

Operating Manual:

AOI Execution Guide

Step by step guide for connecting and executing Add-On Instructions
for Anderson Negele Sensors with IO-Link Master and a PLC

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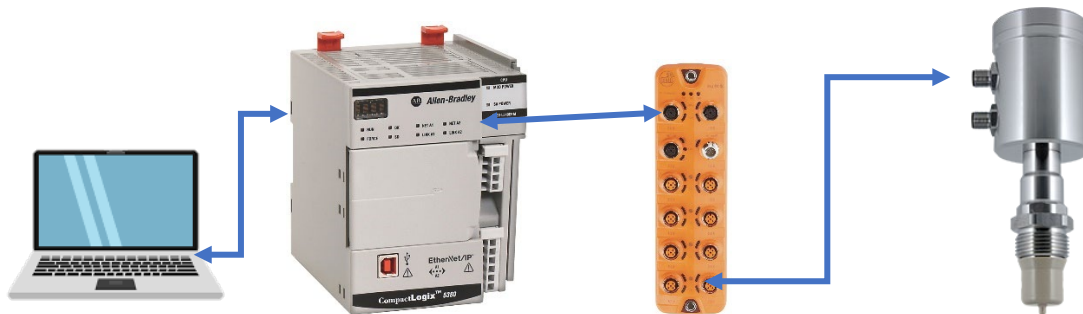
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Overview

This guide describes on how to connect and execute an Anderson Negele sensor (herein referred to as sensor) to IFM master AL1322 (hereinafter referred to as IO-Link Master) and connect it to Allen Bradley CompactLogix CPU L85BP (hereinafter referred to as PLC). The document can be followed for connecting all types of Anderson-Negele sensors with the same procedure.

Model devices and device configuration

In this section you will find the model devices and device configuration of connecting the sensors, Master and PLC.



Name	Device Model name (example)
Anderson-Negele Turbidity Sensors	ILM-4
PLC	Allen Bradley L8B5P
IO-Link Master	IFM Master (AL1322)

Add-on instructions portfolio

Below are the listed Add-On Instructions available from Anderson-Negele portfolio

Product Category	Product
Conductivity Sensor	ILM-4
Turbidity Sensor	ITM-51
Temperature Sensors	TSBA, TSMA, TSBF, TSMF, TSBP, TSMP
Pressure Sensors	P42
Level Sensors	NSL-F

Add-On Instructions portfolio

Add-On Instructions are user defined instructions that enables a user/programmer to define, develop an instruction that contains a commonly used algorithm or functions.

You can create new instructions for sets of commonly used logic, provide a common interface to this logic and provide documentation for the instructions. Add-On Instructions are intended to use to condense commonly used functions or device control. They are not intended to be a high-level hierarchical design tool.

Download and Installation

Before the installation process, download your Add-On Instructions from Anderson-Negele website, blog.anderson-negele.com/aoi

1. Login or Register
2. Open your registered email and click on the access code
3. Choose the type of sensor
4. Download AOI file



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AOI Add-On Instructions Download Page

Download the Add-on Instructions for Allen Bradley PLC with an IFM-IO Link Master 4-port and 8-port in less than a minute

1. Submit the form below
2. Choose the type of sensor
3. Download the AOI file

Category	Sensor(s)	4 port IO-Link Master	8 port IO-Link Master
Turbidity Meter	ITM-51		
Conductivity Meter	ILM-4		
Temperature Sensor	TSBA TSBF/TSBP TSMA TSMF/TSMP TTB		
Pressure Sensor	P42		
Level Sensor	NSL-F		

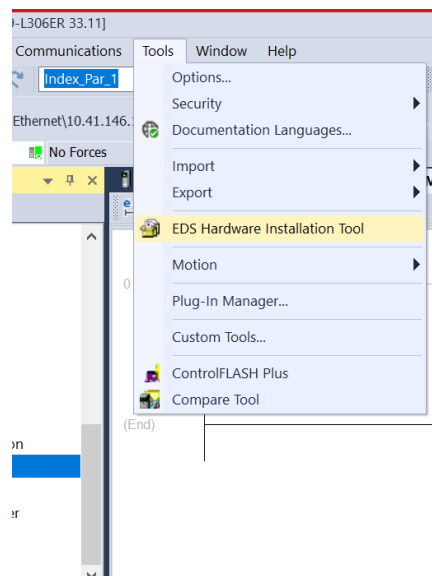
Configuration

Follow the configuration instructions for connecting IO-Link master to PLC. This includes configuring the EDS file for the IO-link master that is used in the application in Logix designer.

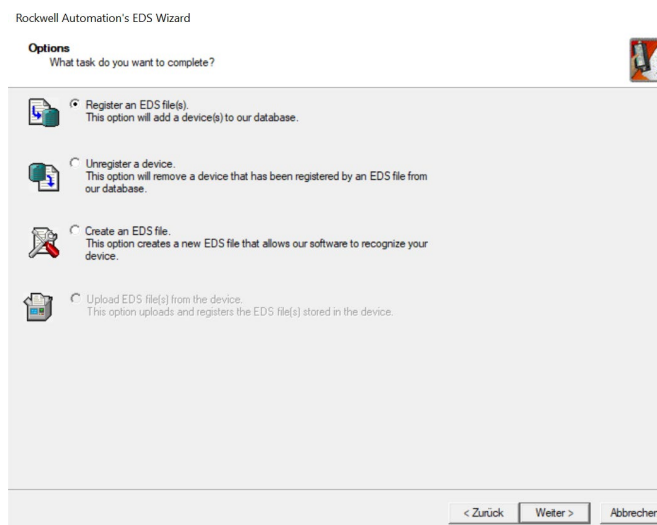
EDS file configuration

For configuring EDS files for IO-Link master follow the steps mentioned below.

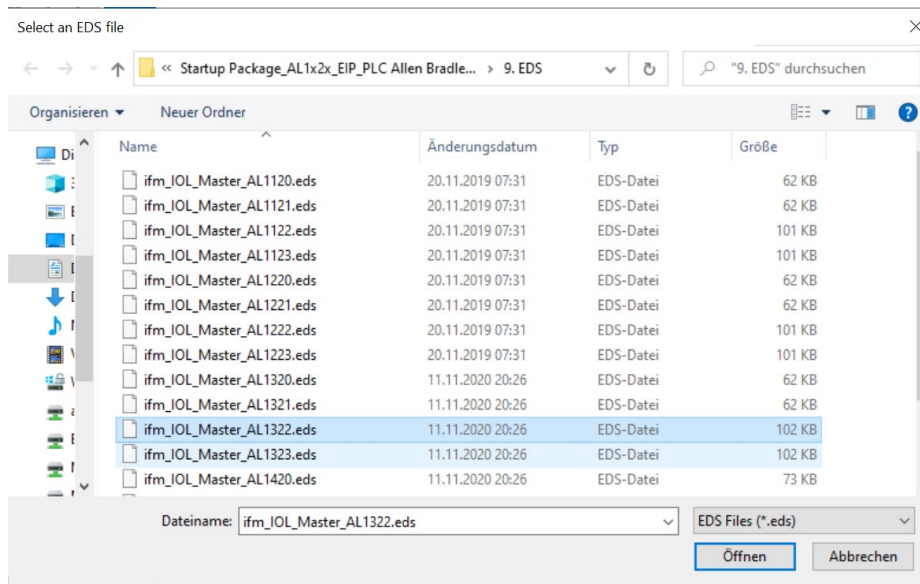
1. Click Tools→ EDS Hardware Installation Tool.



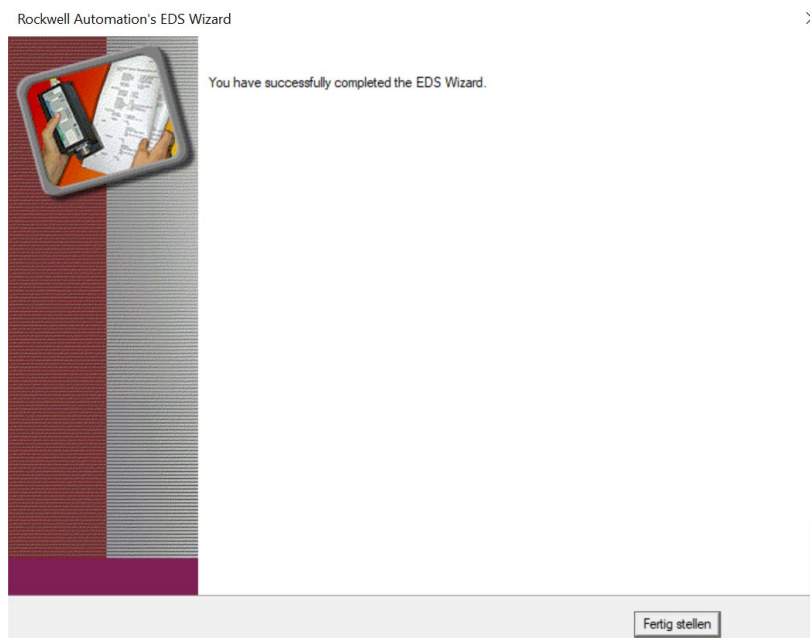
2. After opening Installation tool wizard select which type of options do you want to select.



3. Register the master type you have connected, click Register.
4. Select the type of master which is connected from the list.



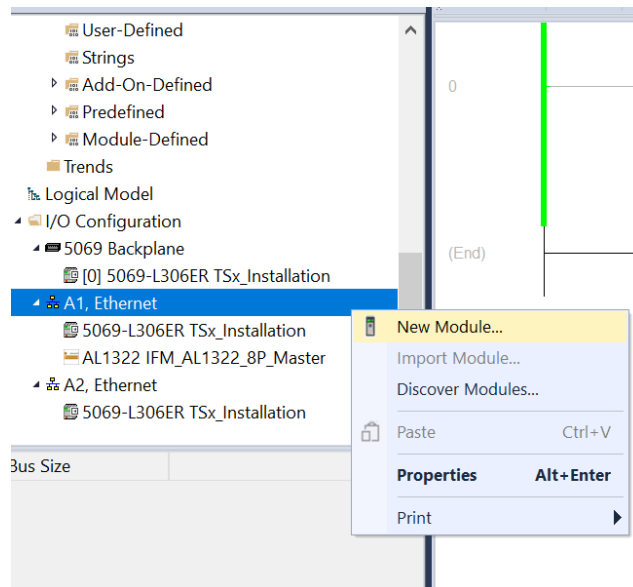
5. Once selected click Finish.



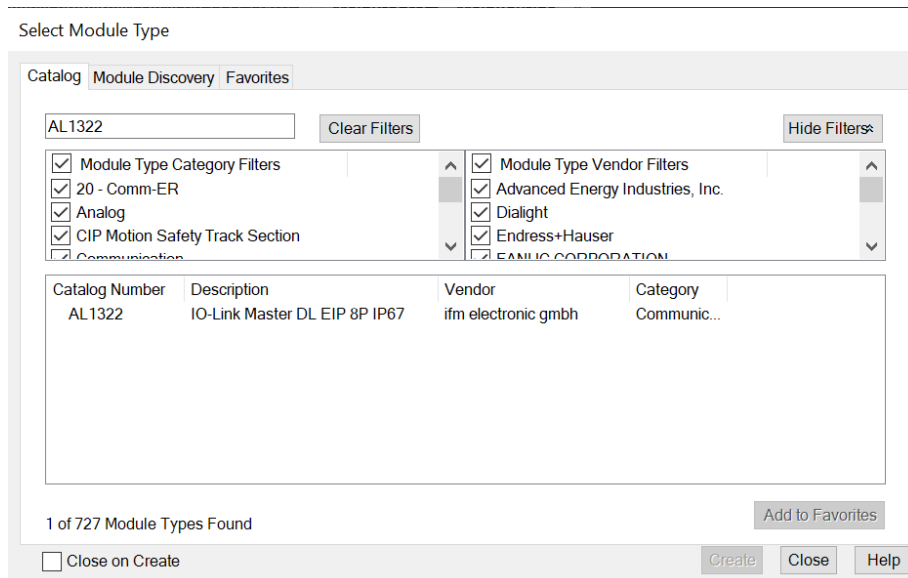
Configuring an Input/Output (I/O Configuration)

Steps to configure an input and output are listed below

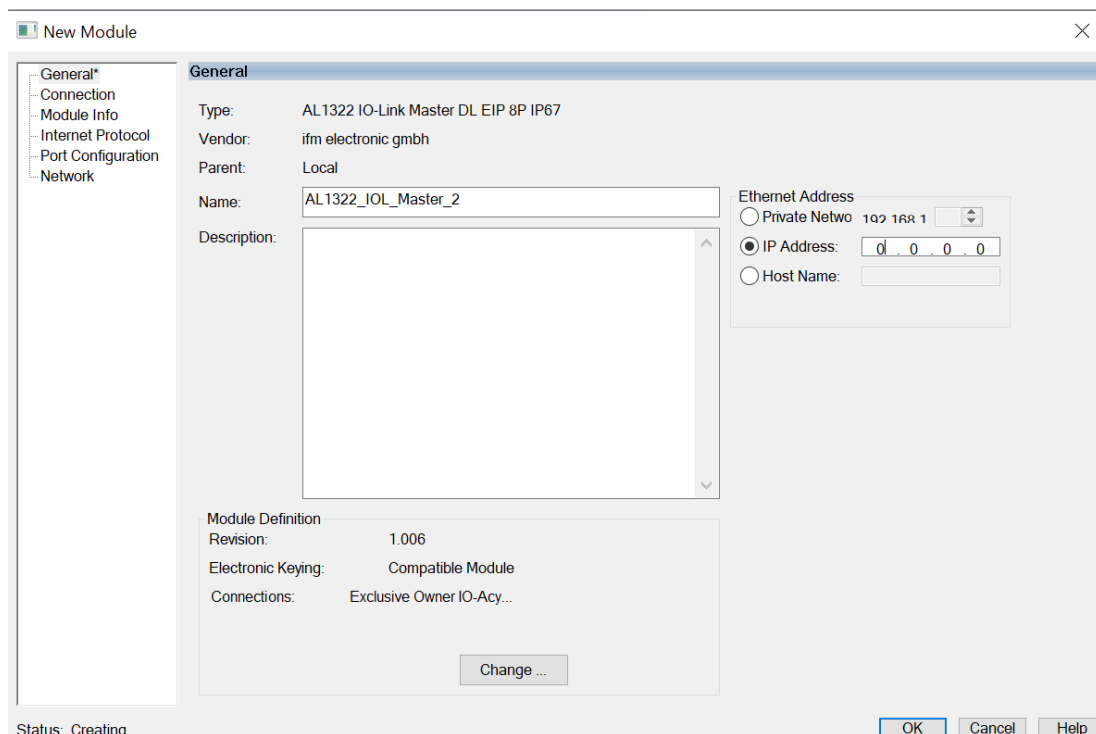
1. In the I/O configuration pane on the left side, right click on A1. Ethernet and select New Module



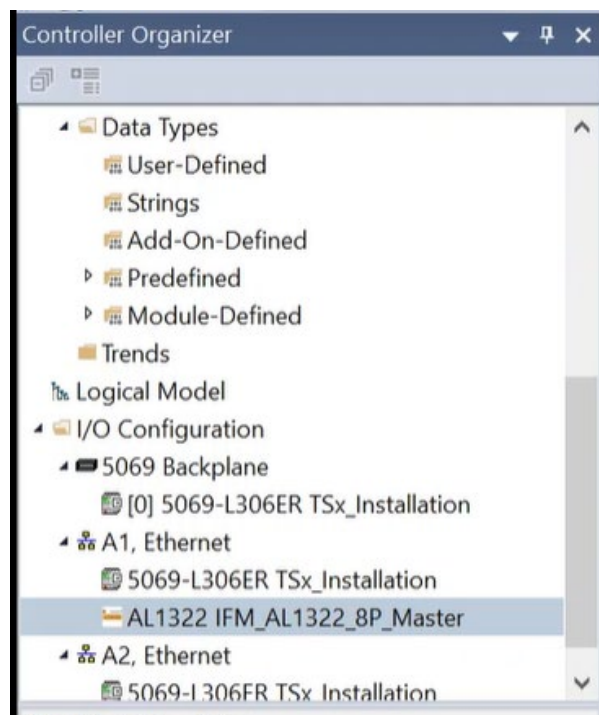
2. Select the module type from the list of module listed in the pane. Here the IO-Link master was AL1322. Select and click Create.



3. New window opens for creating and defining the IO-Link master information
(Note: IP address in the right side is the address of your IO-Link master)

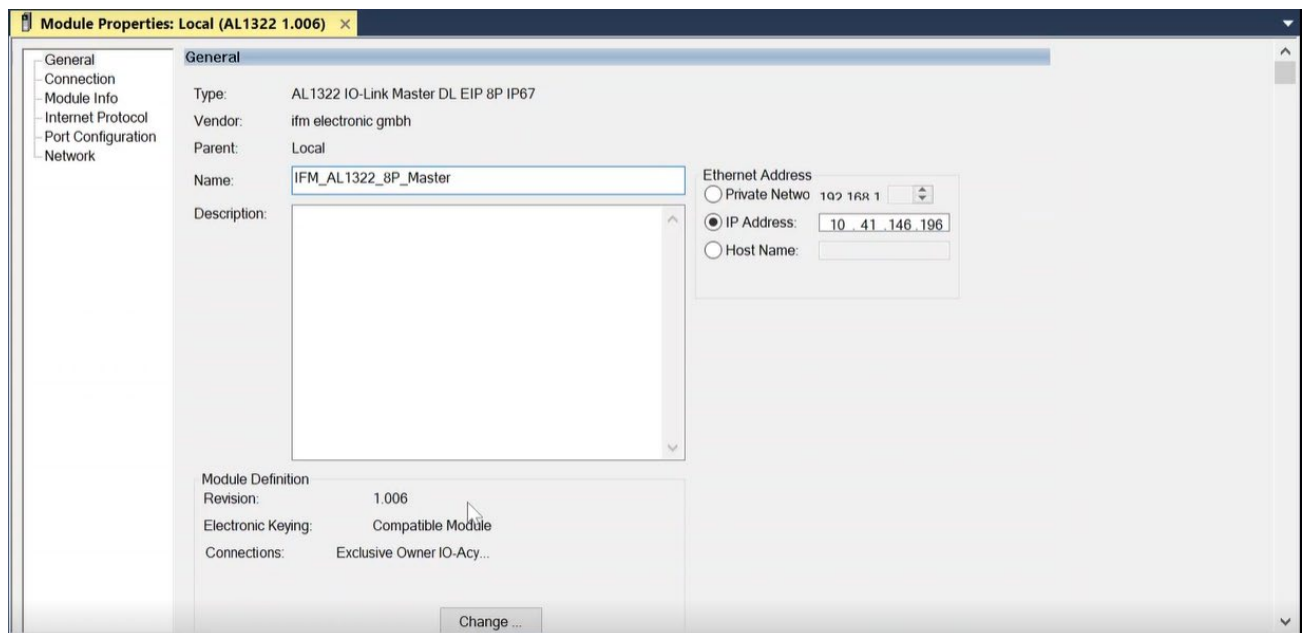


4. Click OK and close the window.
5. Once created in the controller organizer Pane the IO-Link Master will show up.

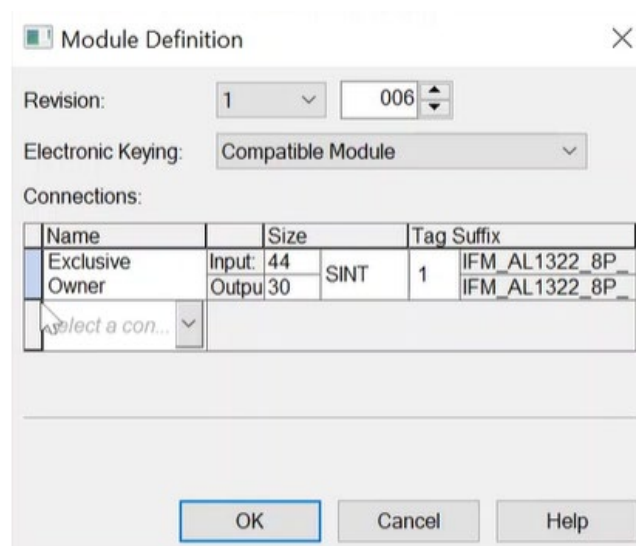


6. Double click the configured IO-Link Master and go to General Tab in the Module properties.

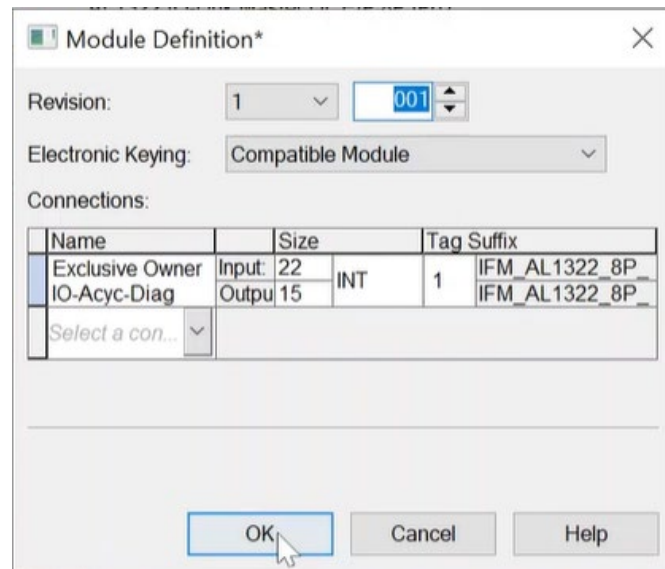
7. Click Change in the General Tab.



8. Change the size of the input and output from SINT to INT
9. Check and change the Revision number if needed according to the IO-Link master (here in this it was Rev.001)



10. Click OK

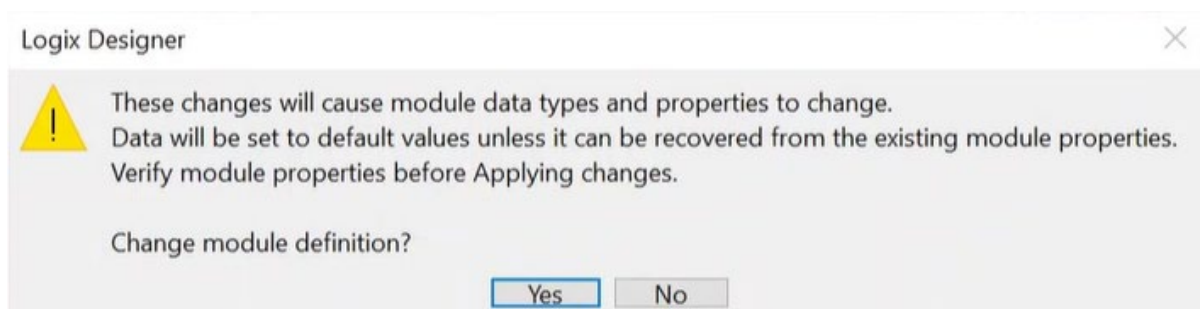


The 'Module Definition*' dialog box is shown. It has a title bar with a close button. The 'Revision' field is set to 1, and the 'Electronic Keying' dropdown is set to 'Compatible Module'. The 'Connections' section contains a table with the following data:

Name	Size	Tag Suffix
Exclusive Owner	Input: 22	INT 1 IFM_AL1322_8P
IO-Acyc-Diag	Output: 15	IFM_AL1322_8P

Below the table is a dropdown menu labeled 'Select a con...'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'. A mouse cursor is pointing at the 'OK' button.

11. System asks for Confirmation for module definition change. Click Yes.

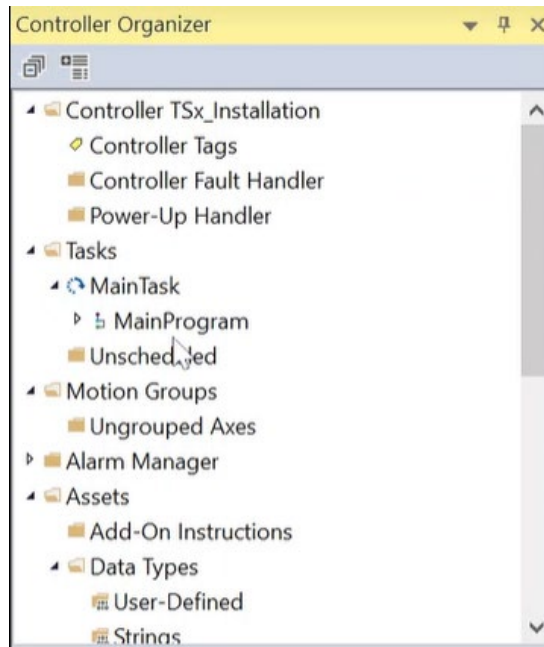


The 'Logix Designer' confirmation dialog is shown. It has a title bar with a close button. A yellow warning triangle icon is on the left. The text reads: 'These changes will cause module data types and properties to change. Data will be set to default values unless it can be recovered from the existing module properties. Verify module properties before Applying changes.' Below this text is the question 'Change module definition?'. At the bottom are two buttons: 'Yes' and 'No'. The 'Yes' button is highlighted with a blue border.

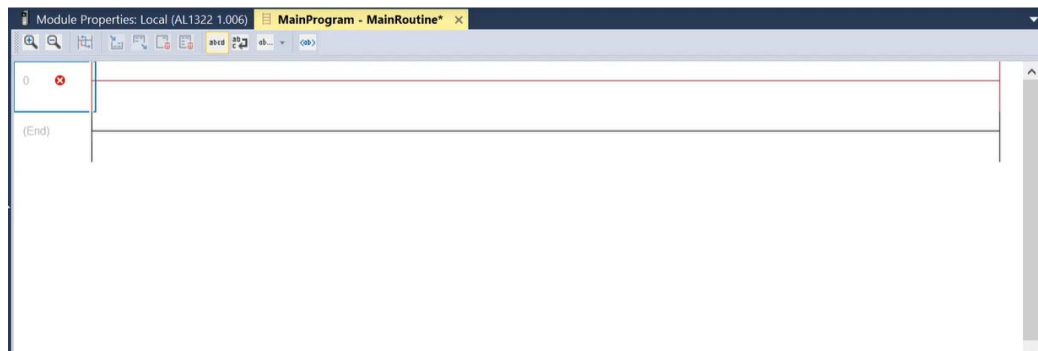
Importing Add-On Instructions

This section explains how to import an Add-On Instruction and configure the same.

1. Click on Main Program from controller organizer pane.

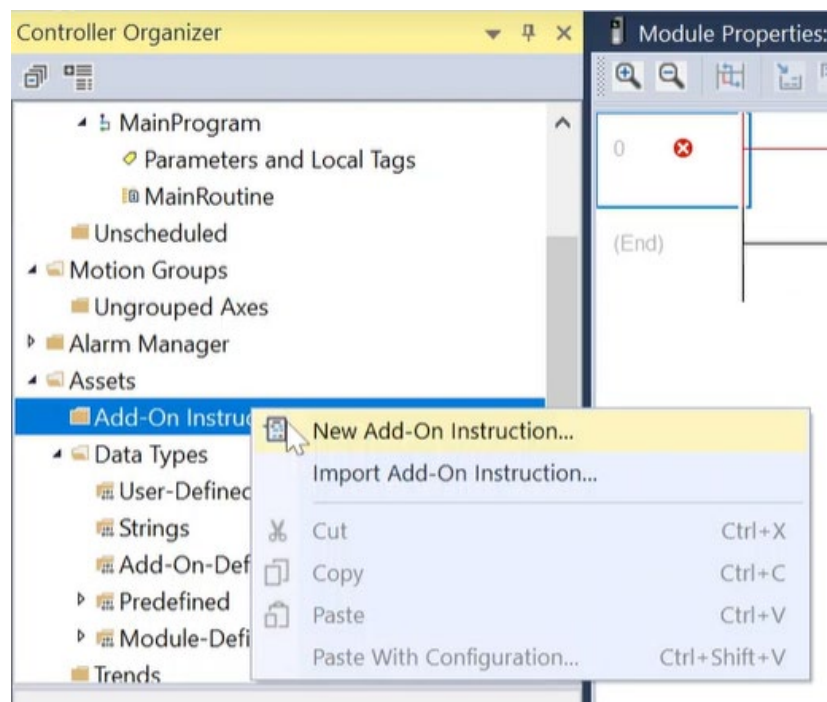


2. Click open Main Routine from Main program tab.

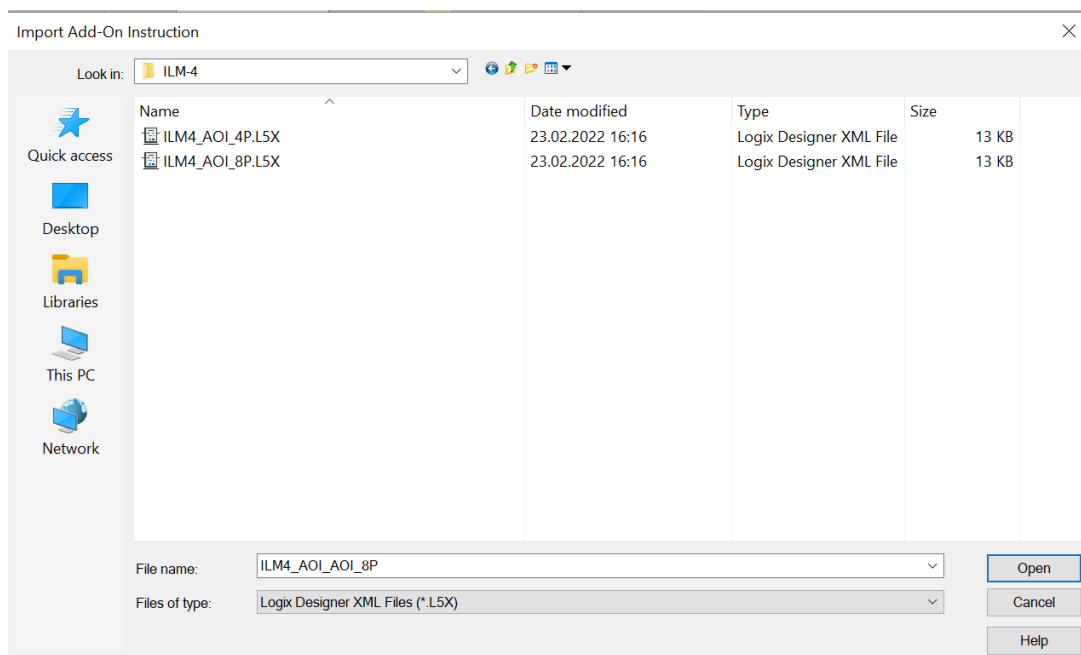


3. From the controller Organizer pane click on Assets and go to Add-On Instructions.

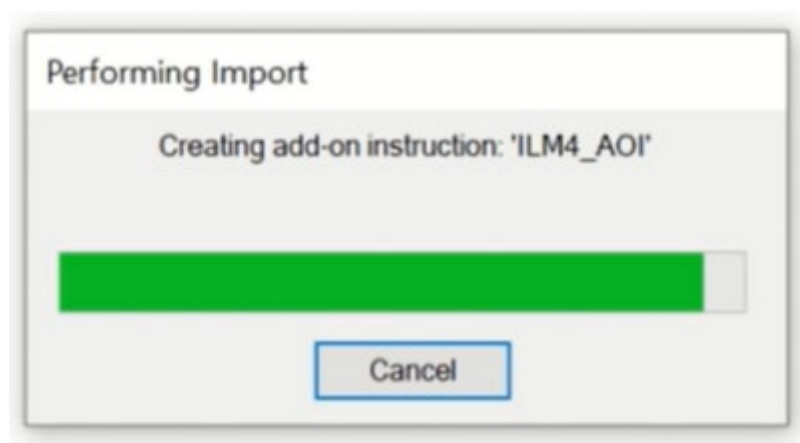
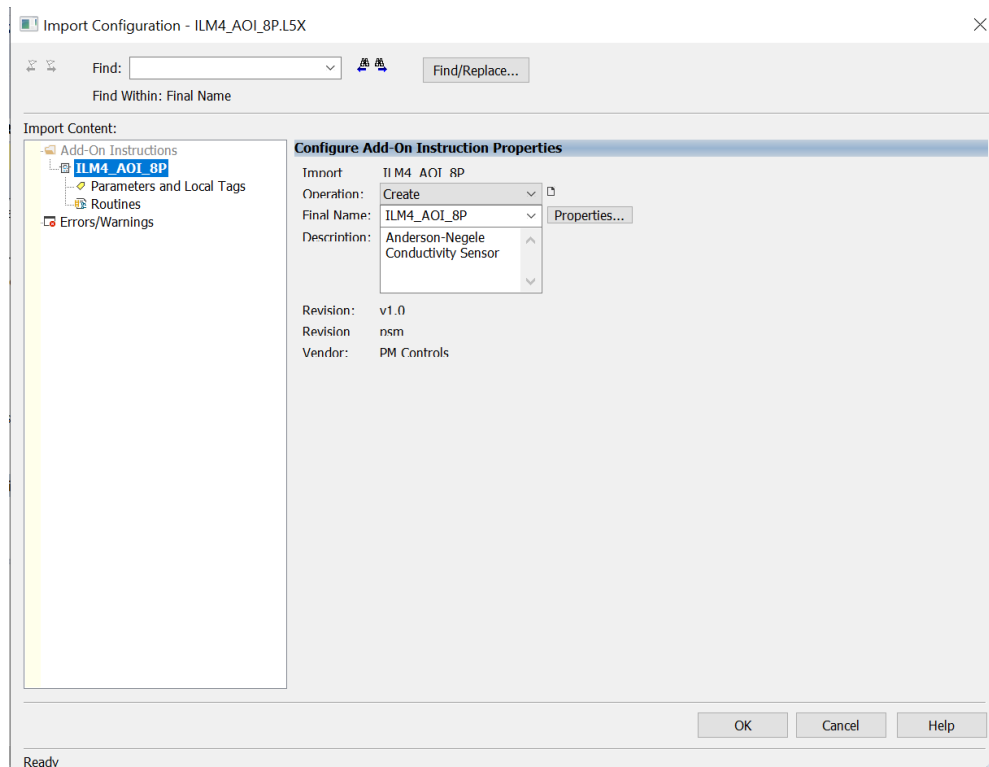
4. Right click to import an Anderson-Negele Add-On Instruction.



5. Select the desired current Add-On Instruction based on sensors connected (Example below is for ILM-4 Anderson Negele Conductivity sensors)
6. Please choose the Add-On Instructions based on the connected number of ports in the IO-Link master (there may be error when 8 port or 4 ports are mismatched)

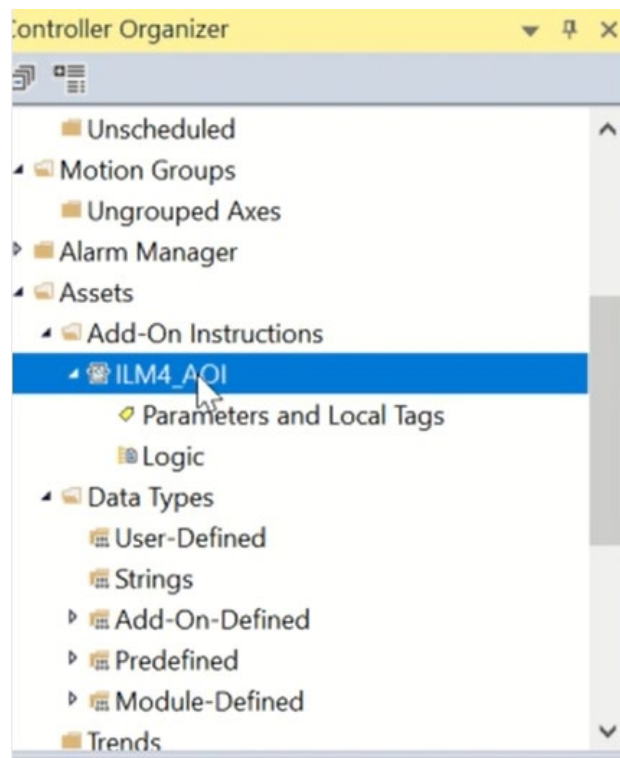


7. After opening the desired Add-On Instructions Import content window opens, check the values of the sensor and add-on instructions are matched.
8. Click OK.

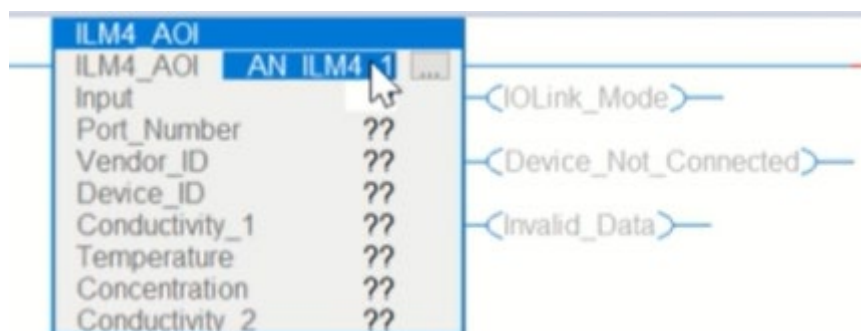


9. Once the Import has been done, click the Add-On Instruction from the controller organizer pane.

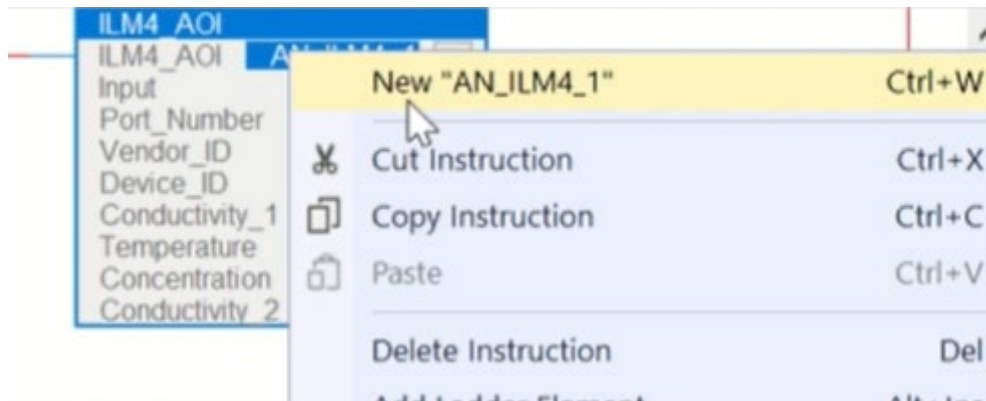
10. Drag and drop the AOI to the Main Routine.



11. Once the AOI has been inserted in the Main Routine name the AOI to your desired name. (here it is AN_ILM4_1)

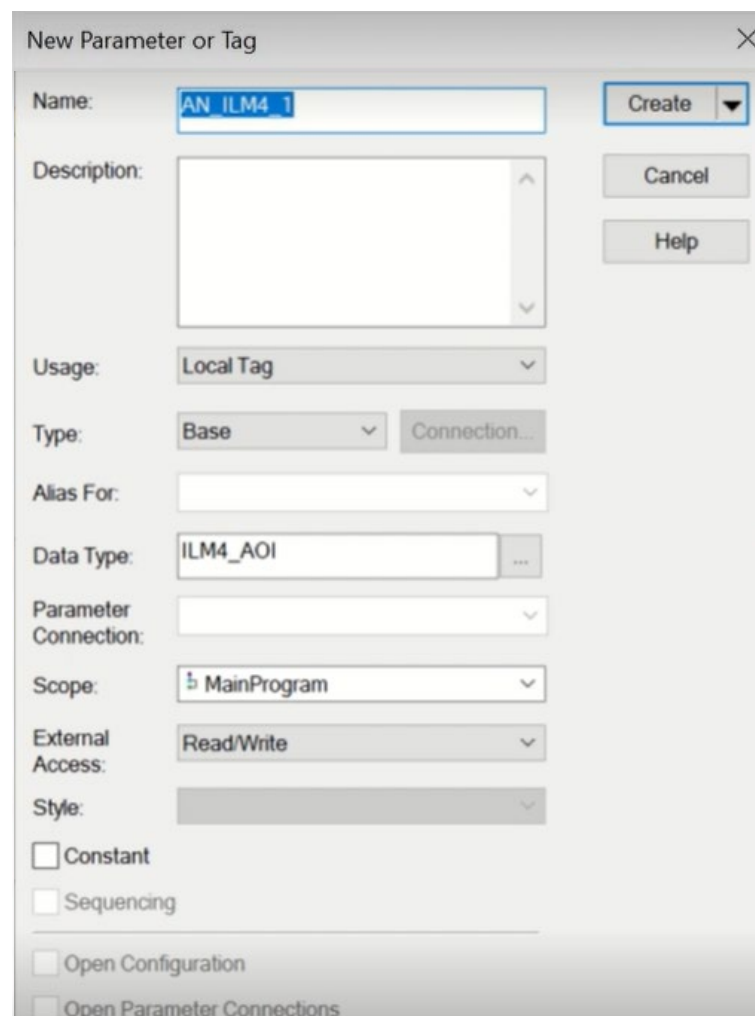


12. Right click on the AOI and click in New "AOI Name" here it is New"AN_ILM4_1"

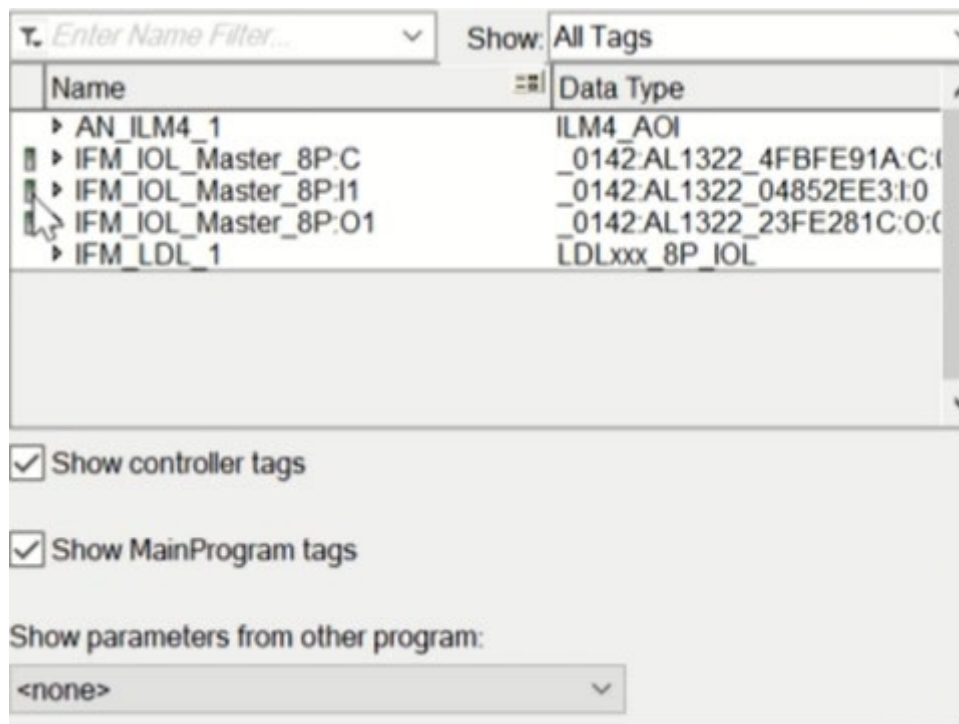
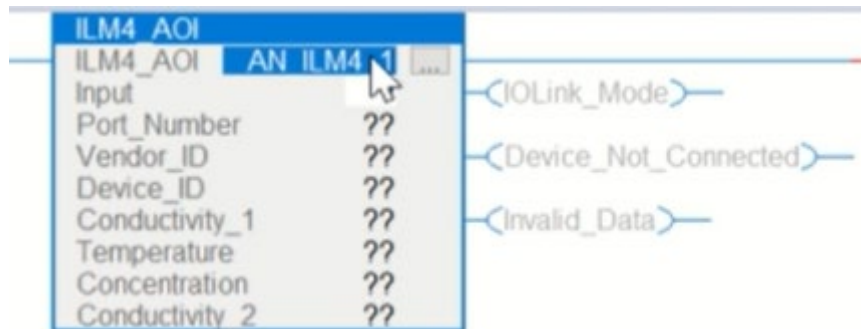


13. New Parameter or Tag window opens.

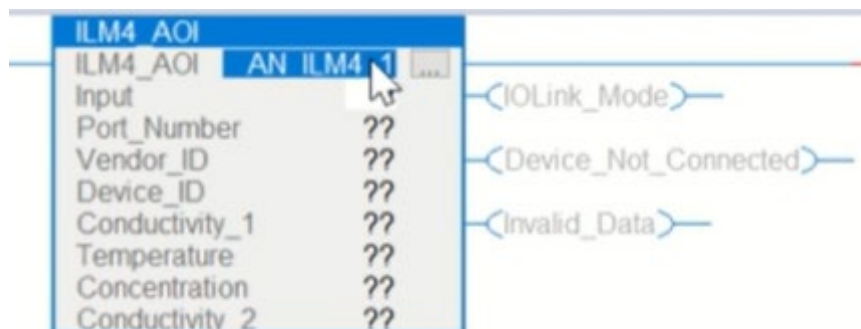
14. Check for the Name of the Parameter and click Create.

A screenshot of the 'New Parameter or Tag' dialog box. The dialog has a title bar with a close button. It contains several fields and buttons. The 'Name' field is filled with 'AN_ILM4_1'. The 'Description' field is empty. The 'Usage' dropdown is set to 'Local Tag'. The 'Type' dropdown is set to 'Base', with a 'Connection...' button next to it. The 'Alias For' field is empty. The 'Data Type' dropdown is set to 'ILM4_AOI'. The 'Parameter Connection' dropdown is empty. The 'Scope' dropdown is set to 'MainProgram'. The 'External Access' dropdown is set to 'Read/Write'. The 'Style' dropdown is empty. There are three buttons on the right: 'Create' (highlighted), 'Cancel', and 'Help'. At the bottom, there are four checkboxes: 'Constant', 'Sequencing', 'Open Configuration', and 'Open Parameter Connections', all of which are unchecked.

15. In the Add-On Instruction, specify the input in which the sensors is located and map it to the respective Master.



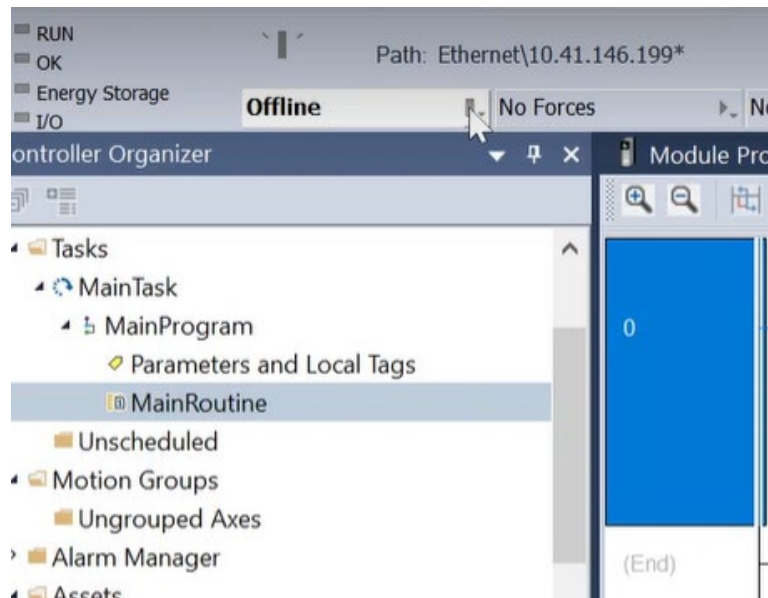
16. In the Add-On Instructions, specify the port number in which the Anderson-Negele conductivity sensor is located.



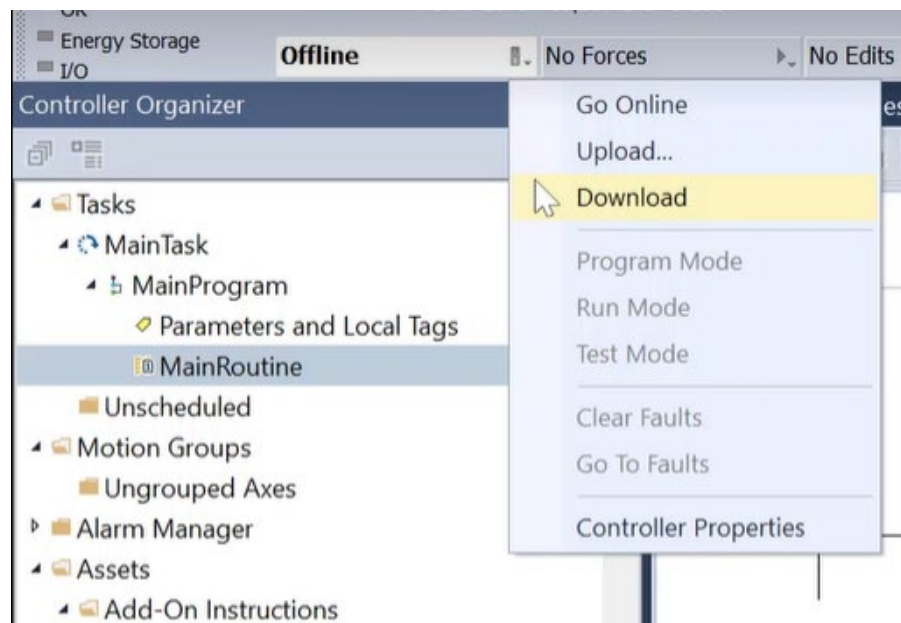
Going Online

This section tells you how to go online and check the values from the sensors.

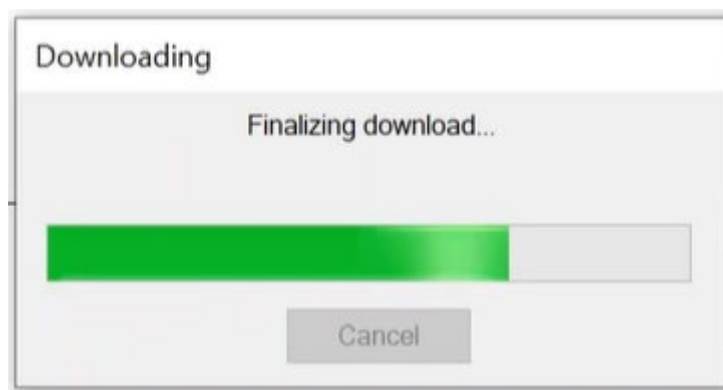
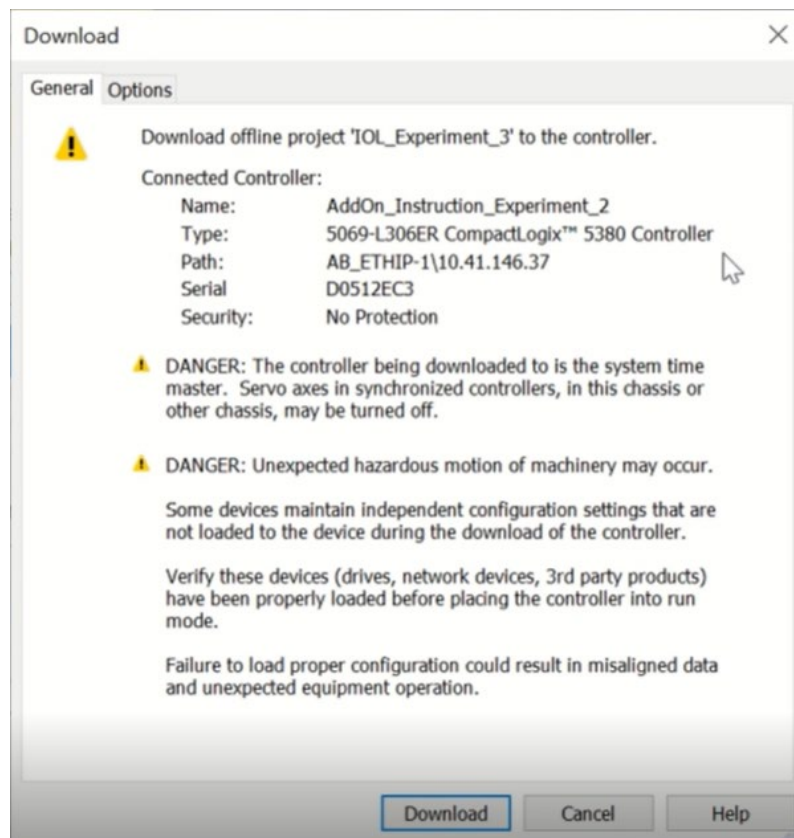
1. Once the Add-On Instructions are parameterized, the program has to be downloaded to the PLC.



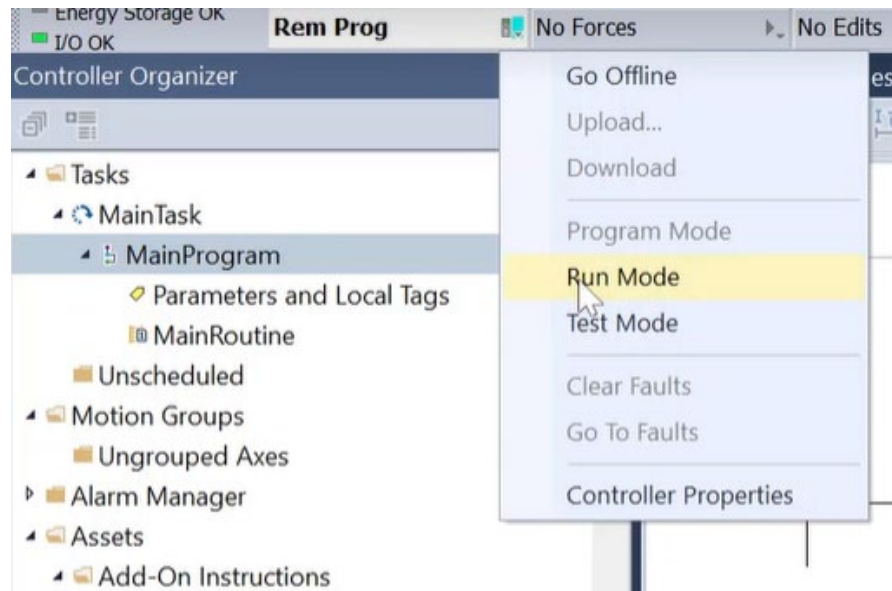
2. Click the drop-down bar next to Offline button and click Download.



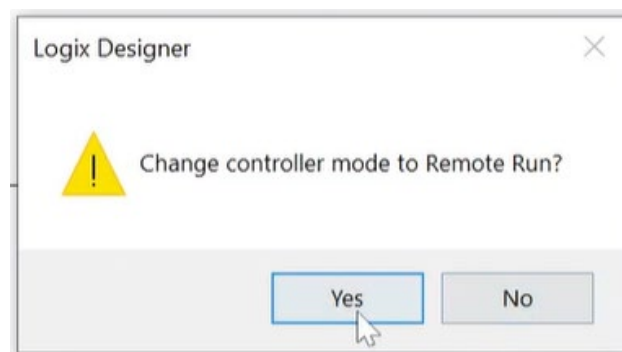
3. Once the download button is clicked a pop-up window will appear for the approval from the user. Click download.



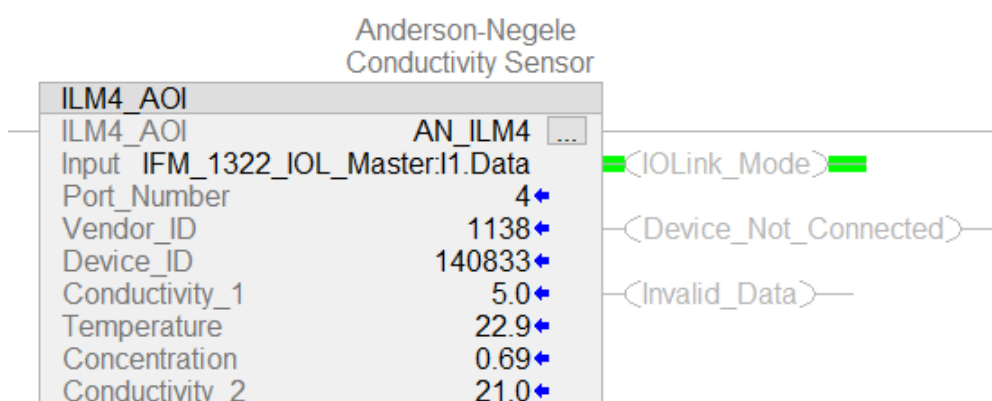
4. Once the program is downloaded go to tool bar to Rem Prog and switch to "Run Mode"



5. Logix controller prompts the user for approval, click Yes.



6. Once going online, the output of the IO-Link mode will be green as shown.



Revision

Sno	Revision update	Rev. date
1.	Created	18.03.22