

# 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

### Note

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**Please read these installation and operating instructions carefully. All instructions in this manual must be followed exactly to ensure proper operation of the unit.**

If you have any questions regarding the product, installation or commissioning, please contact Anderson-Negele Support at support under:

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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.

Please note that all Anderson-Negele sensors with IO-Link connection are optimized for IO-Link masters of the IFM brand. The function may be limited or not possible for other manufacturers.



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	L3, P42
Level Sensors	L3, NSL-F

## What are Add-On Instructions


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, [www.anderson-negele.com/aoi](http://www.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

Choose your file to download below. Download includes AOI file and instruction manual. Instruction manual can also be [downloaded here](#).

Please note that all Anderson-Negele sensors with IO-Link connection are optimized for IO-Link masters of the IFM brand. The function may be limited or not possible for other manufacturers.

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 TSM TSMF/TSMP TTB	↓	↓
Pressure Sensor	P42	↓	↓
Level Sensor	NSL-F	↓	↓
Pressure/Level Sensor	L3	↓	↓
Flow Meter	FMQ	↓	↓

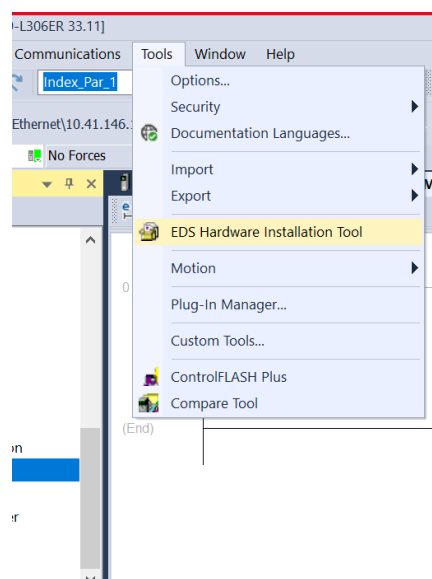
## Configuration

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.

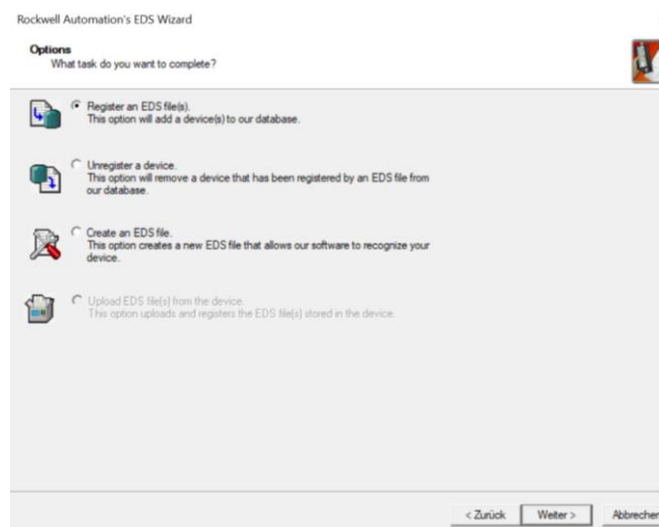
## EDS file configuration

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

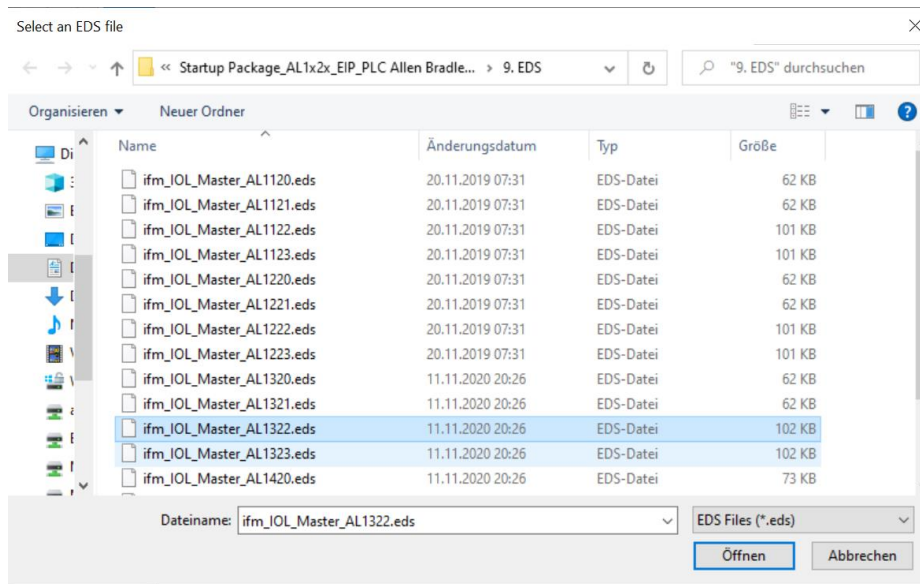
1. Click Tools→ EDS Hardware Installation Tool.



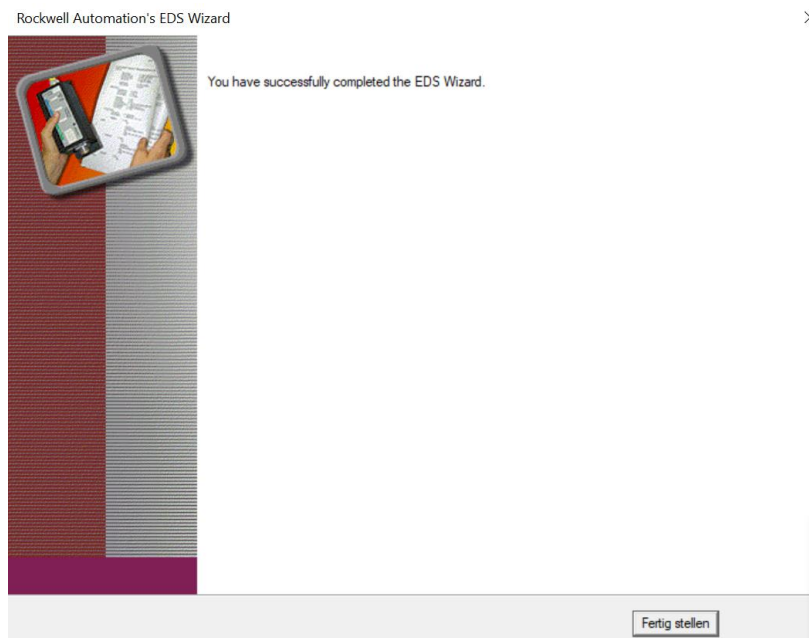
2. After opening Installation tool wizard select which type of options do you want to select.



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



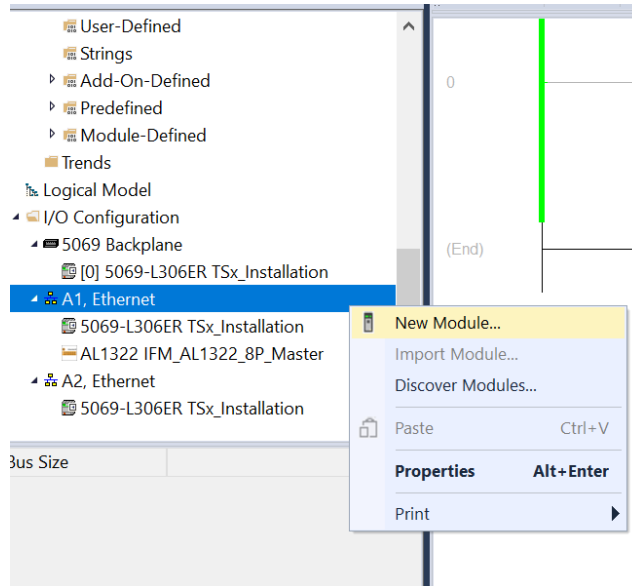
5. Once selected click Finish.



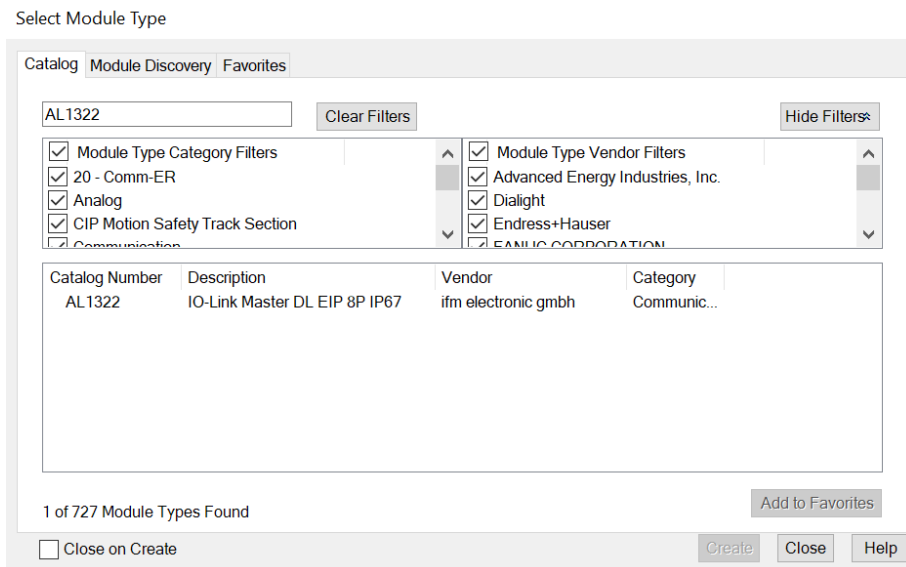
## Configuring an Input/Output (I/O Configuration)

Steps to configure an input and output are listed below

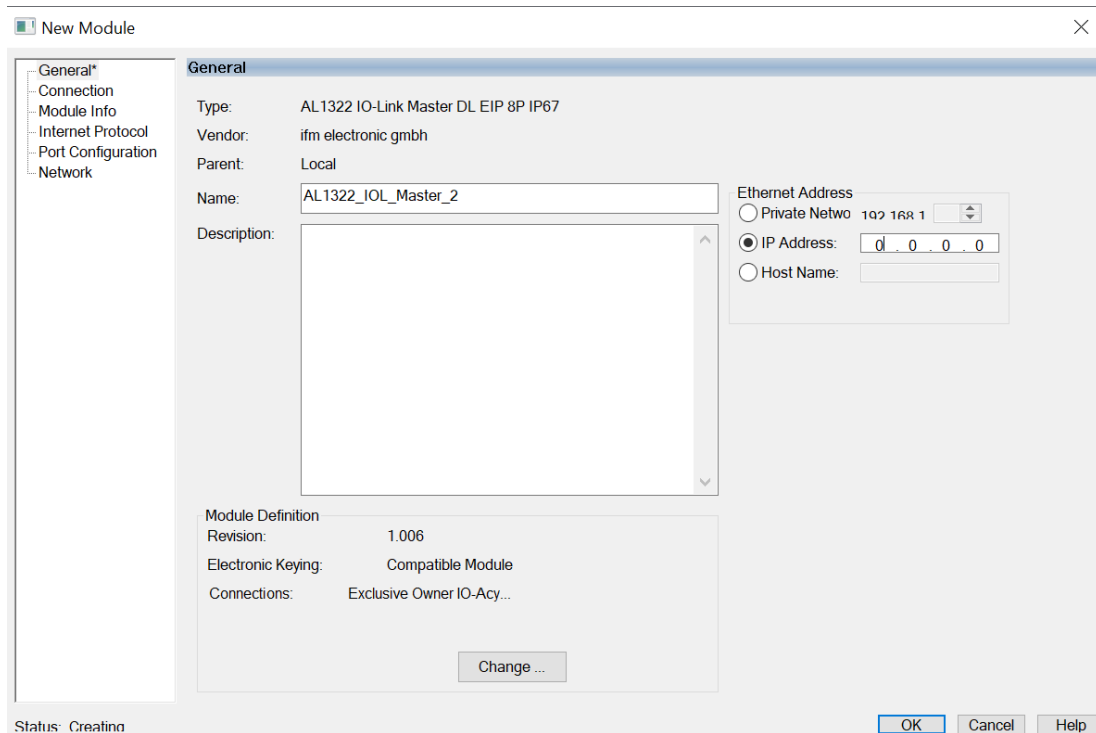
1. In the I/O configuration pane on the left side, right click on A1. Ethernet and select New Module



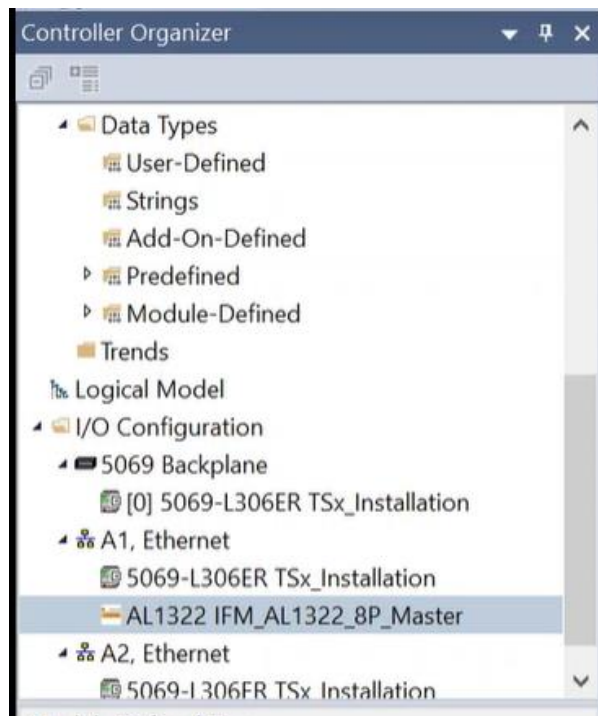
2. Select the module type from the list of module listed in the pane. Here the IO-Link master was AL1322. Select and click Create.



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)



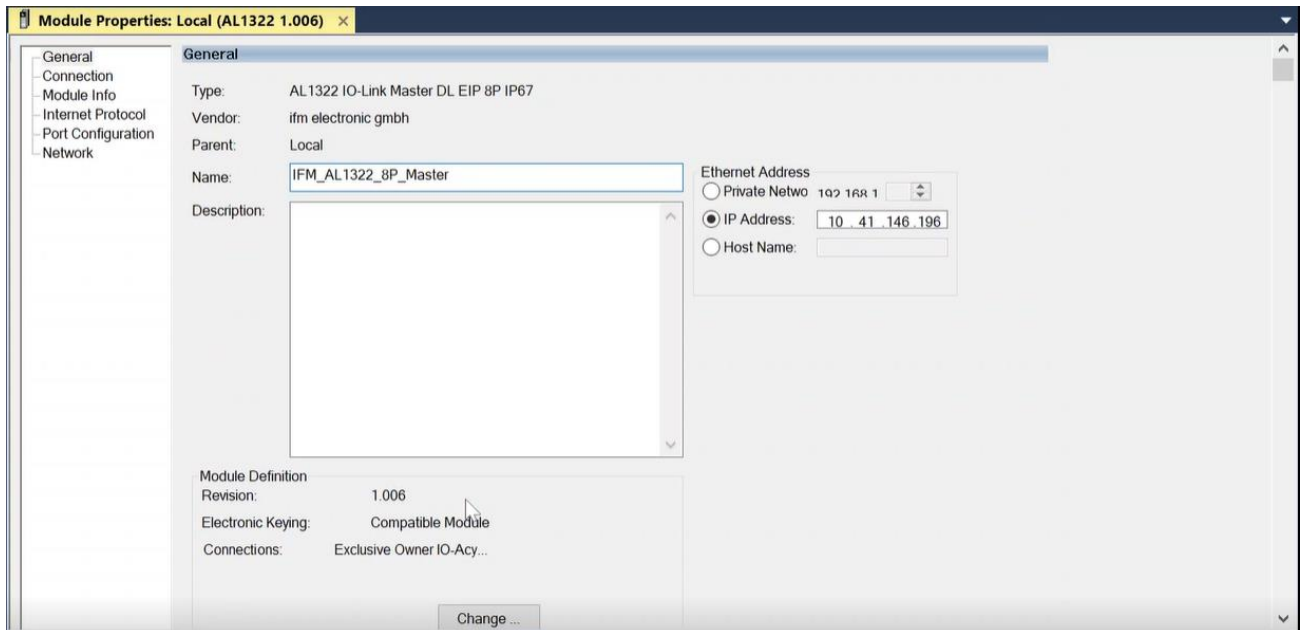
4. Click OK and close the window.
5. Once created in the controller organizer Pane the IO-Link Master will show up.



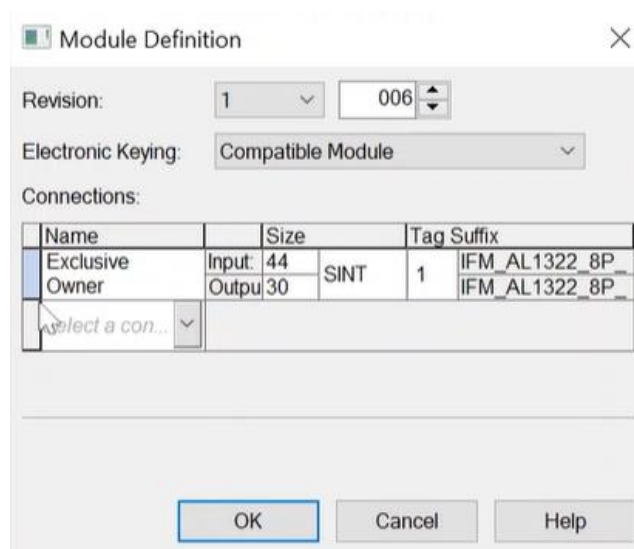
6. Double click the configured IO-Link Master and go to General Tab in the Module properties.



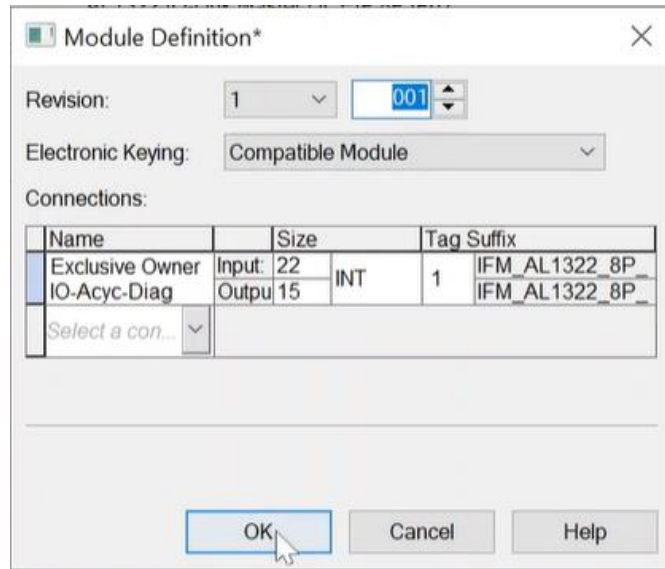
7. Click Change in the General Tab.



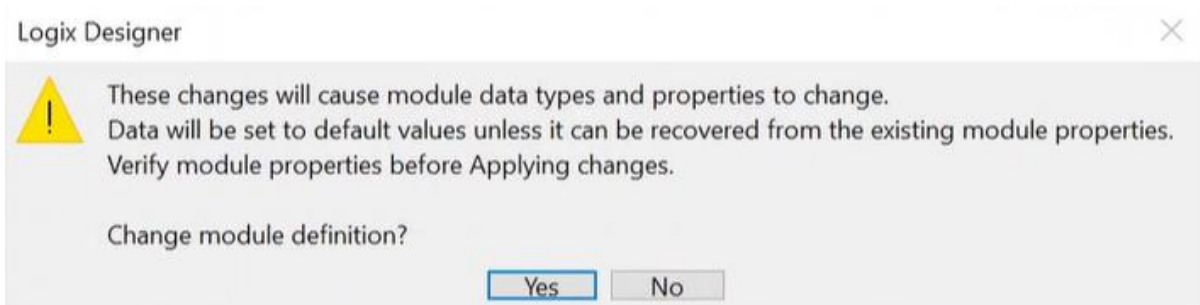
- 8. Change the size of the input and output from SINT to INT
- 9. Check and change the Revision number if needed according to the IO-Link master (here in this it was Rev.001)



10. Click OK



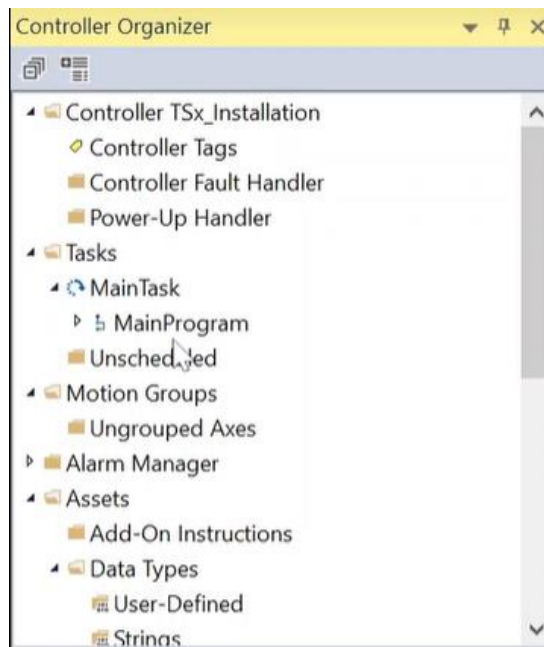
11. System asks for Confirmation for module definition change. Click Yes.



## 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.

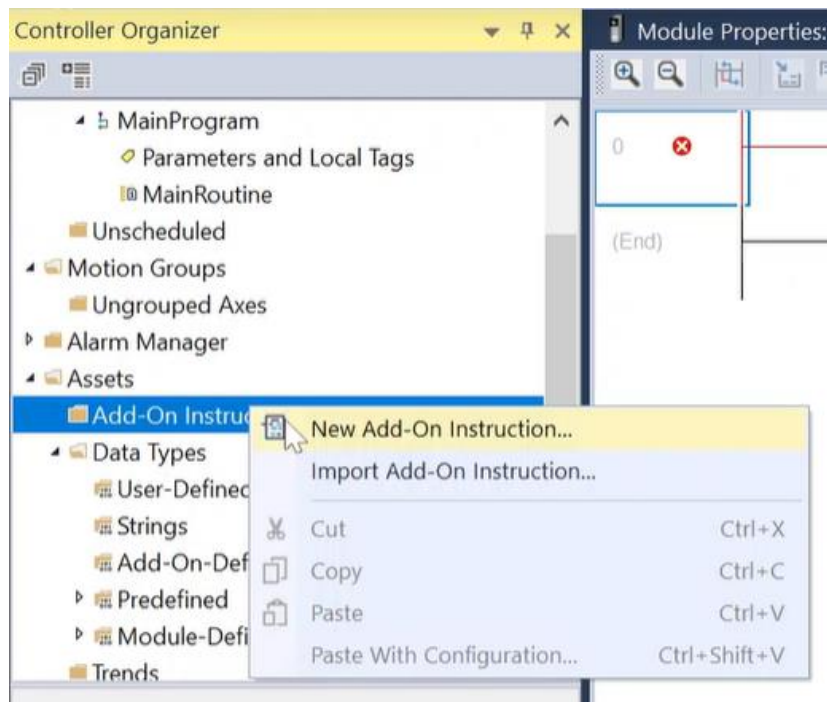


2. Click open Main Routine from Main program tab.

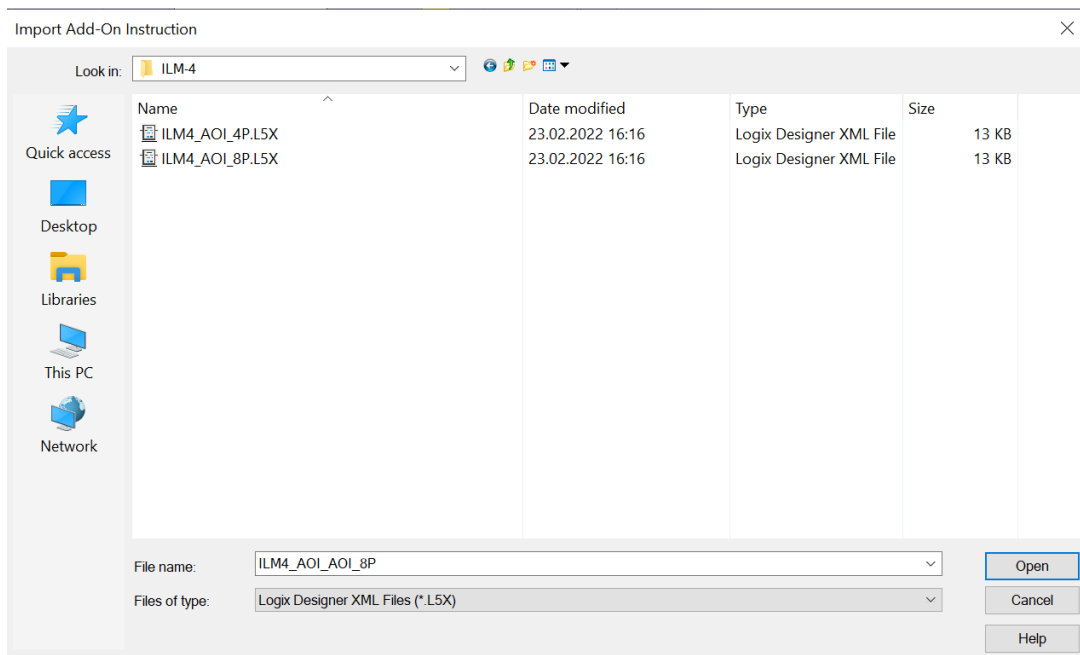


3. From the controller Organizer pane click on Assets and go to Add-On Instructions.

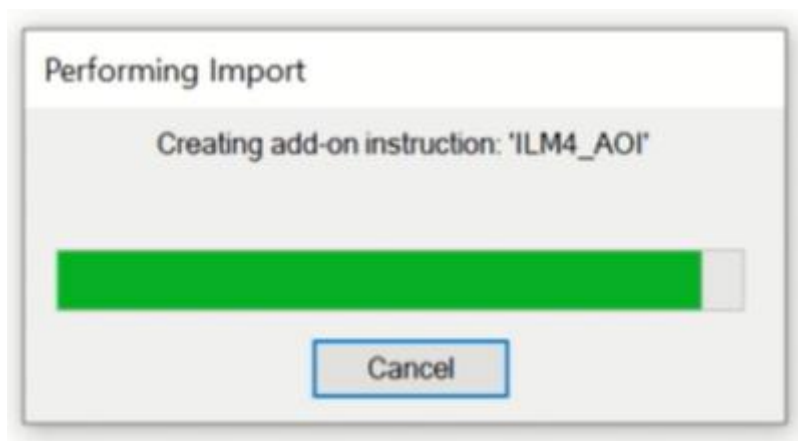
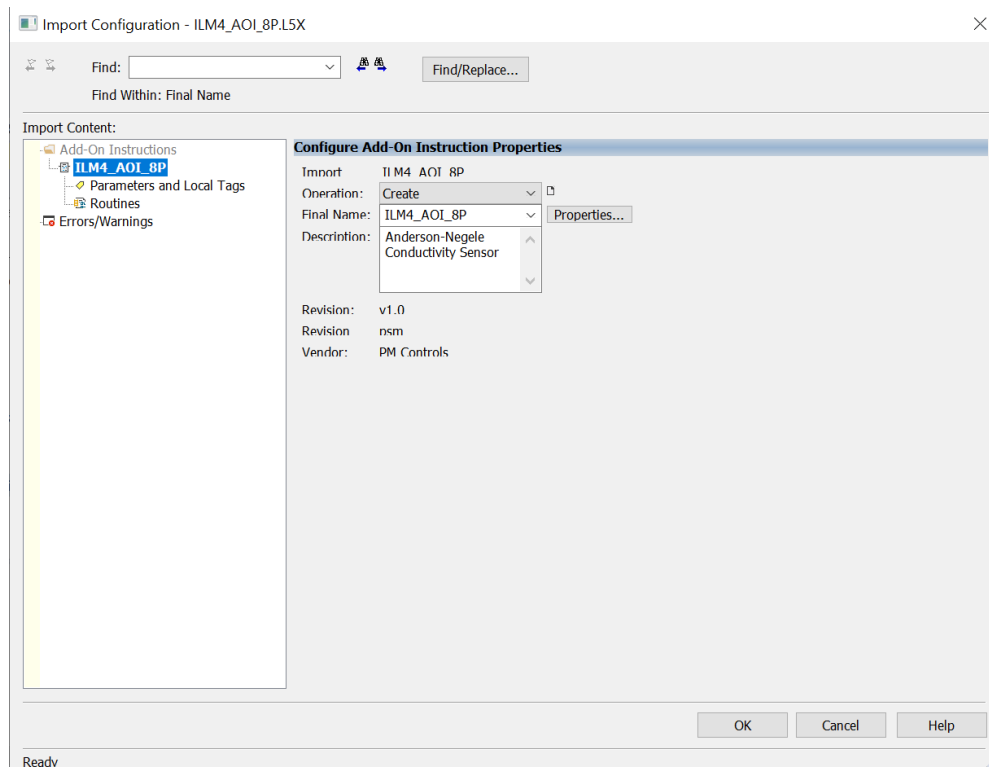
- Right click to import an Anderson-Negele Add-On Instruction.



- Select the desired current Add-On Instruction based on sensors connected (Example below is for ILM-4 Anderson Negele Conductivity sensors)
- 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)

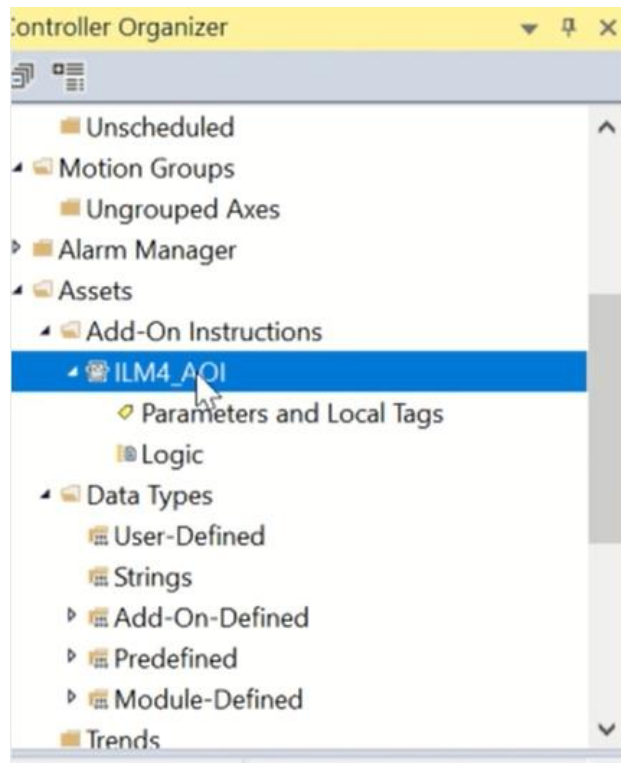


7. After opening the desired Add-On Instructions Import content window opens, check the values of the sensor and add-on instructions are matched.
8. Click OK.

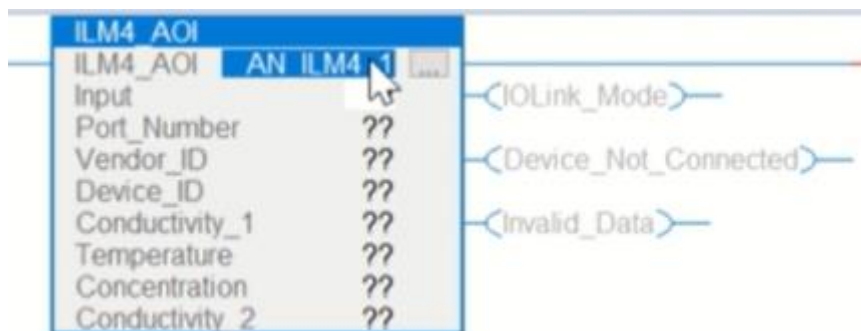


9. Once the Import has been done, click the Add-On Instruction from the controller organizer pane.

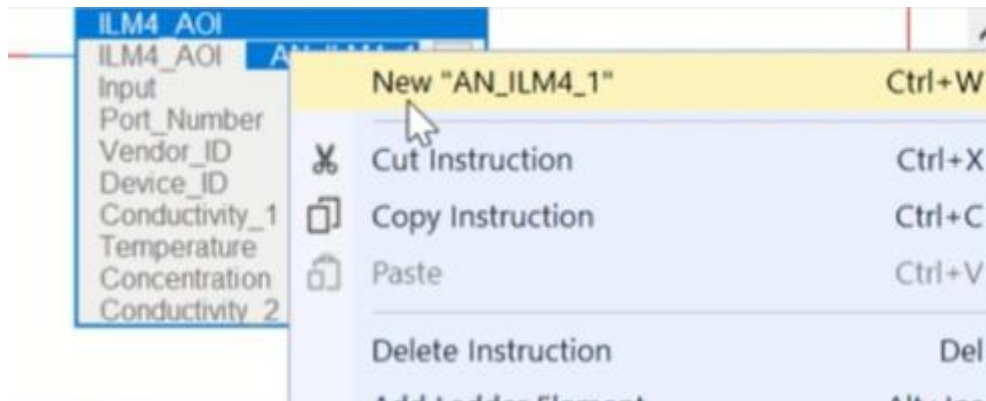
10. Drag and drop the AOI to the Main Routine.



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"

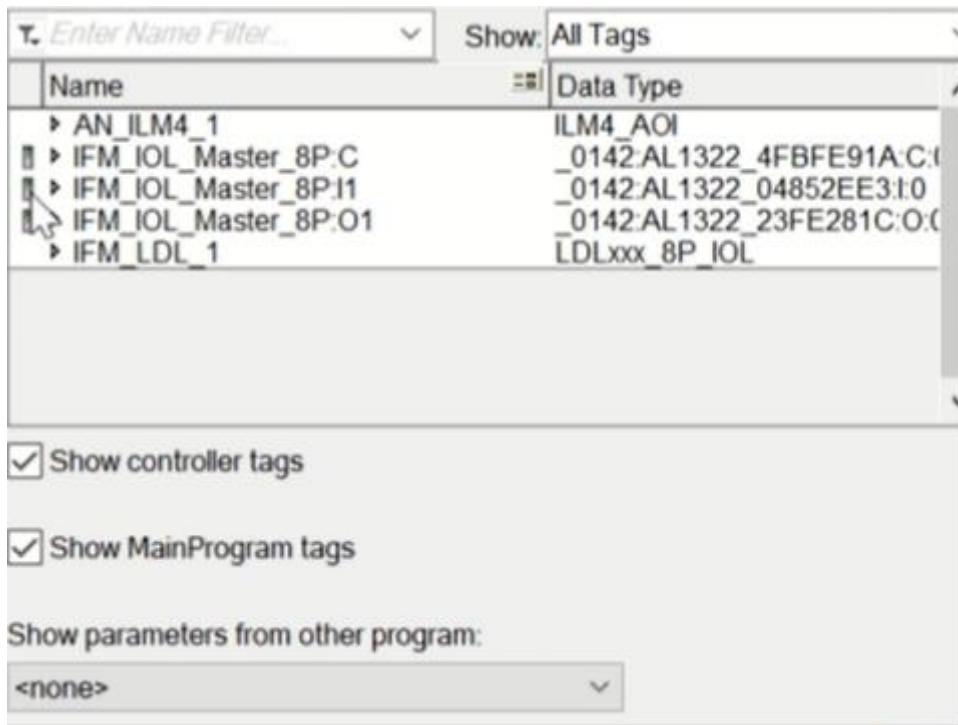
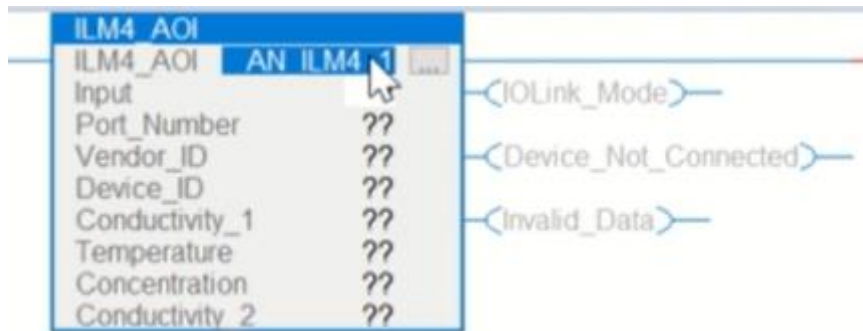


13. New Parameter or Tag window opens.

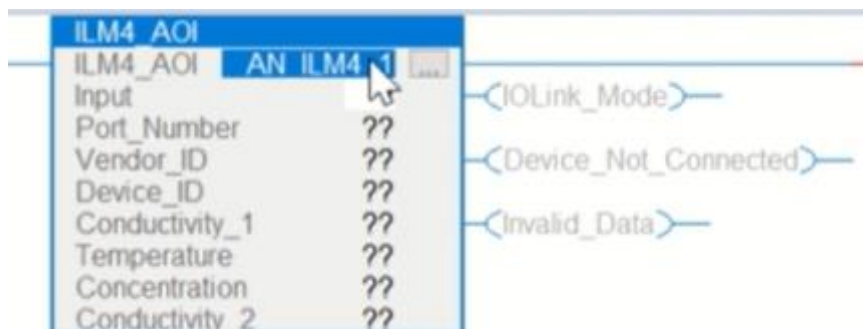
14. Check for the Name of the Parameter and click Create.



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.

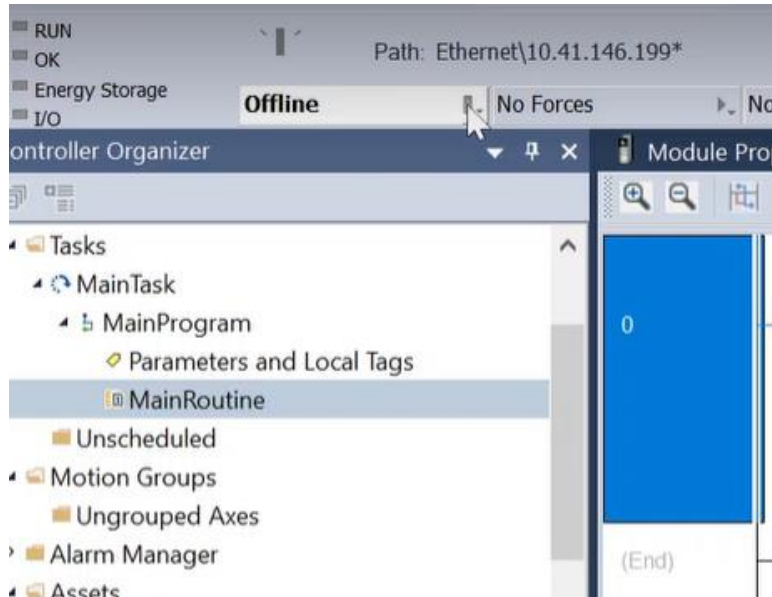




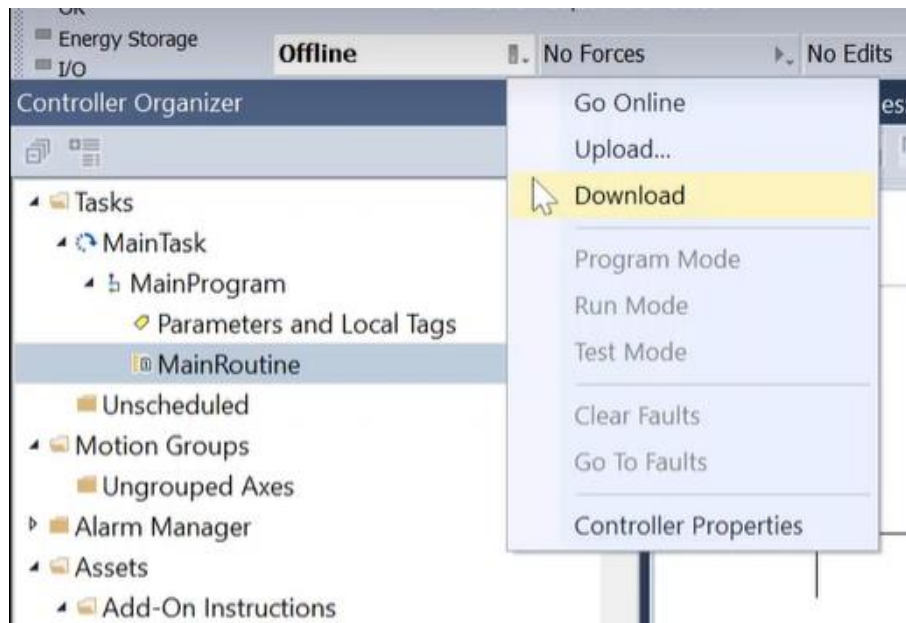
## Going Online

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

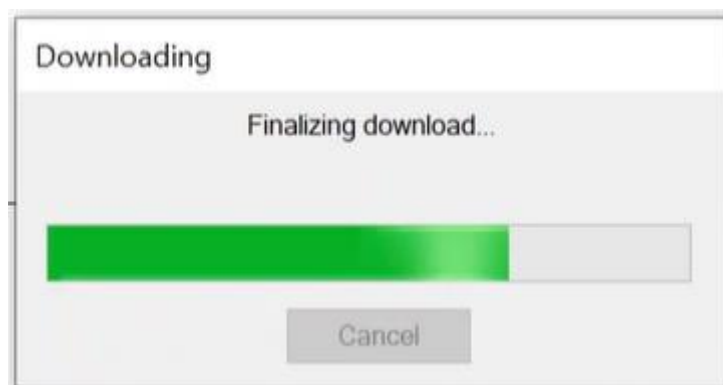
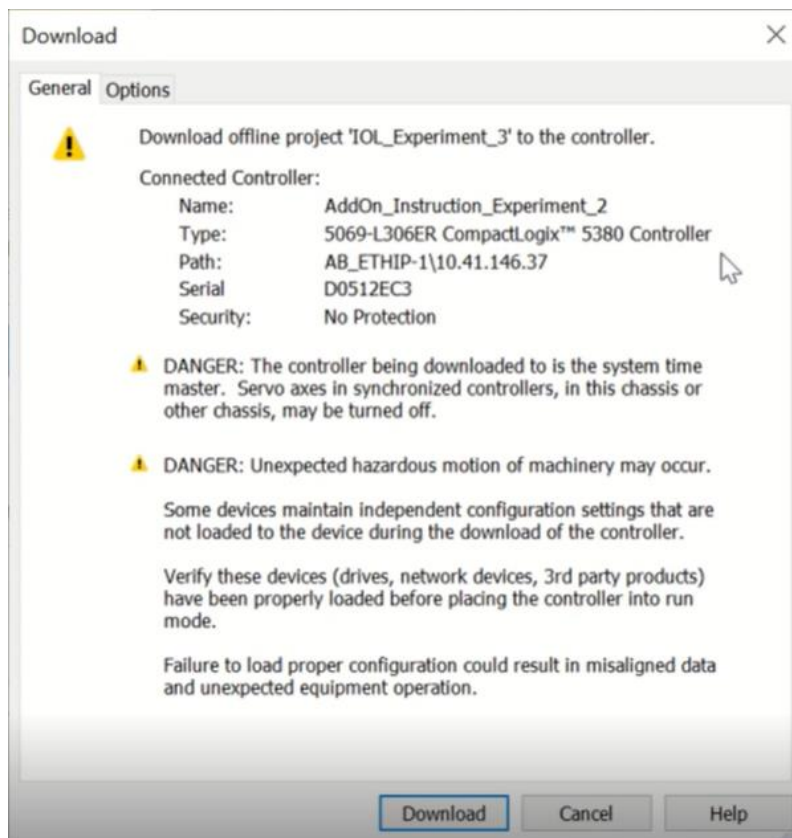
1. Once the Add-On Instructions are parameterized, the program has to be downloaded to the PLC.



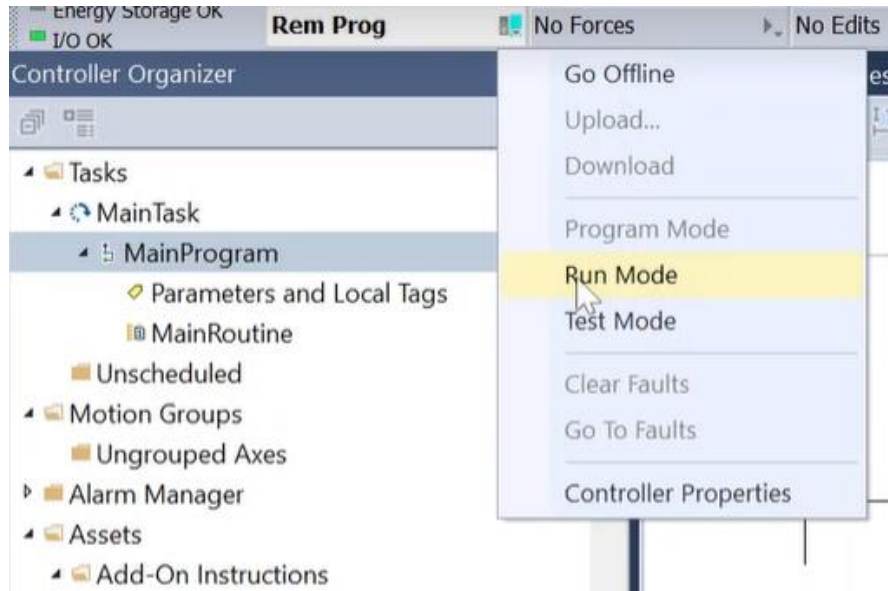
2. Click the drop-down bar next to Offline button and click Download.



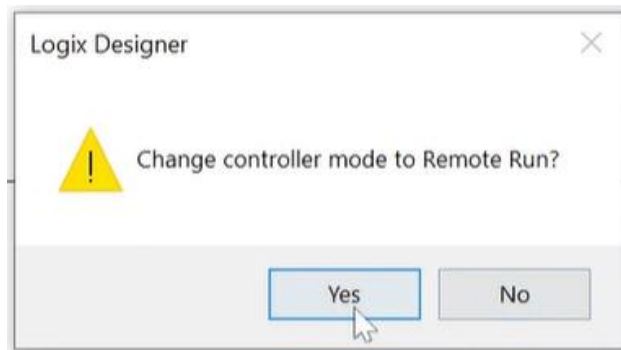
3. Once the download button is clicked a pop-up window will appear for the approval from the user. Click download.



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



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



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

