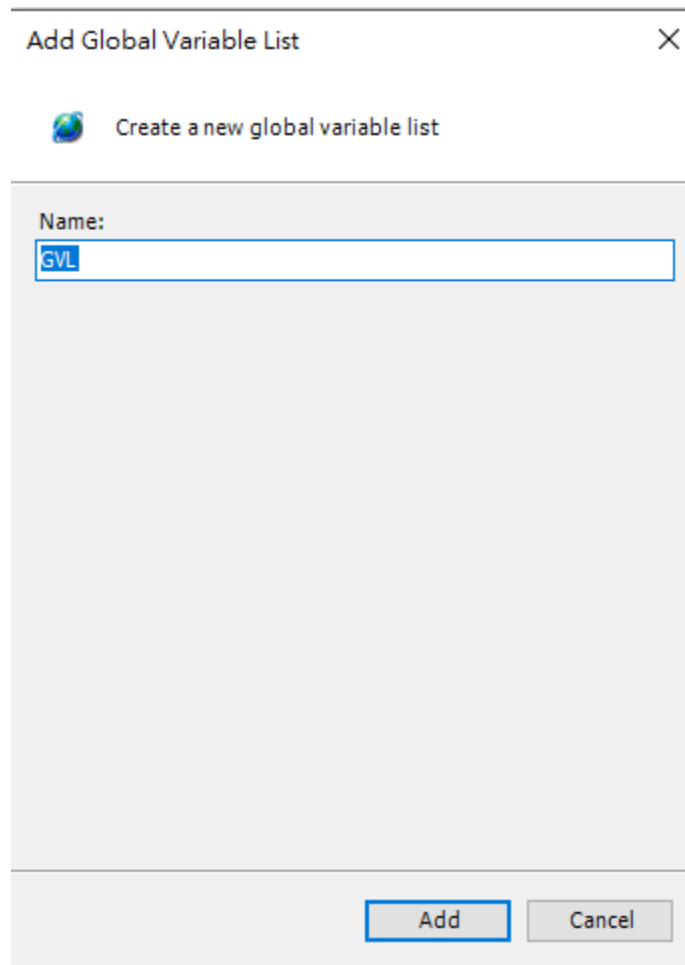
2.2 Export Variable in Codesys

Build the Global Variable list and export the symbol configuration.

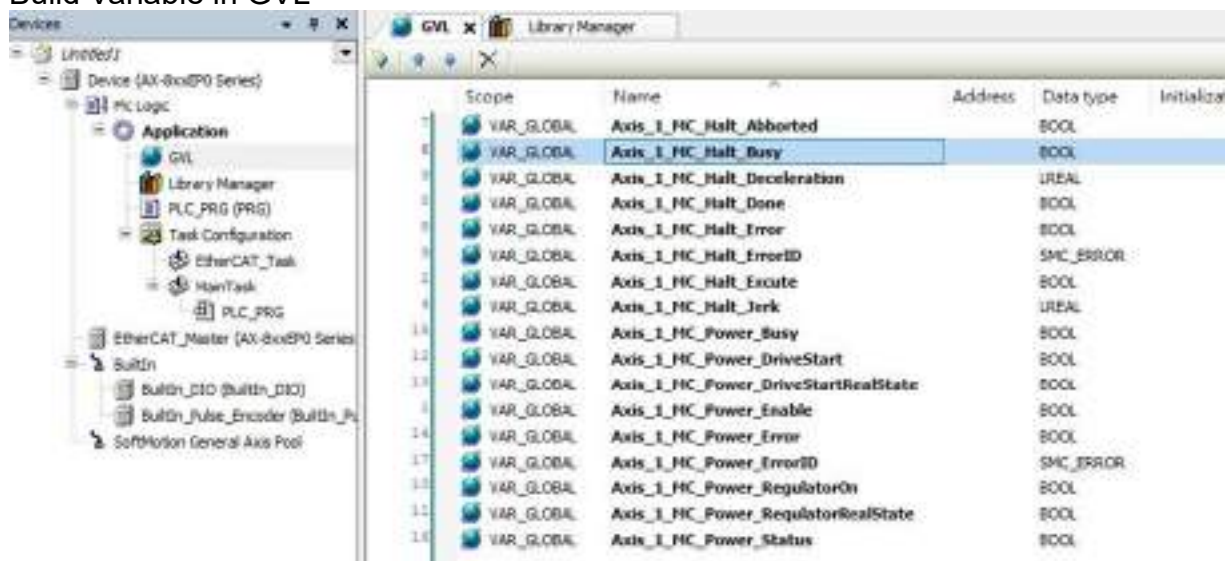
1. Right click "Application" → "Add Object" → "Global Variable List"



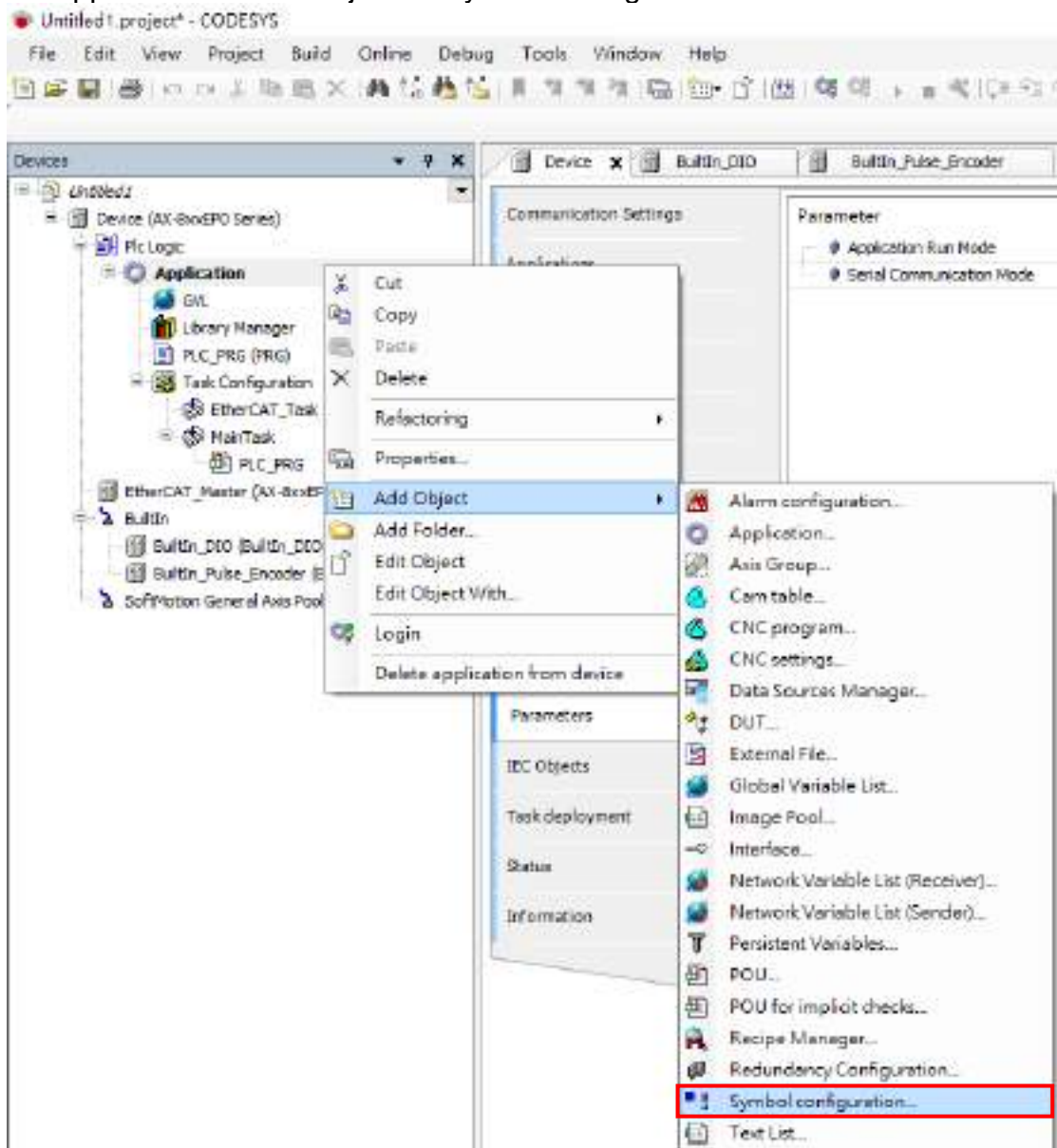
2. Import the Global Variable list naming.



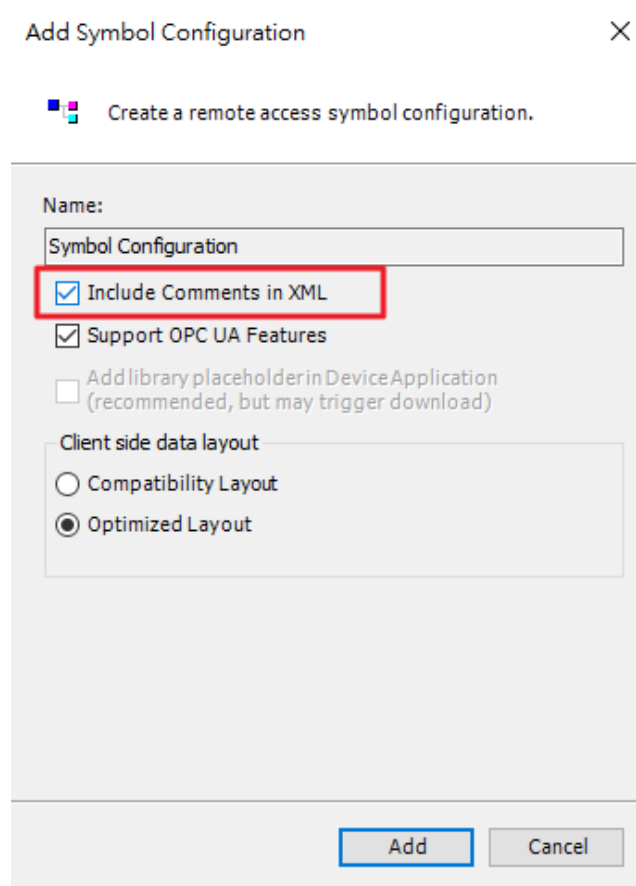
3. Build Variable in GVL



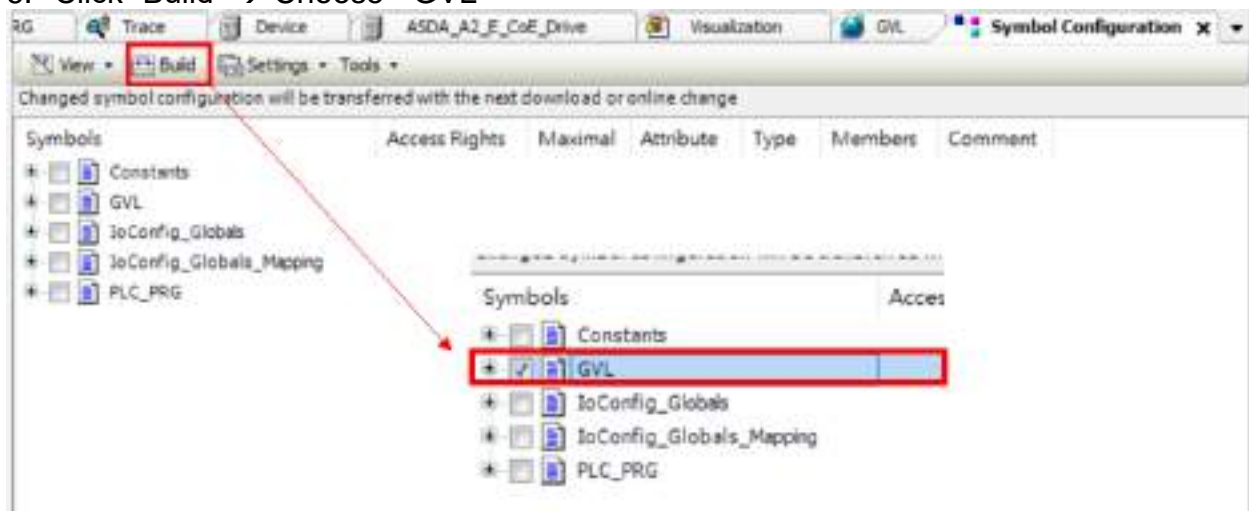
4. Application → Add Object → Symbol Configuration



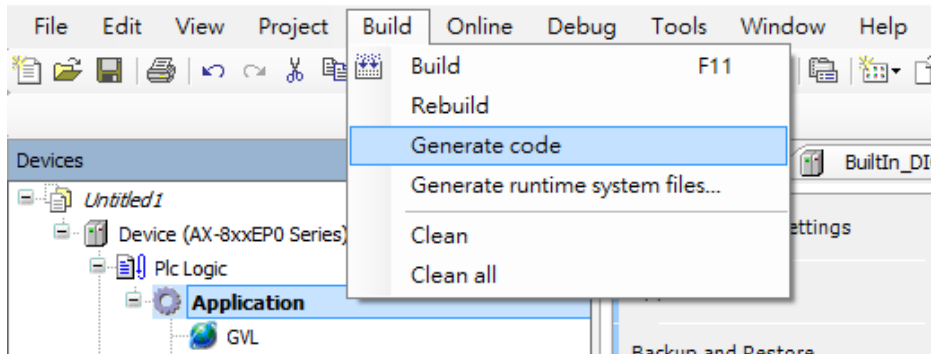
5. Choose “Include Comments in XML”



6. Click “Build” → Choose “GVL”



7. Go to toolbar → “Build” → “Generate code”



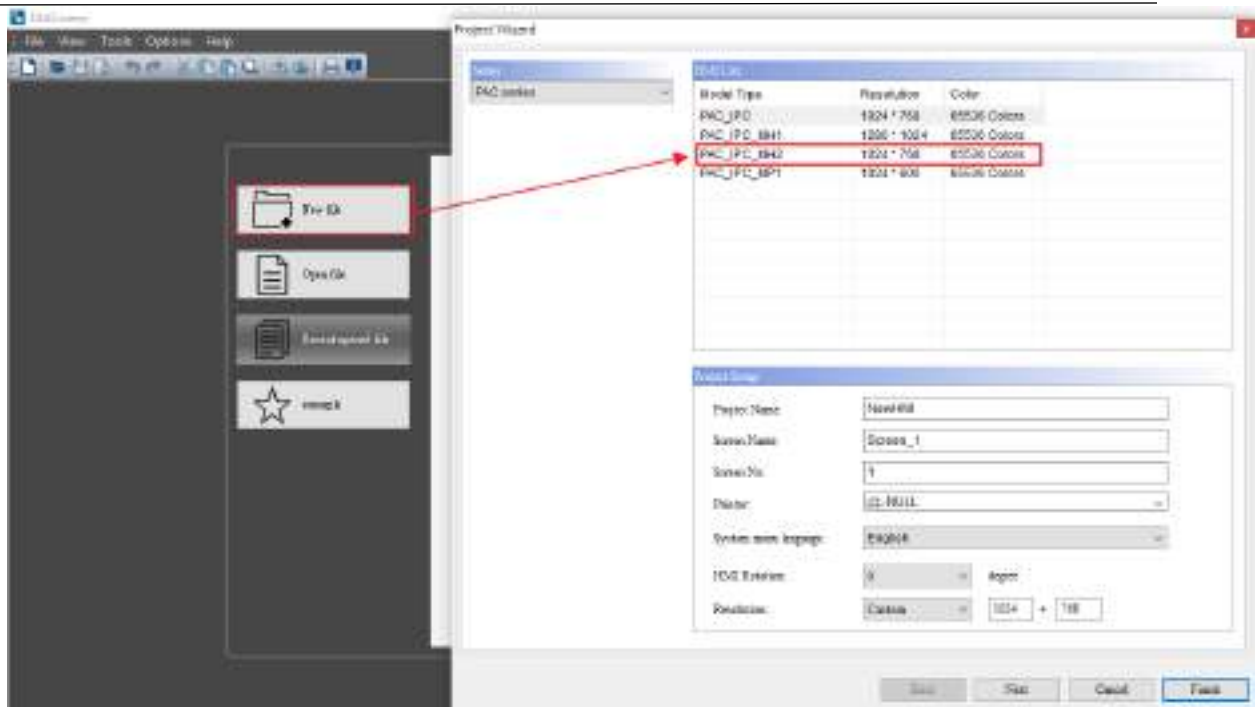
8. The xml will in the assign folder.



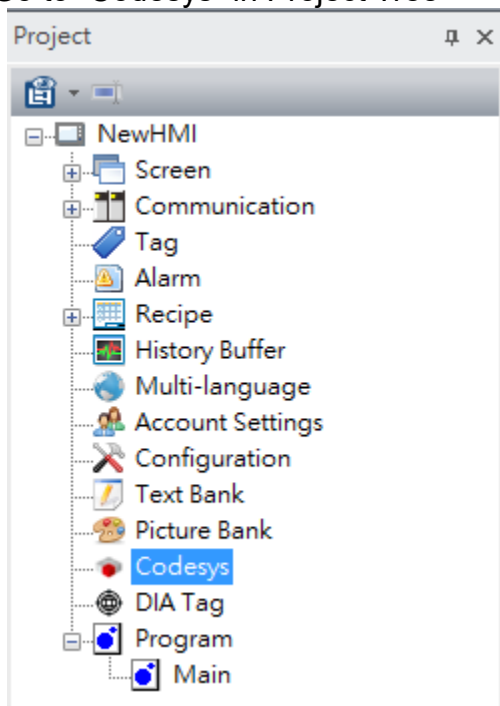
2.3 DIAScreen with PAC AX-8 Series

1. Open DIAScreenV1.0 → “New File” → Choose “AX8xxE” model.

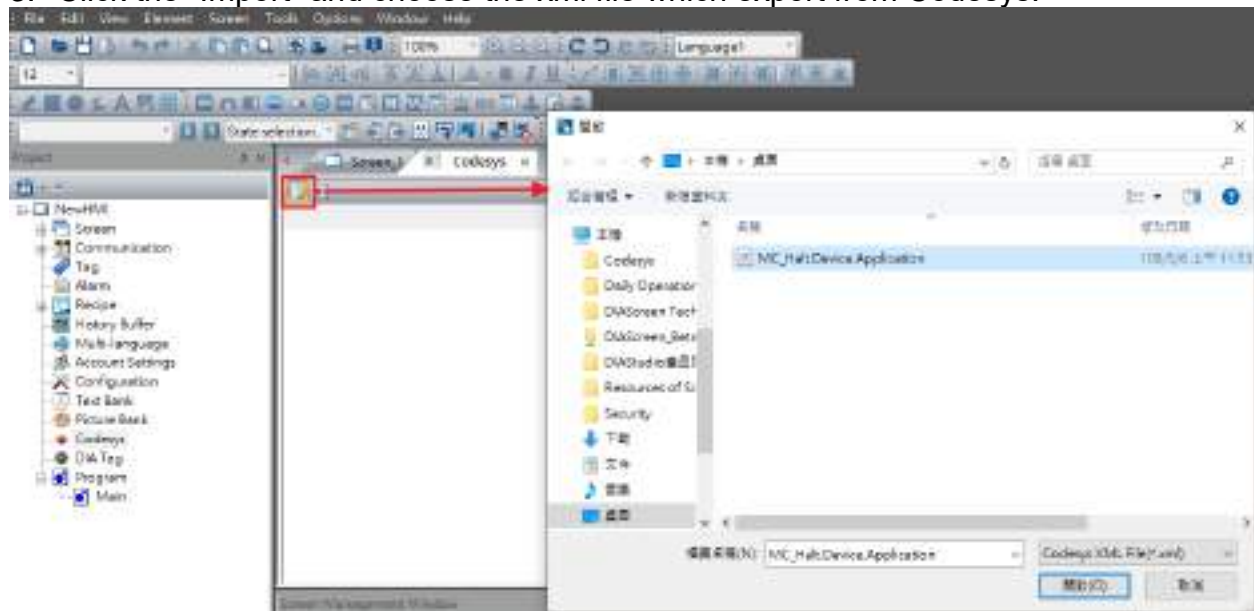




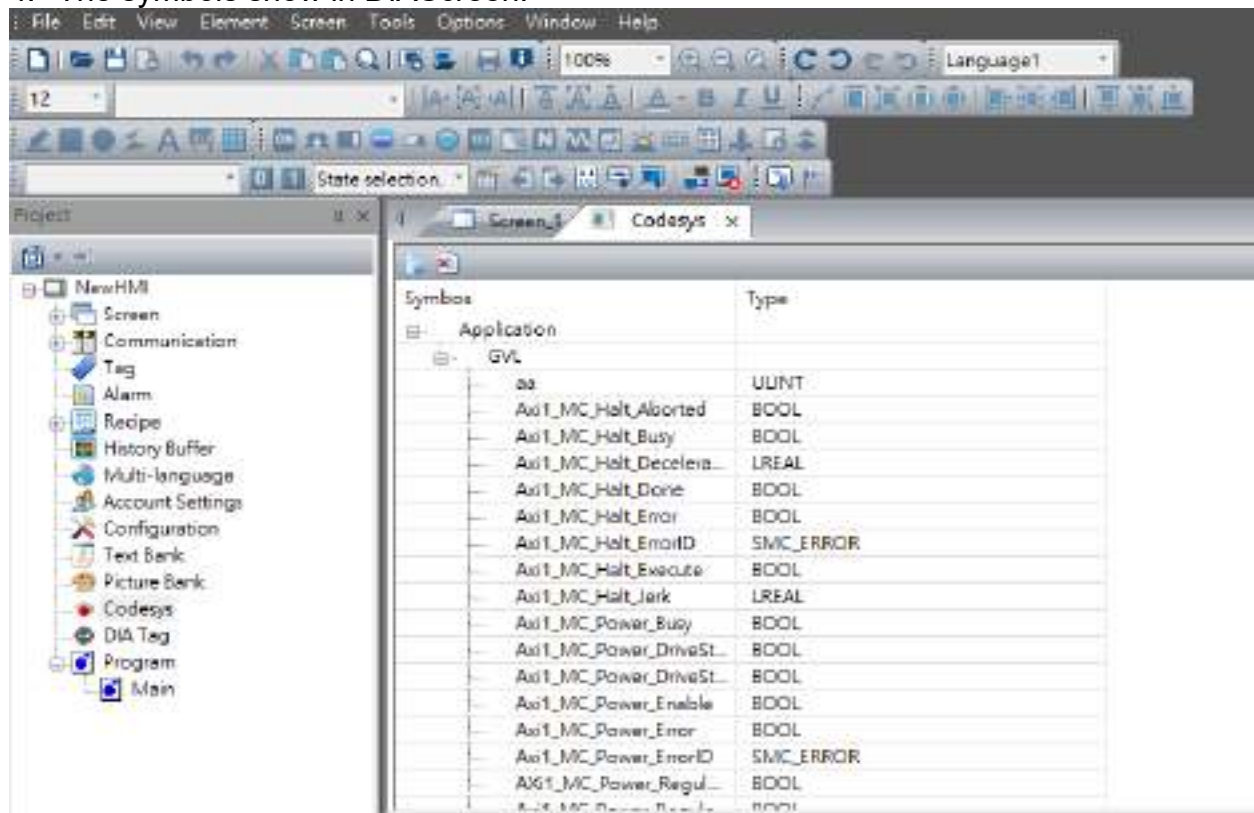
2. Go to "Codesys" in Project Tree



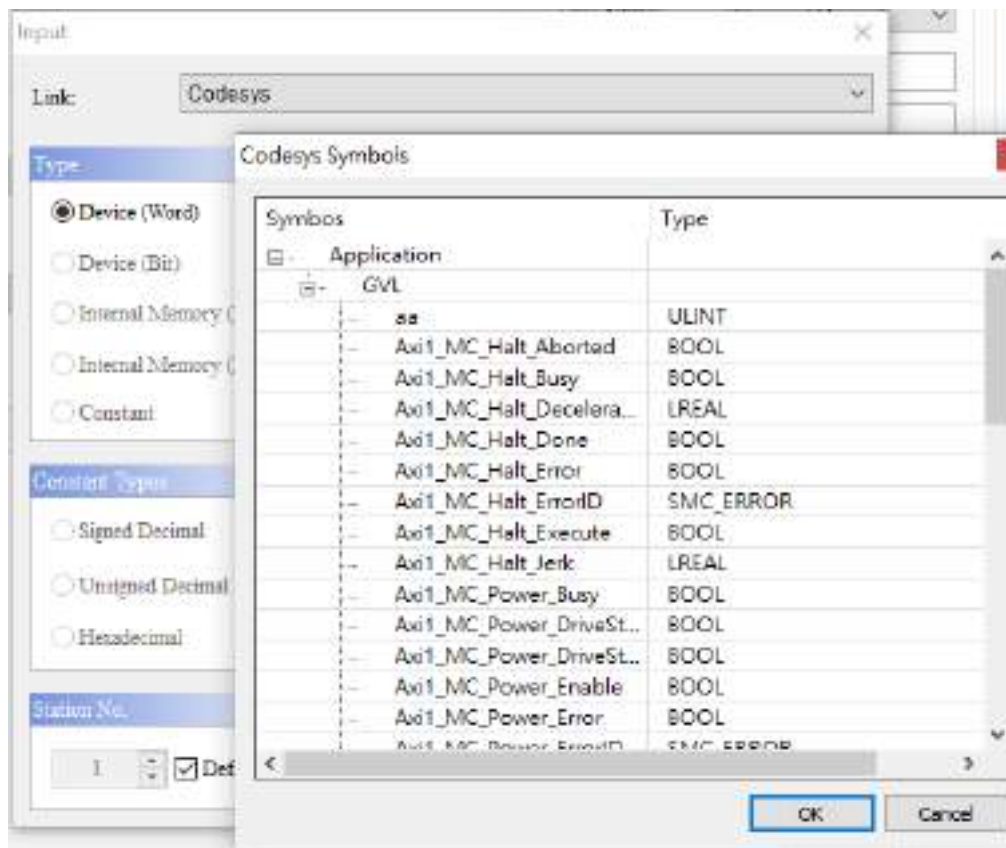
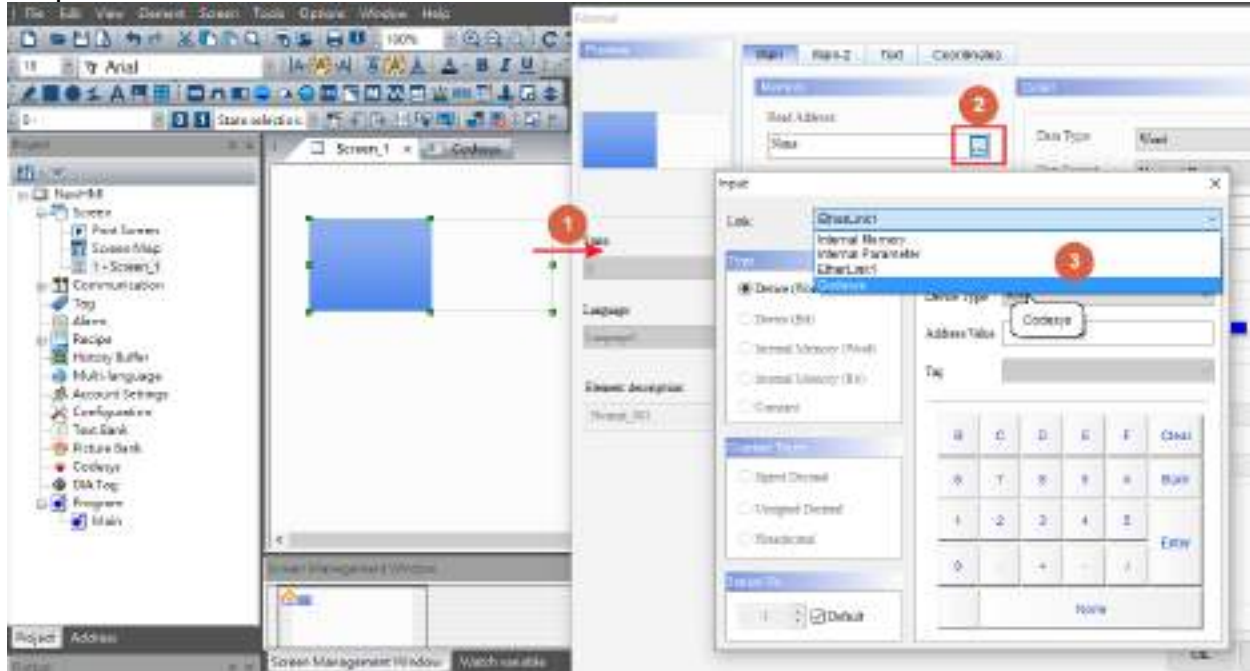
3. Click the “Import” and choose the xml file which export from Codesys.



4. The symbols show in DIAScreen.

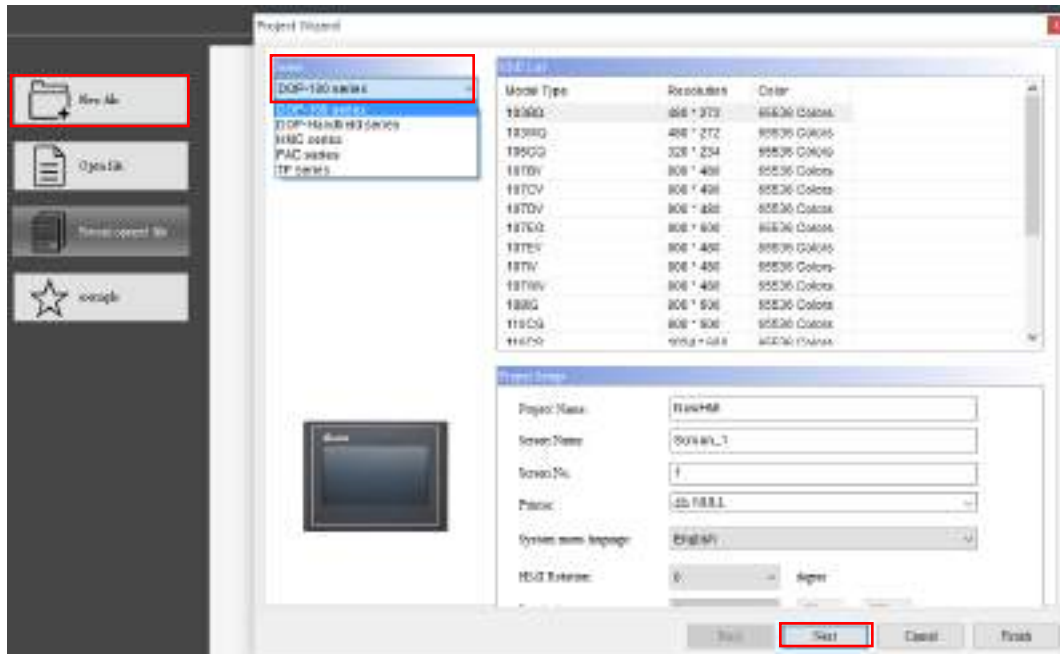


5. Insert the Element and Double click the element. User can choose the Codesys parameter to connect with the element.

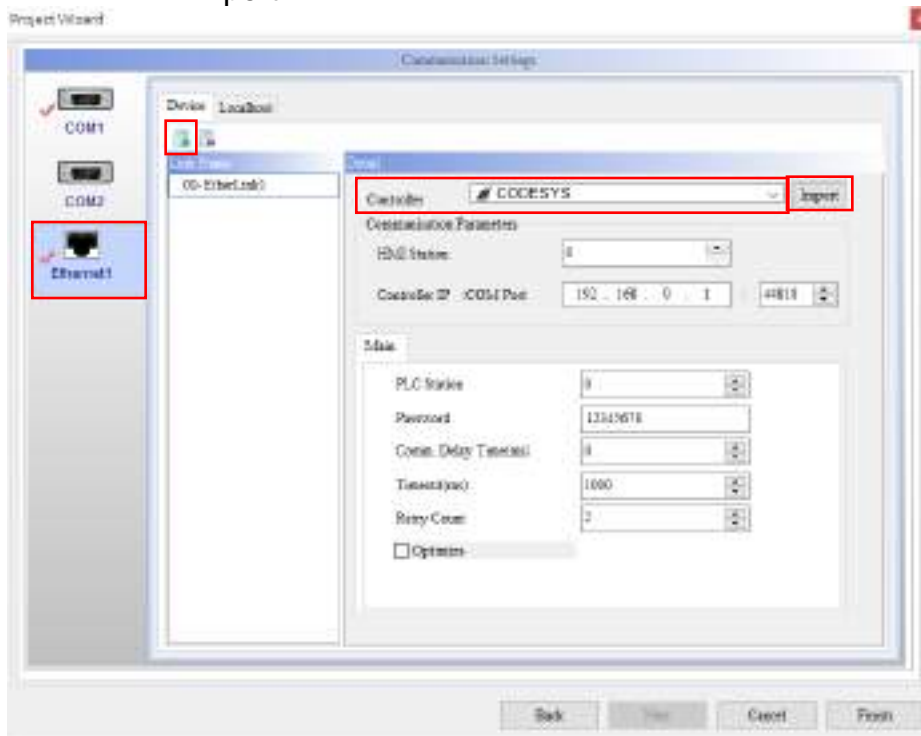


2.4 DIAScreen with PAC AX-8 Series

1. Open DIAScreenV1.0 → “New File” → Choose “DOP-100” series → Next



2. Project Wizard → Ethernet 1 → New Network Links → Choose “CODESYS” controller → Import



3. Import → Add Tag List → Import Codesys xml



4. Insert the Element and Double click the element. User can choose the Codesys parameter to connect with the element.

