

Appendix 9: Configuring I/O Modules

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Introduction

This guide will go over the steps to setup I/O modules in PLCnext Engineer.

Objectives

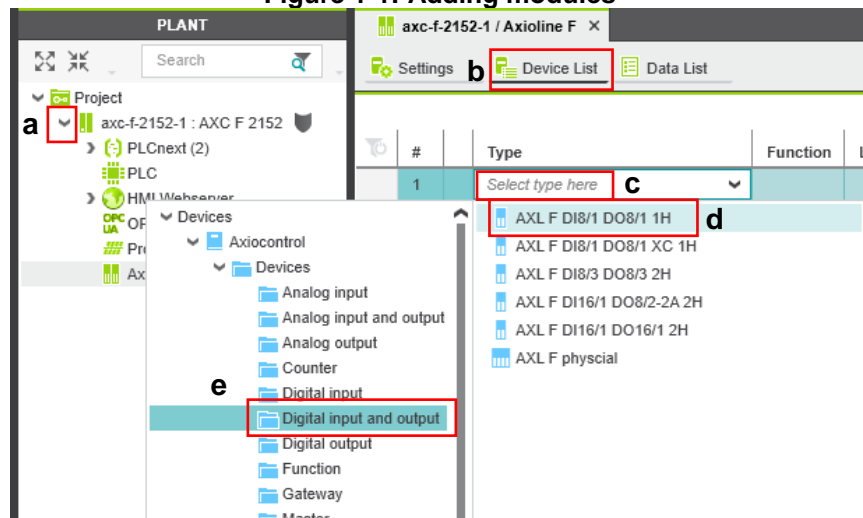
- Add I/O module
- Configure module
- Map I/O to variables

1 – Adding I/O

The procedure will go over how to add I/O modules connected to the controller.

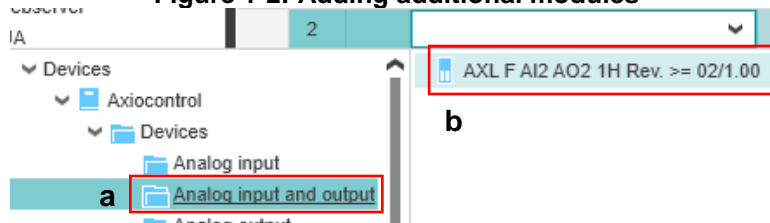
1. Go to Plant > Project > “axc-f-2152..”(a) and **double-click** Axioline F – a new window will open. See figure 1-1.
2. In the new window, go to the Device List tab (b). See figure 1-1.
3. In the order the modules are connected to the controller add them to the table in the Device List. See figure 1-1.
4. Click “Select Type Here” and a list of available I/O modules will appear (c). See figure 1-1.
5. Add the first Input/Output Module(d,e). See figure 1-1.

Figure 1-1: Adding modules

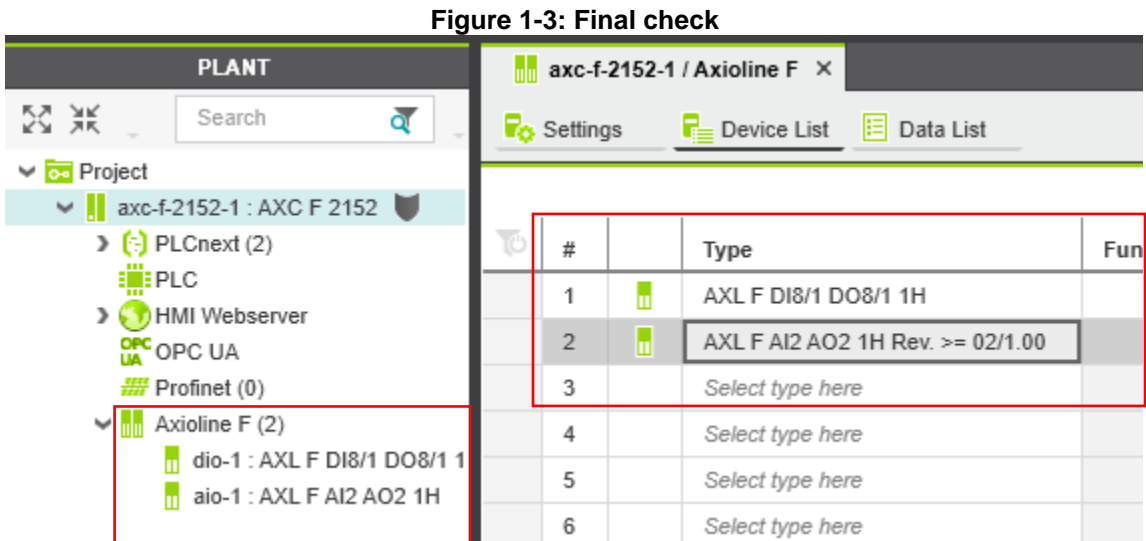


6. Continue adding any additional modules. (a,b). Figure 1-2

Figure 1-2: Adding additional modules



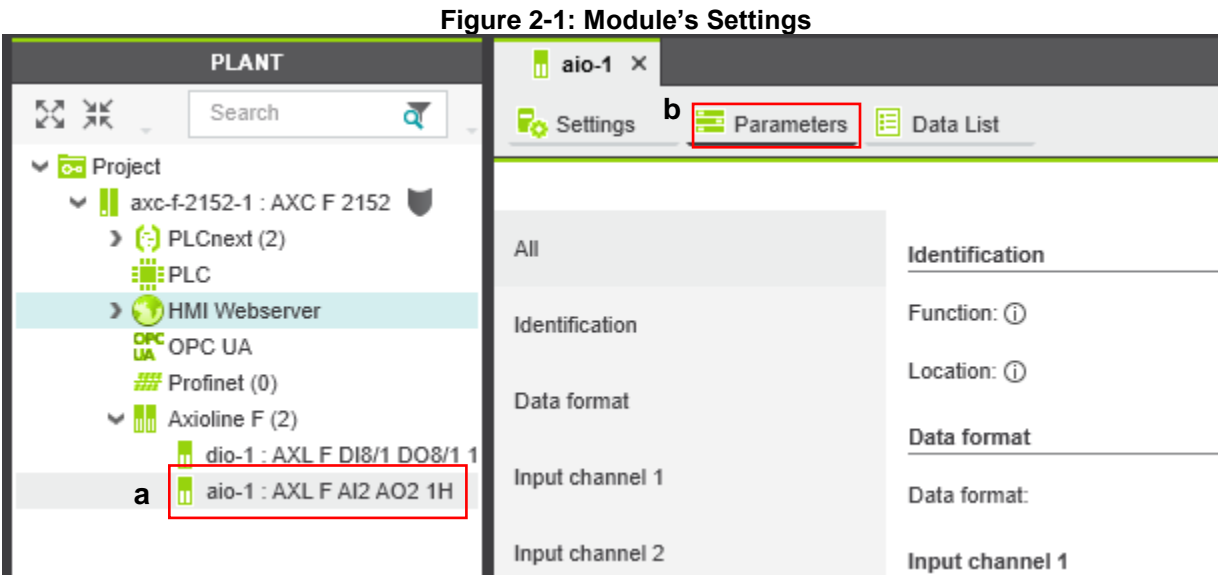
7. The result should be all modules in the Project tree under “Axioline F”. Figure 1-3.



2 – Configure Module

Some modules have configuration options. This procedure will go over how to configure these different modules. In this example, an Analog I/O module is used.

1. Go to Plant > Project > “axc-f-2152..” > Axioline F and **double-click** the configurable I/O module (a) – a new window will open. See figure 2-1.
2. In the new window, go to the “Parameters” tab (b). See figure 2-1.



3. Change settings for the module and individual channels. Setting will be different for each module. Please view datasheet/manual if you're unsure how to configure the module.

Figure 2-1: Change Settings

All	Identification	
Identification	Function: ①	<input type="text"/>
Data format	Location: ①	<input type="text"/>
Input channel 1	Data format	
Input channel 2	Data format:	Inline <input type="button" value="v"/>
Output channel 1	Input channel 1	
Output channel 2	Measuring range:	0 V ... 10 V <input type="button" value="v"/>
	Filter:	30 Hz <input type="button" value="v"/>
	Mean value:	16-sample <input type="button" value="v"/>
	Input channel 2	
	Measuring range:	0 V ... 10 V <input type="button" value="v"/>
	Filter:	30 Hz <input type="button" value="v"/>
	Mean value:	16-sample <input type="button" value="v"/>
	Output channel 1	
	Output range:	0 V ... 10 V <input type="button" value="v"/>

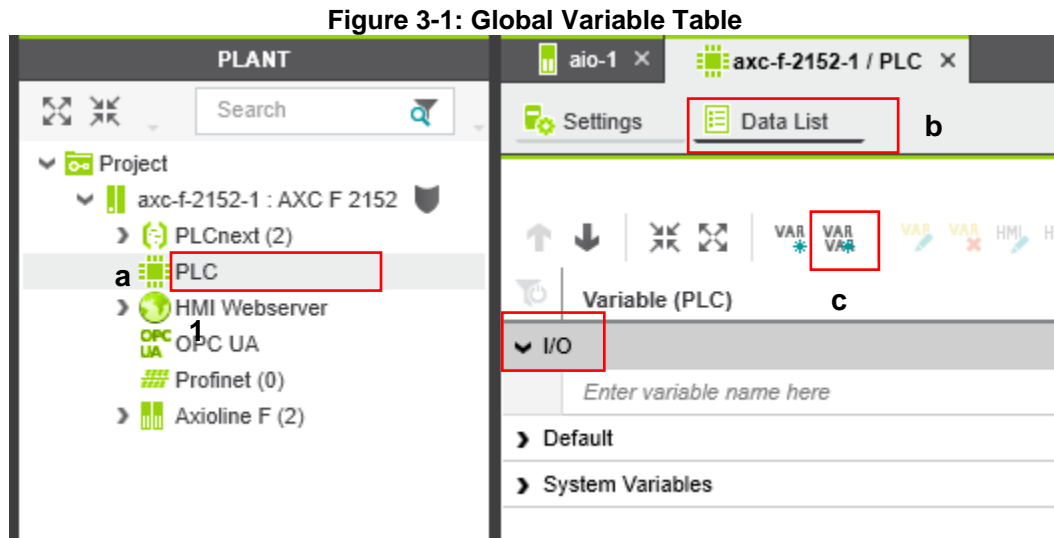
4. After making any changes close out of all windows. To apply the changes to the controller, download the project to the controller.

NOTE: Depending on the module, the settings tab may also have configurable options.

3 – Map I/O to Variables

This procedure will go over how to associate (map) the I/O data with global variables. These variables will be available for use in programs.

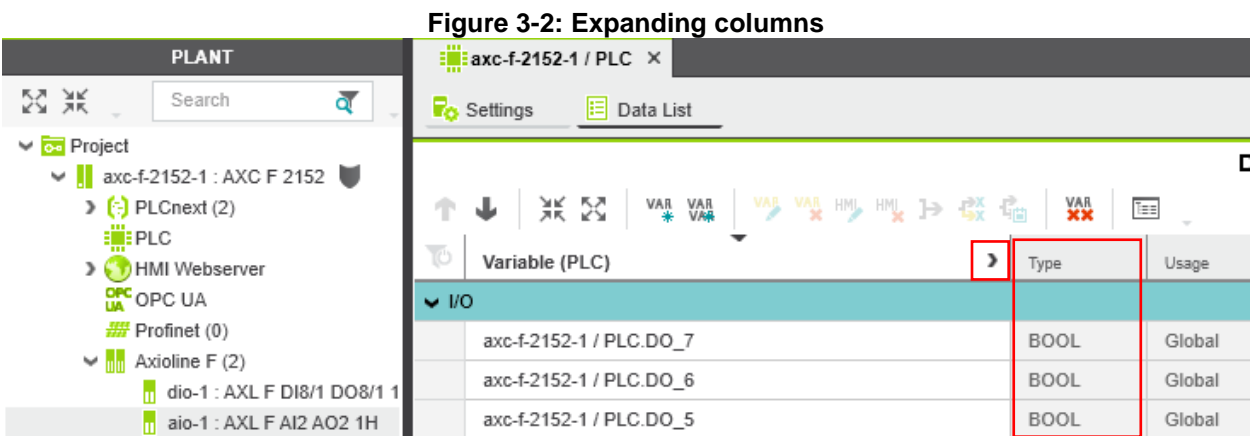
1. Go to Plant > Project > “axc-f-2152..” and **double-click** PLC (a). – This will open a new window. See figure 3-1.
2. In the new window, go to “Data List” (b) you will see a list of global variables. Create a new group and call it “I/O” by selecting the icon in the toolbar (c). See figure 3-1.



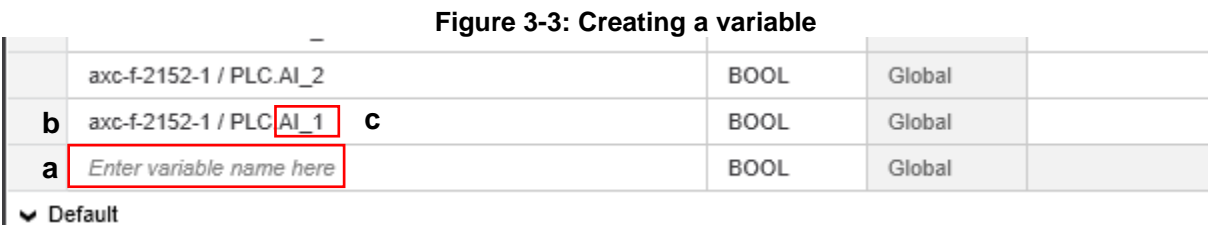
3. Create process data variables. There are three parameters of the variable that will need created/configured.

- Name – Can be any name. Preferably, a name that describes the value associate with it.
- Process Data Item – The Input or Output channel to be mapped to the variable
- Data Types – A datatype describes how much memory is used and how the data is represented. This is important in mapping I/O.
 - Digital modules – only 1 bit is used for each variable since the value is represented as true/false. The datatype would then be a BOOL.
 - Analog modules – A range of values that is made up of 16 bits is used. The datatype would then be a WORD.
 - Other modules – modules can vary in datatype. The best way to determine the datatype is by looking at the data sheet or at the “Type” column in the Datalist for the module.

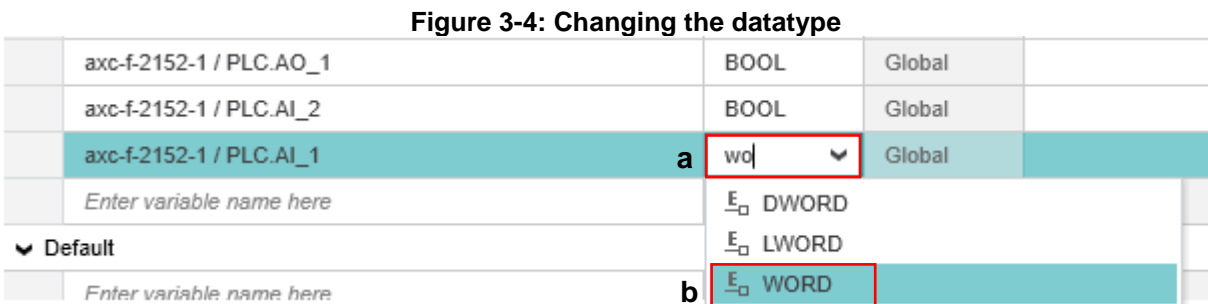
4. Expand the columns so the datatype can be changed for the new variable. See figure 3-2.



5. Click the field that says, “Enter variable name here” and type in the name of the variable (a). After selecting ENTER the result should look as follows (b) with the custom variable name (c). See figure 3-3.



6. Change the datatype so it can be mapped to the I/O module. In this case an analog module is used so the “Type” will be changed to a WORD (a,b). See figure 3-4.



7. Once all variables have been created minimize the columns, so the process data can be mapped (a). See figure 3-5.

8. Map to the appropriate module's channel by clicking in the Process Data Item field (b). Then select the module (c) and channel (d) to be mapped. See figure 3-5.

Figure 3-5: Mapping

Variable (PLC)		Process data item
▼ I/O		
axc-f-2152-1 / PLC.AI_1		b
axc-f-2152-1 / PLC.AI_2	▼ axc-f-2152-1	axc-f-2152-1 / aio-1 / IN01 d
axc-f-2152-1 / PLC.AO_1	▼ Axioline F	axc-f-2152-1 / aio-1 / IN02
axc-f-2152-1 / PLC.AO_2	▼ dio-1	axc-f-2152-1 / aio-1 / ~AQ32
axc-f-2152-1 / PLC.DI_0	c	axc-f-2152-1 / aio-1 / OUT01
axc-f-2152-1 / PLC.DI_1	▼ aio-1	axc-f-2152-1 / aio-1 / OUT02

9. Do this for each channel desired to be used in a program. See example below.

Figure 3-6: Example of finished I/O map

▼ I/O	
axc-f-2152-1 / PLC.AI_1	axc-f-2152-1 / aio-1 / IN01
axc-f-2152-1 / PLC.AI_2	axc-f-2152-1 / aio-1 / IN02
axc-f-2152-1 / PLC.AO_1	axc-f-2152-1 / aio-1 / OUT01
axc-f-2152-1 / PLC.AO_2	axc-f-2152-1 / aio-1 / OUT02
axc-f-2152-1 / PLC.DI_0	axc-f-2152-1 / dio-1 / IN00
axc-f-2152-1 / PLC.DI_1	axc-f-2152-1 / dio-1 / IN01
axc-f-2152-1 / PLC.DI_2	axc-f-2152-1 / dio-1 / IN02
axc-f-2152-1 / PLC.DI_3	axc-f-2152-1 / dio-1 / IN03
axc-f-2152-1 / PLC.DI_4	axc-f-2152-1 / dio-1 / IN04
axc-f-2152-1 / PLC.DI_5	axc-f-2152-1 / dio-1 / IN05
axc-f-2152-1 / PLC.DI_6	axc-f-2152-1 / dio-1 / IN06
axc-f-2152-1 / PLC.DI_7	axc-f-2152-1 / dio-1 / IN07
axc-f-2152-1 / PLC.DO_0	axc-f-2152-1 / dio-1 / OUT00
axc-f-2152-1 / PLC.DO_1	axc-f-2152-1 / dio-1 / OUT01
axc-f-2152-1 / PLC.DO_2	axc-f-2152-1 / dio-1 / OUT02
axc-f-2152-1 / PLC.DO_3	axc-f-2152-1 / dio-1 / OUT03
axc-f-2152-1 / PLC.DO_4	axc-f-2152-1 / dio-1 / OUT04
axc-f-2152-1 / PLC.DO_5	axc-f-2152-1 / dio-1 / OUT05
axc-f-2152-1 / PLC.DO_6	axc-f-2152-1 / dio-1 / OUT06

9. Now the I/O variables (process data variables) can be used in a program!