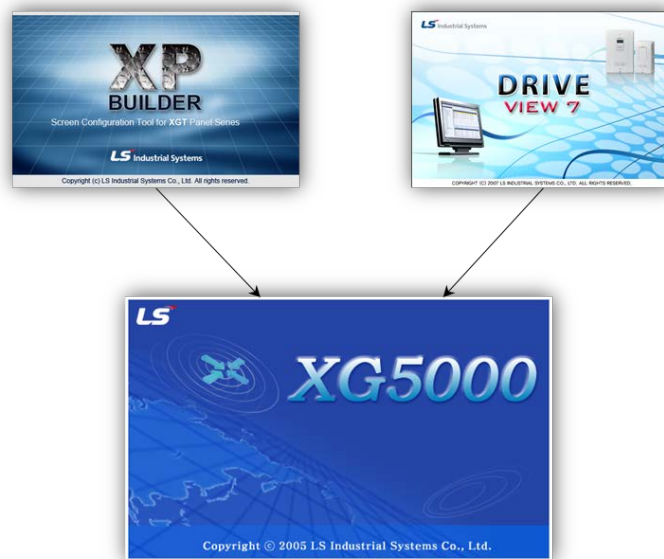


# LS Studio

## 1. Start

### 1.1 Features

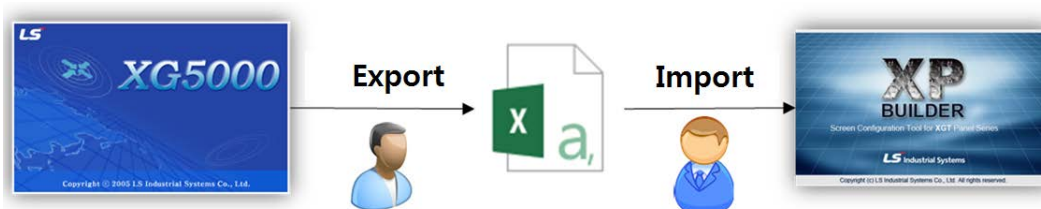
XG5000 provides an integrated development environment with software such as XP-Builder, DriveView7. In the integrated development environment, all project files are integrated and managed by the XG5000.



By using the XP-Builder integration project, the list of variables used in the PLC can be used immediately without the inconvenience of exporting or importing as a CSV file. In addition, Driveview7 makes it easier to configure communication settings by using the inverter list in the project.

#### 1) Previous using method

To use XG5000's variables and comments in XP-Builder, use CSV format file.



Variables and comments export function is used in XG5000 to save variable / comment as CSV file. In XP-Builder, the file saved in XG5000 is used by 'importing into tag group'. If the variable / comment created in the XG5000 changes frequently, this process is repeated.

## 2) Using method in the tool integration environment

To use XG5000's variables and comments in XP-Builder, double-click HMI item in XG5000 project tree.



In the tool integration environment, it is not necessary to save the variable / comment items used in the xg5000 as a separate file, and even if the variable / comment changes, exporting to the file is not necessary. This can reduce overall engineering time.

## 1.2 Install file

To use the integrated project environment, you can use the LS Studio integrated installation package, or you can install the XG5000, XP-Builder, and DriveView7 separately.

### Note

-The following software versions are integrated with the XG5000.

- ① XG5000: Version 4.11 or later
- ② XP-Builder: B27 or later for version 2.00
- ③ DriveView7: Version 1.4.2 or later

### 1.3 Install

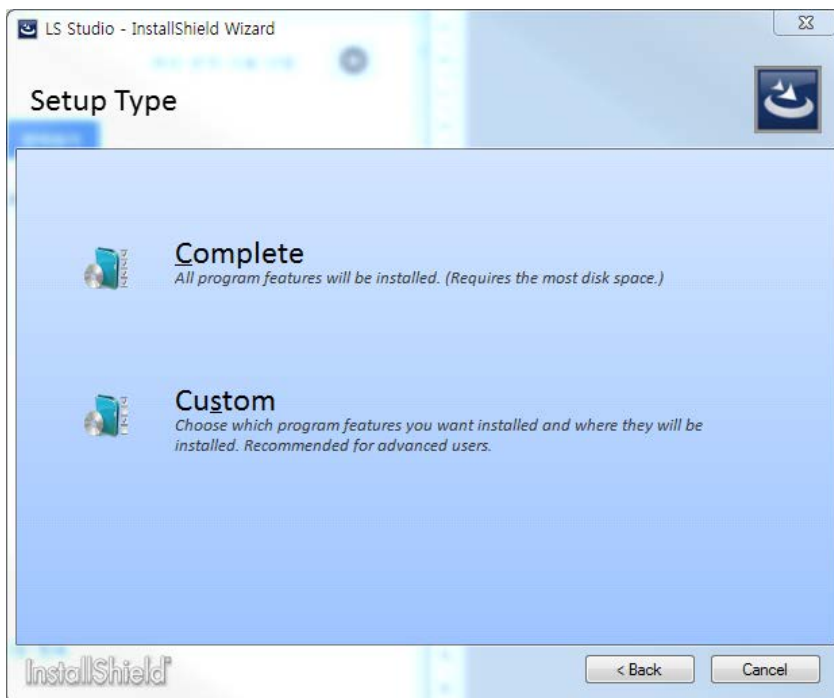
(1) Run the installation file.

(2) The installation wizard prepares for installation. Press next button.

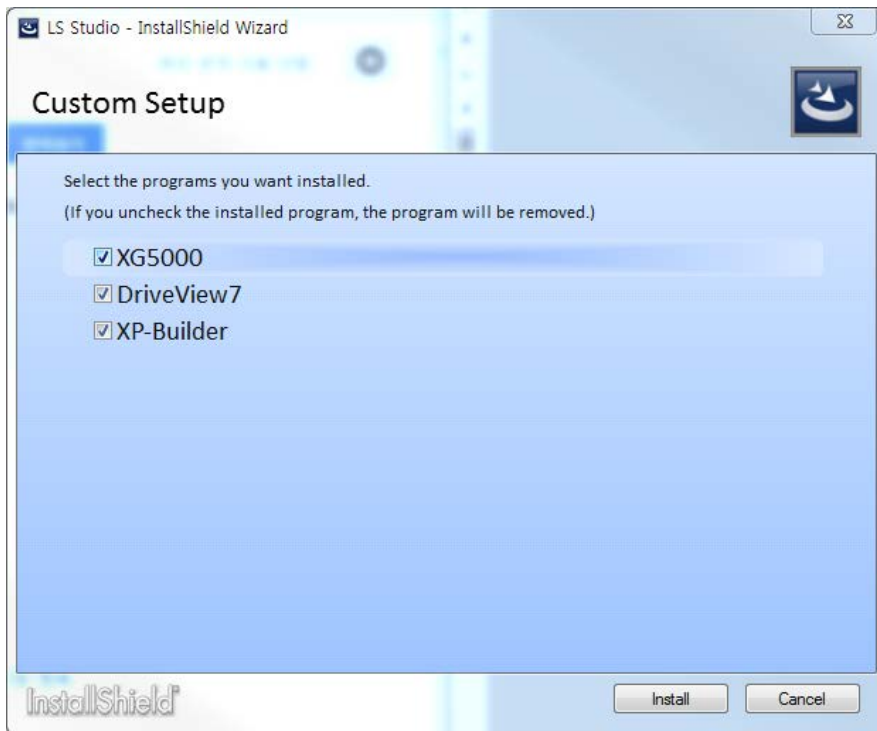


(3) Select the type of installation.

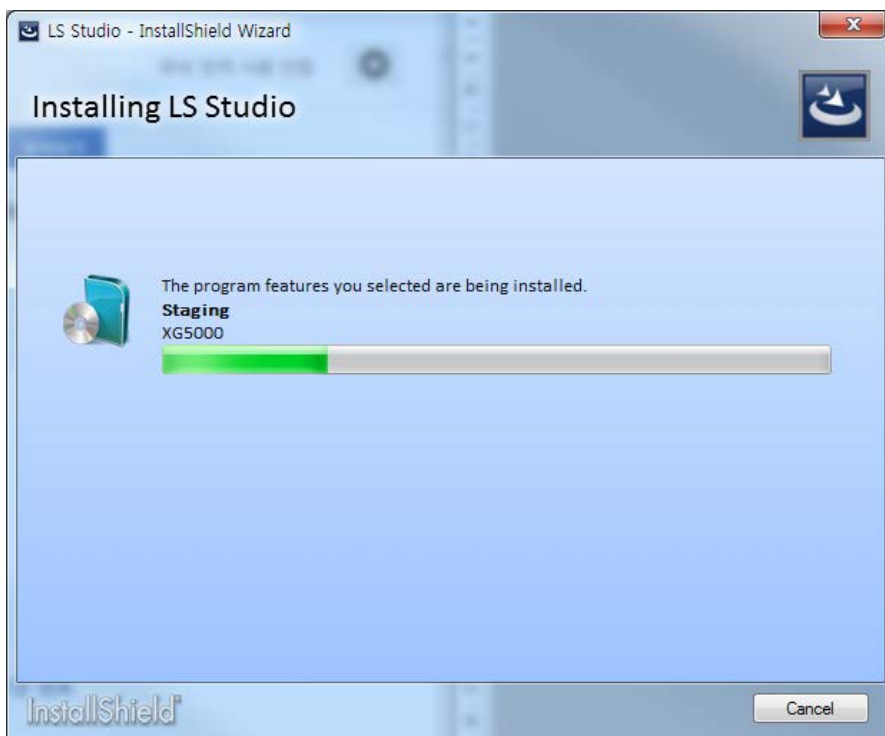
Complete installation installs XG5000, XP-Builder, and DriveView 7.



In a custom configuration, you can select and install the programs you want.



(4) If you select the type of installation, start the installation as shown below.

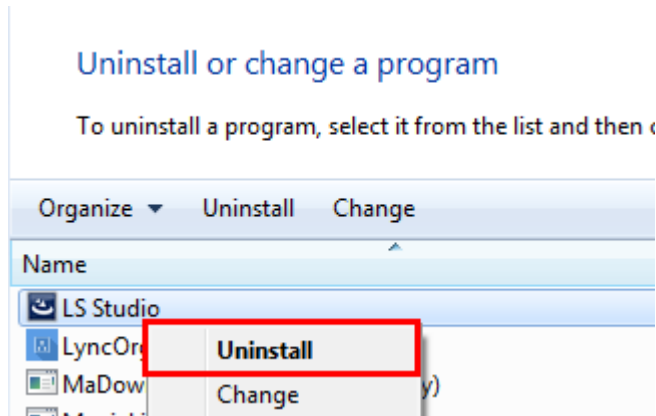


(5) The installation files of the selected program will be executed sequentially. For detailed installation procedure of each program, refer to the instruction manual of each program.

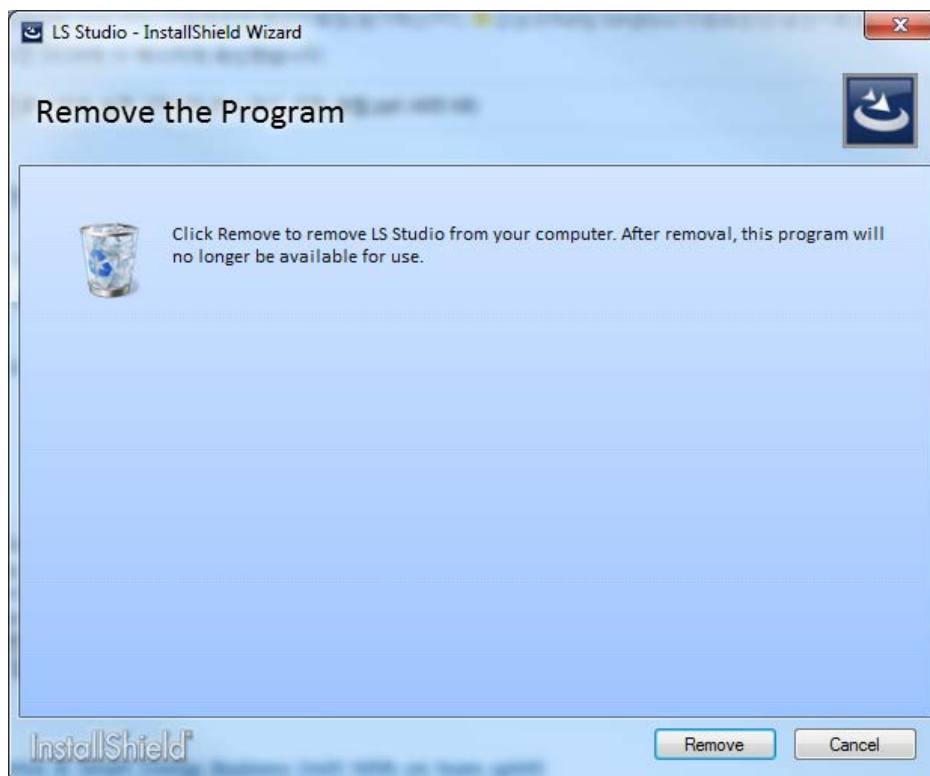
## 1.4 Delete

You can uninstall it all at once using the LS Studio installation package or you can uninstall them individually using the respective installation files.

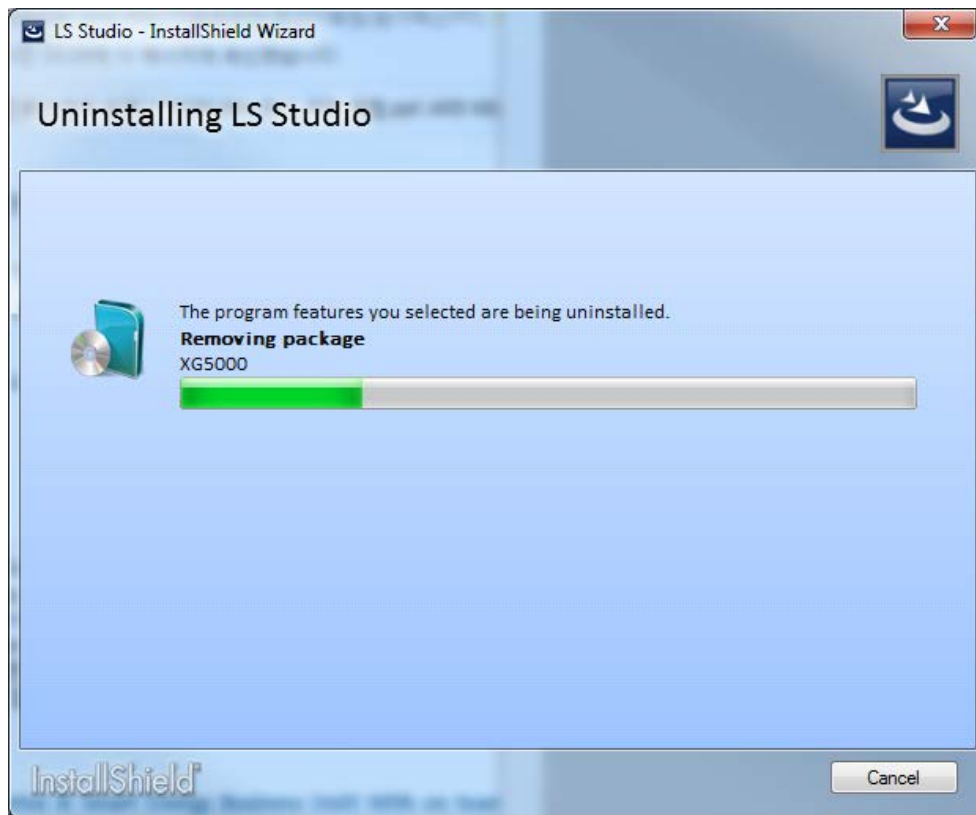
(1) In Control Panel - [Programs and Features], right-click LS Studio and click "Uninstall" or double-click.



(2) The uninstall wizard will run as shown below.



(3) The deletion proceeds as shown below.



#### Note

The method of deleting individual software installation through LS Studio is the same as the deletion method of each software. For details, refer to the instruction manual of each software.

## 2. Basic usage

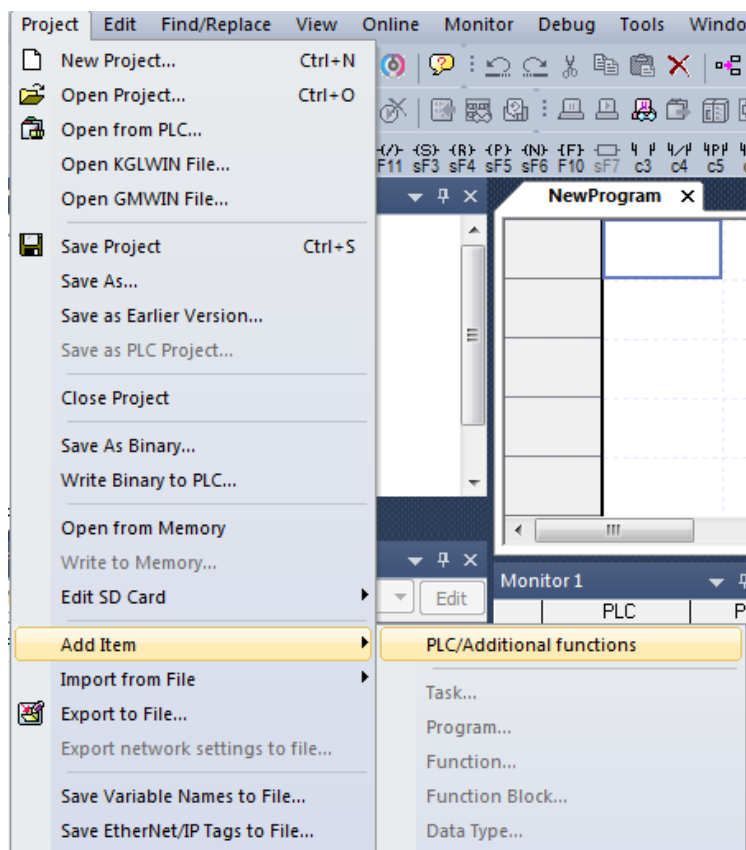
This chapter describes basic usage for using the project integration function. Integrated XG5000 has added functions to run XP-Builder and Driveview7, and its basic usage is same as existing XG5000.

### 2.1 Add item

To use added integration function, add an item to the XG5000 project. Items are added at the same level as PLC.

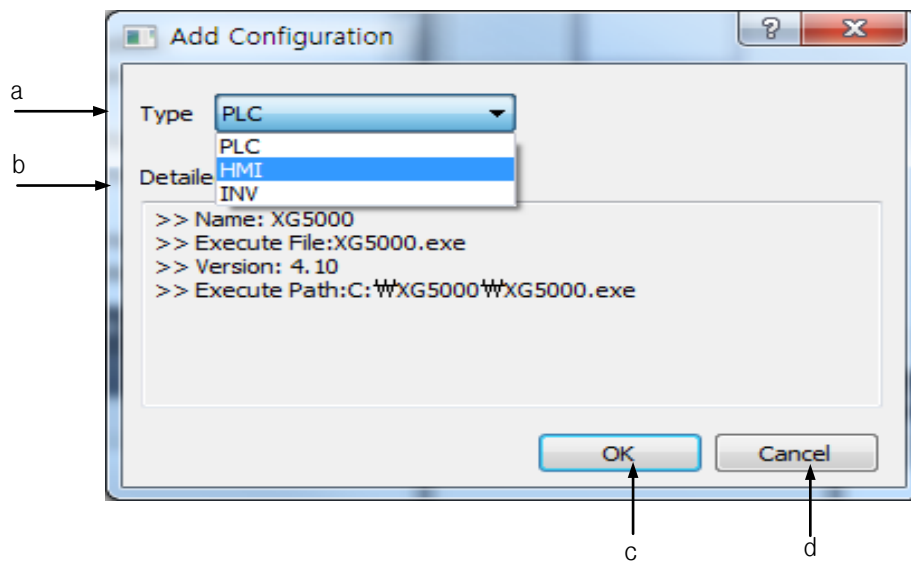
[Steps]

1. Select [Project] - [Add Item] - [PLC / Add-on] on the menu.



2. In the "Add Configuration" dialog box, select the item you want to add.

[Dialog box]

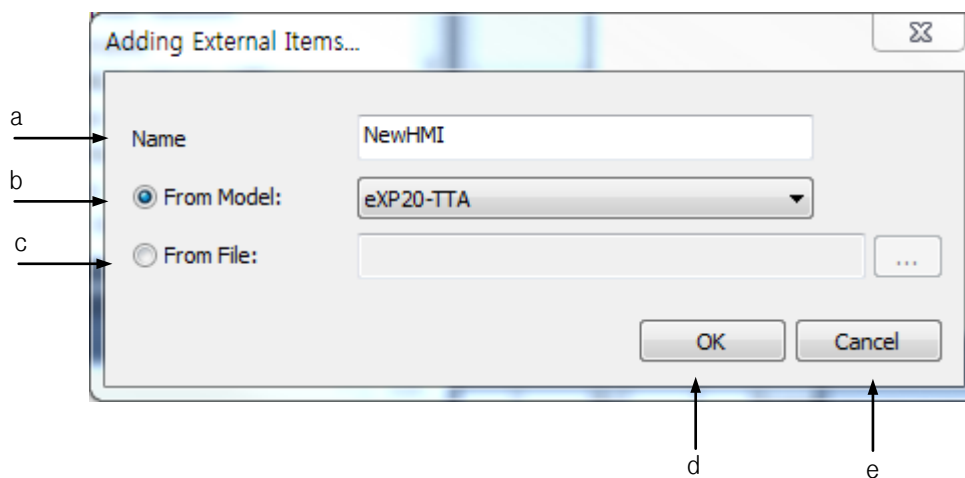


[Dialog Box Description]

- a. Type: Select the type of item you want to add. When PLC is selected, the Add PLC dialog box is displayed. Items to be added are displayed as integrable items installed on your PC
- b. Detail: Displays the details of the item to be added.
- c. OK: Closes the Add Configuration dialog box and displays the detail dialog box.
- d. Cancel: Cancel adding configuration and close the dialog box.

3. Select the name and product (model) to create.

[Dialog box]





[Dialog Box Description]

- a. Name: Enter the name to be added in the XG5000 project. You can not duplicate items in the current project.
- b. From Model: Select the detail model. Different items are displayed depending on the items added.
- c. From File: Adds an item from the selected file. The model information and name in the file are displayed.

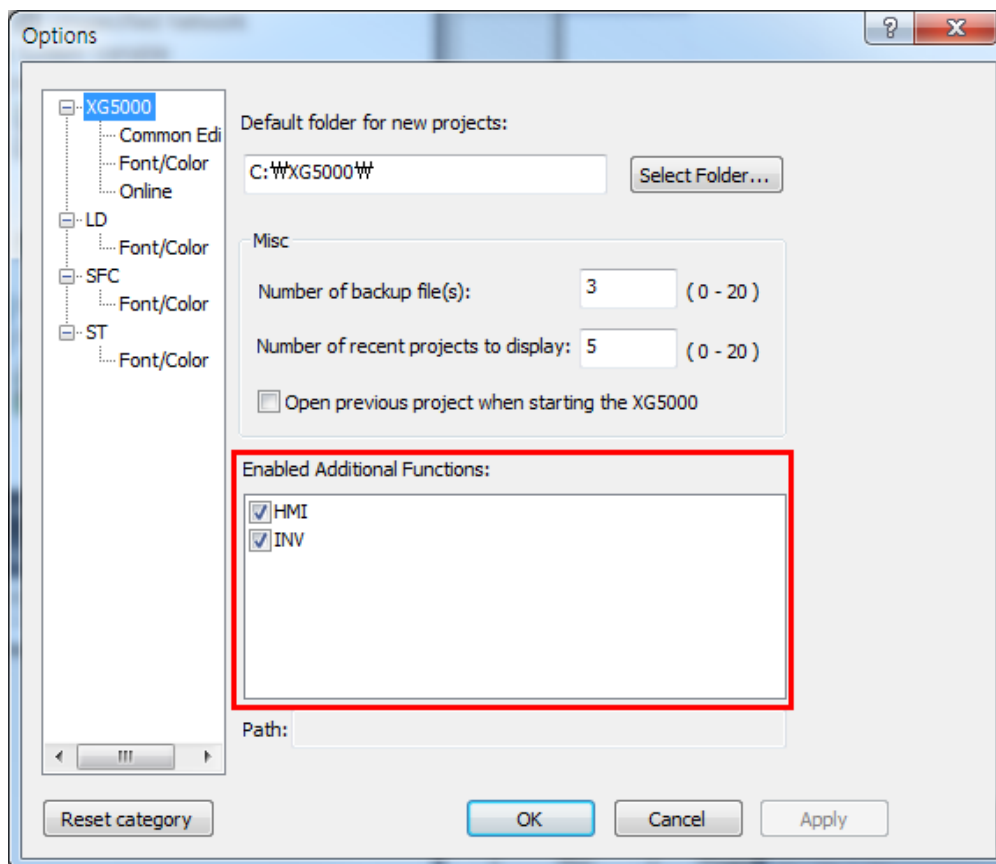
If the name you add is duplicated in the project, a number is appended to avoid duplication.

- e. OK: Close the dialog box and add the entry as input..
- f. Cancel: Cancels the input and closes the dialog box.



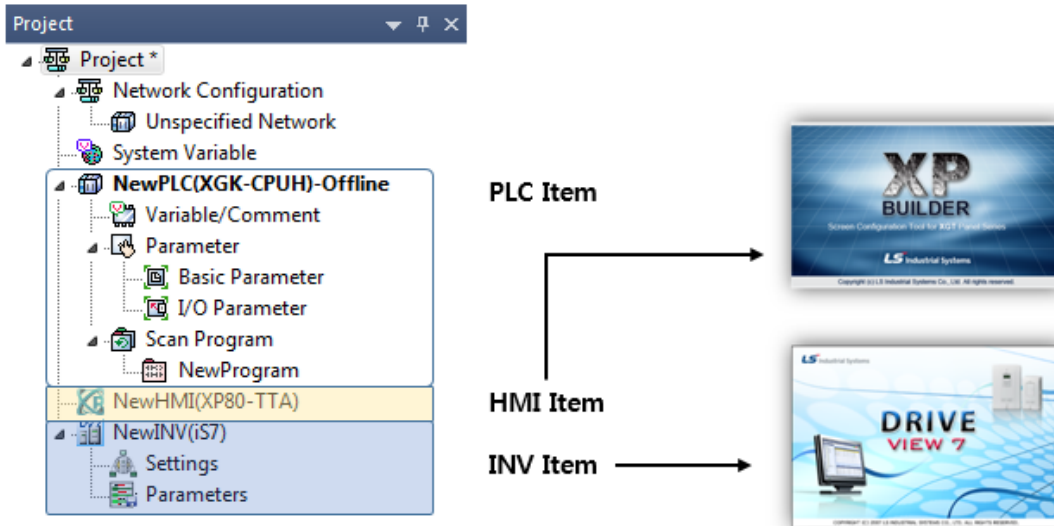
## Note

- Items and sub-items added to the project tree are displayed differently depending on the selected item.
- When you add an item from a file, the selected file is copied and saved with the XG5000. The selected file remains without being deleted.
- Items that are added can be activated or deactivated on an item-by-item basis. The available additional functions can be set in the common functions related to the XG5000 in the menu [Tools] - [Options] dialog box.



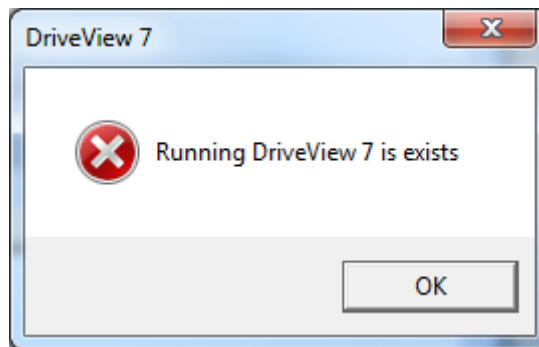
## 2.2 Run item

To run the program associated with the added item, double-click each item in the project tree. If the connected program is already running, it will be activated.



### Note

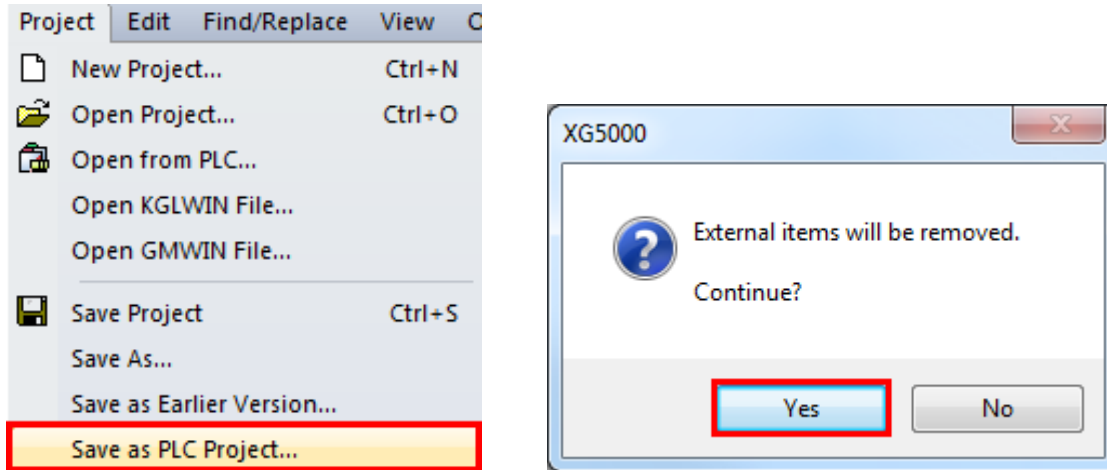
- Duplicated execution may not be possible depending on the characteristics of the application such as Driveview7.



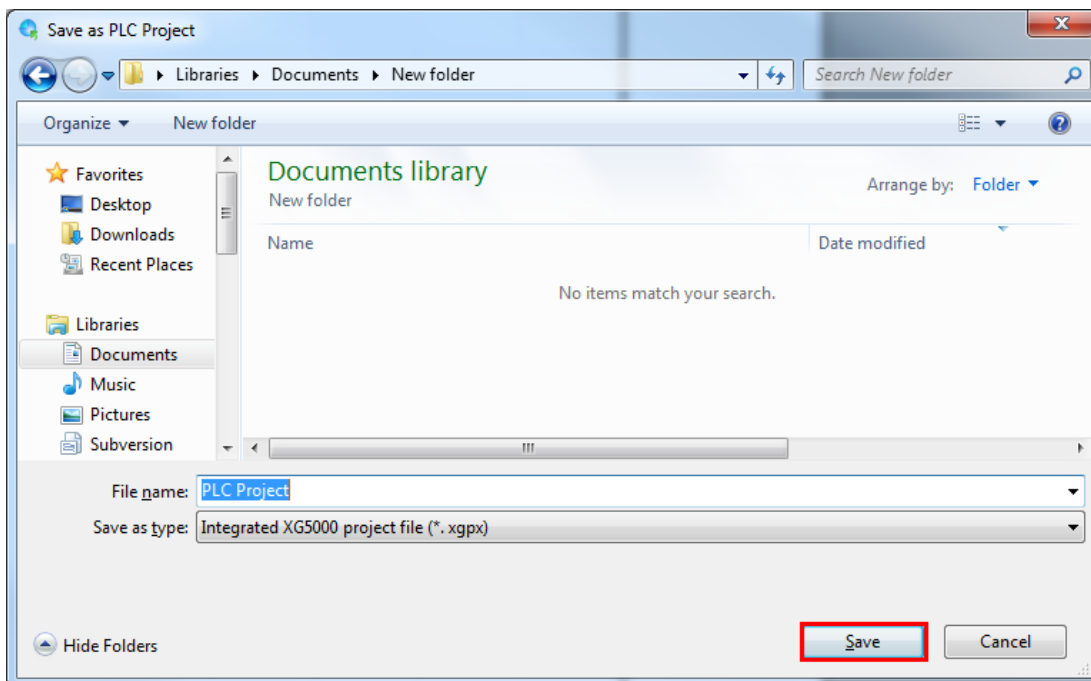
## 2.3 Save as PLC Project

Project files saved in the integrated project environment can only be used with the XG5000 individually installed version V4.10 or later. If you want to use with XG5000 V4.11 or earlier, you can save it as PLC project file by using [Save as PLC Project] function.

(1) Execute [Project] - [Save as PLC Project] in the integrated environment project PLC, HMI, and inverter are added.



(2) In the dialog box below, enter a file name and click Save.



(3) Open the saved file in an individually installed version of XG5000 V4.10 or earlier.

### 3. XG5000 variables / comments share

This chapter explains how to use variables / comments set in XG5000 with XP-Builder.

[Steps]

1. On the XG5000, select the variable / comment you want to share with the HMI.

The XG5000 allows you to select global variables, flags, and local variable entries.

NewProgram[Program] Global/Direct Variables									
Global Variable Direct Variable Comment Flag									
	Variable Kind	Variable	Type	Address	Initial Value	Retain	Used	EIP	HMI
1	VAR_GLOBAL	Switch1	BOOL			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	VAR_GLOBAL	Switch2	BOOL			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	_BASE_INFO_E	BOOL	%FX49			<input type="checkbox"/>			Base information error
15	_BASE_POWER	BOOL	%FX47			<input type="checkbox"/>			Base power error
16	_BASE_SKIP_IN	DWORD	%FD478			<input type="checkbox"/>			Base Skip information
17	_BAT_ER	BOOL	%FX69			<input checked="" type="checkbox"/>			Battery error
18	_BPRM_ER	BOOL	%FX40			<input type="checkbox"/>			Basic parameter error
19	_CHK_ANC_ER	BOOL	%FX16386			<input type="checkbox"/>			Request for significant error detection in external device

#### 알아두기

-In the XG5000 project, variables sent and received by HMI or communication can be checked in the system variable list.

System Variable										
	Variable	Address	Type	The number of types	PLC Name/PLC Type	Range	High-speed Link	P2P	EIP	HMI
1	_BAT_ER	%FX69	BOOL	1	NewPLC/XGI-CPUE	FLAG/SYS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Switch1		BOOL	1	NewPLC/XGI-CPUE	GLOBAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Switch2		BOOL	1	NewPLC/XGI-CPUE	GLOBAL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2. Select the HMI item in the project tree and double-click it.
3. Double-click the tag item in the project tree of XP-Builder to display the tag window.

4. Select the [NewPLC] item in the tag group to see the list of variables selected on the XG5000.

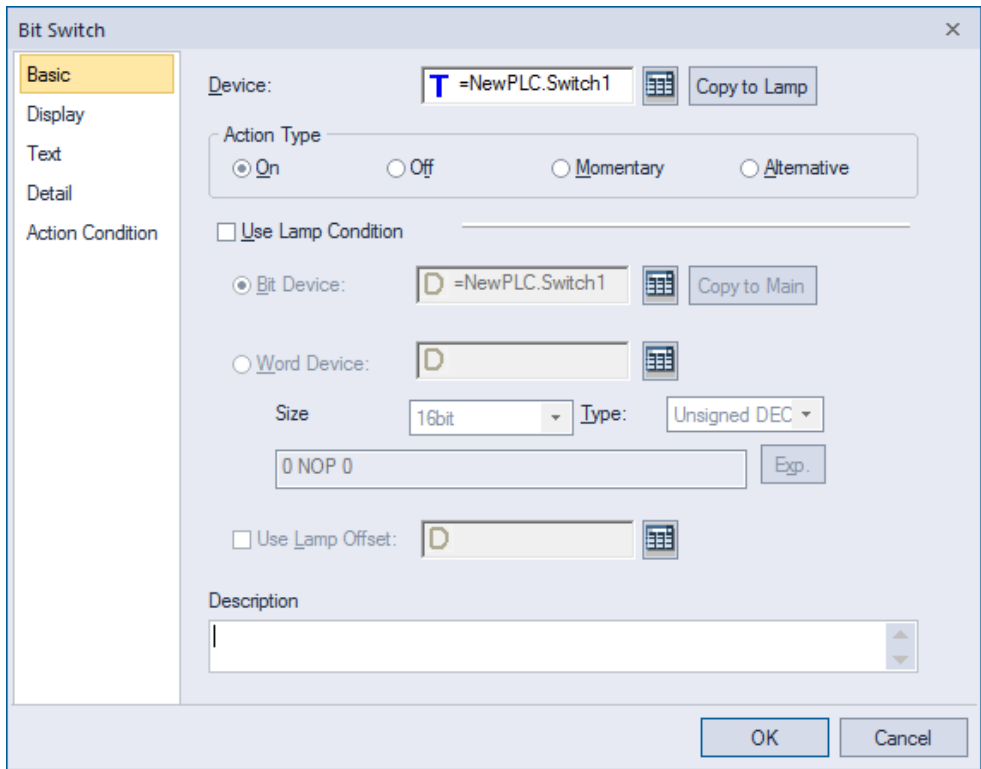
The screenshot shows the XP-Builder interface. On the left, the 'Tag' option is selected in the project tree. The main window displays a table of tag groups. The 'NewPLC' group is highlighted, and its contents are shown in a table below.

No	Group	Name	Device Type
1	NewPLC	NewPLC.Switch1	BIT
2	NewPLC	NewPLC.Switch2	BIT
3	NewPLC	NewPLC.System_BAT_ER	BIT
4	NewPLC		
5	NewPLC		
6	NewPLC		
7	NewPLC		
8	NewPLC		
9	NewPLC		
10	NewPLC		
11	NewPLC		

5. It is used in drawing by using registered tag list in XP-Builder.

The screenshot shows the 'Bit Device' configuration dialog box. The 'Tag' checkbox is checked, and the 'Group' is set to 'NewPLC'. The dialog displays a table of bit devices.

No	Group	Name	Address	Description
1	NewPLC	NewPLC.Switch1	%AX0	
2	NewPLC	NewPLC.Switch2	%AX1	

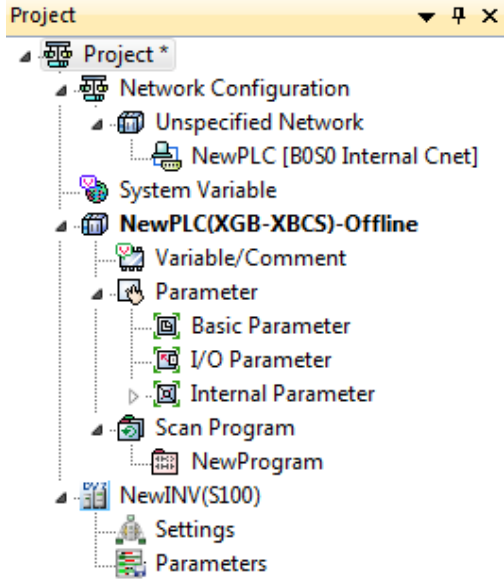


## 4. Communication parameter setting

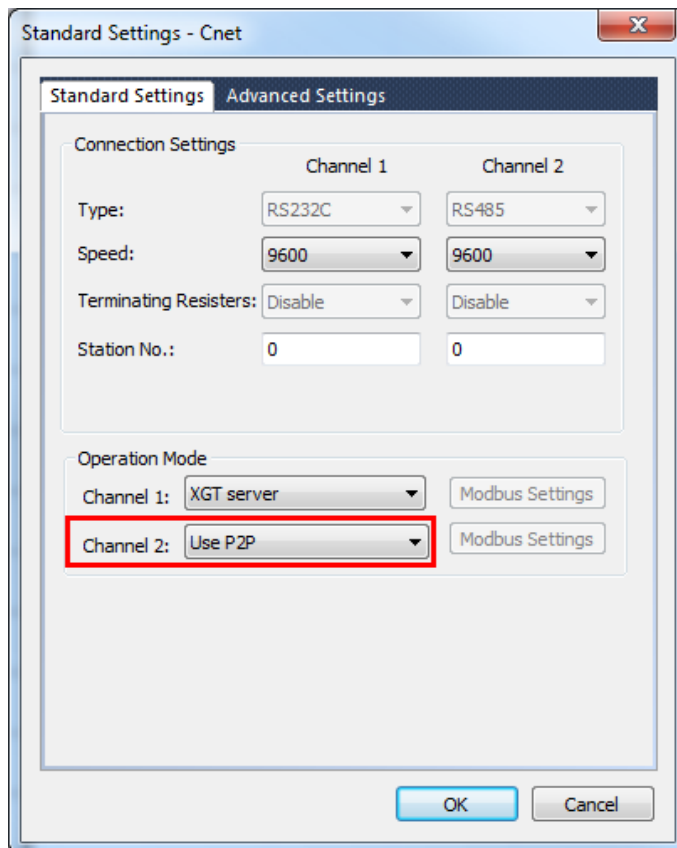
This section explains how to set the communication parameters using the INV items registered in the project. For the procedure to add an INV item, see section 2.1 Add item.

[Steps]

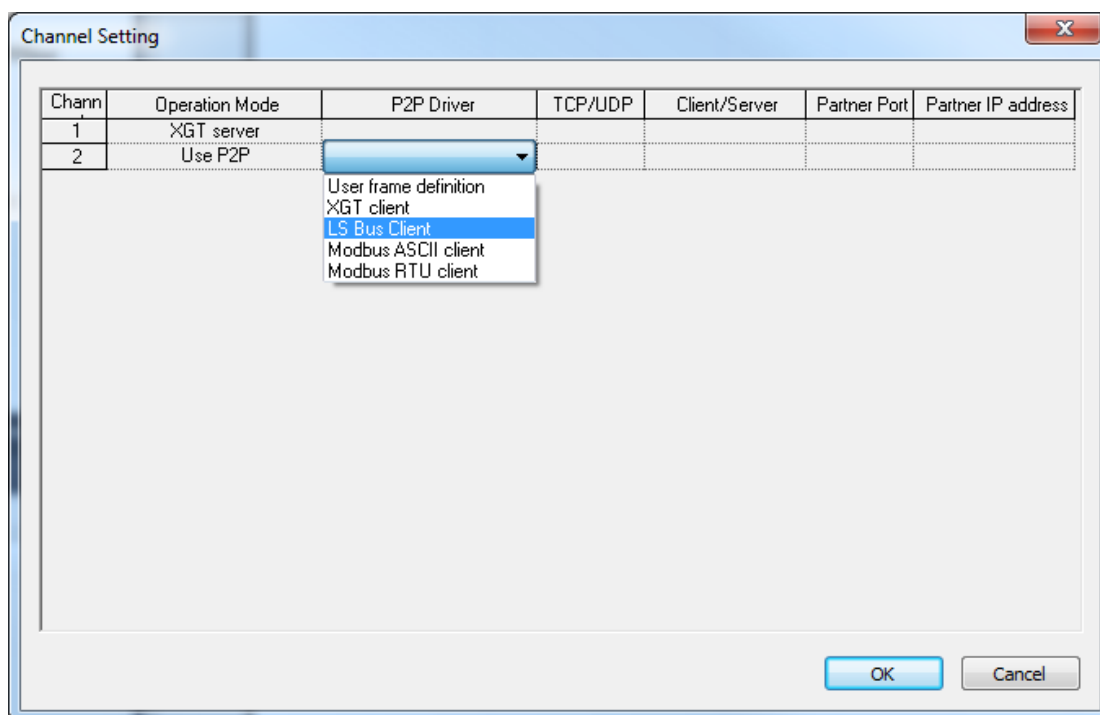
1. Add communication module supporting LS bus to current project (Cnet only)



2. Select Use P2P in the communication module's default setting.

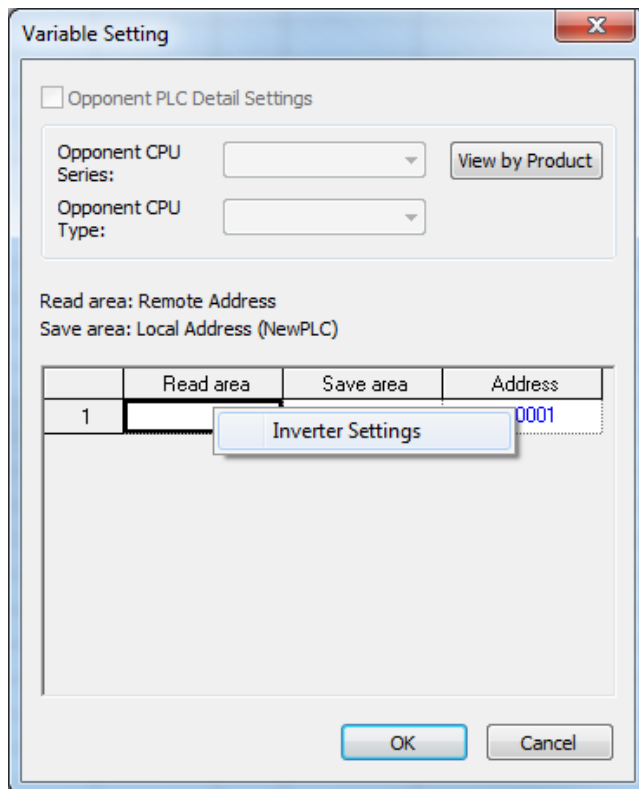


3. Add P2P parameter for communication module and select LS BUS item in P2P channel.

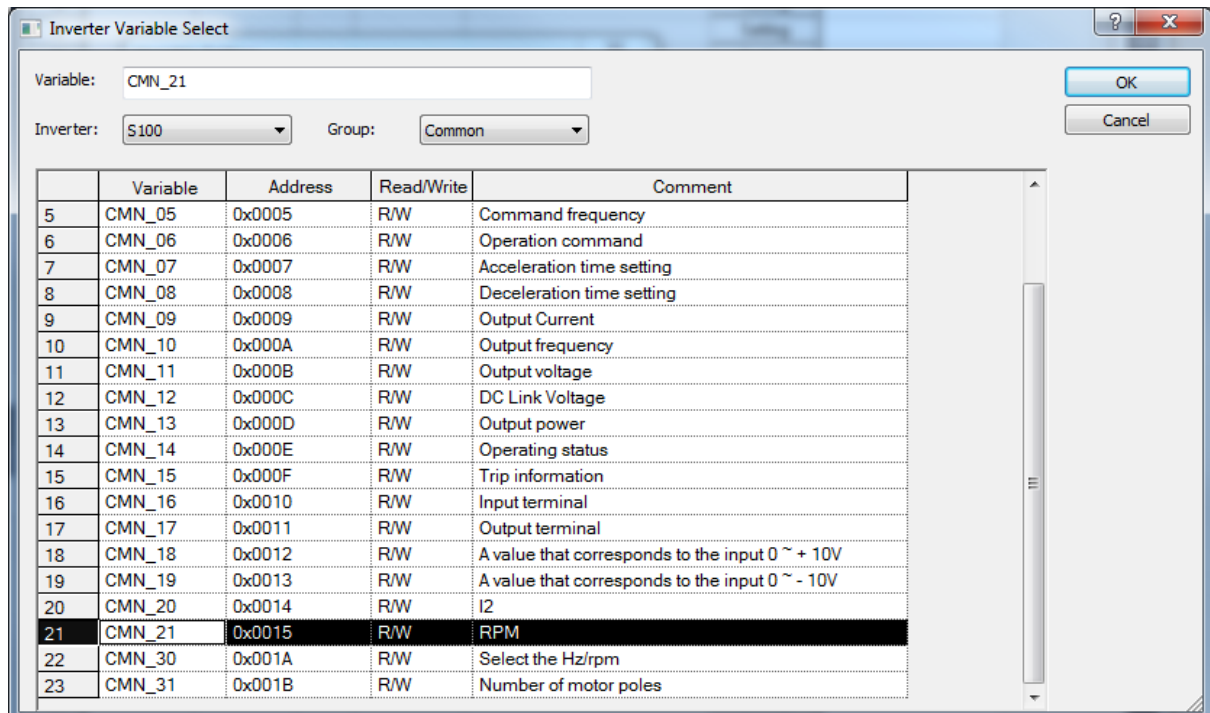




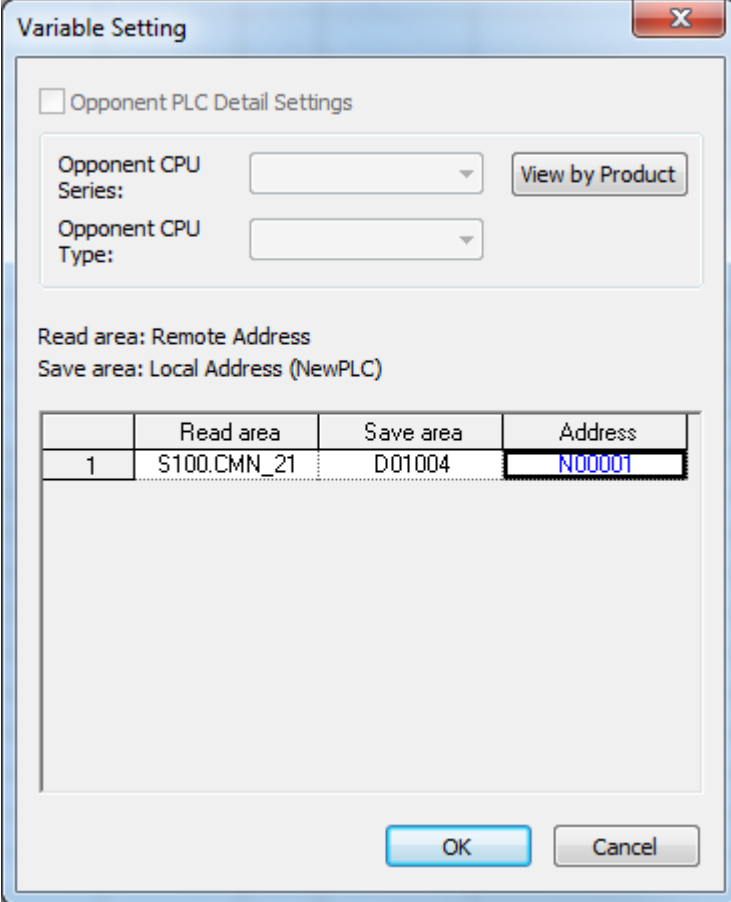
4. Enter the default settings for P2P and click the [Set] button.
5. In the Variable Setting dialog box, right-click "Read Area" and select "Inverter Setting".



6. Select inverter, group and variable in the inverter variable selection dialog box and select the OK button.



7. After setting the save area, select the OK button.



The image shows a 'Variable Setting' dialog box with a title bar containing a close button (X). The dialog contains the following elements:

- An unchecked checkbox labeled 'Opponent PLC Detail Settings'.
- A section with two dropdown menus: 'Opponent CPU Series:' and 'Opponent CPU Type:'. To the right of these is a 'View by Product' button.
- Text labels: 'Read area: Remote Address' and 'Save area: Local Address (NewPLC)'.
- A table with the following data:

	Read area	Save area	Address
1	S100.CMN_21	D01004	N00001

At the bottom of the dialog are 'OK' and 'Cancel' buttons.