Quick Set-up Guide for the O2D contour sensor and AOI

1. Ensure the firmware version of the O2D is 1070 or higher and update if necessary. Use the link to download the firmware.

   https://www.ifm.com/us/en/downloadarea/DualisContent

O2D2xx - firmware

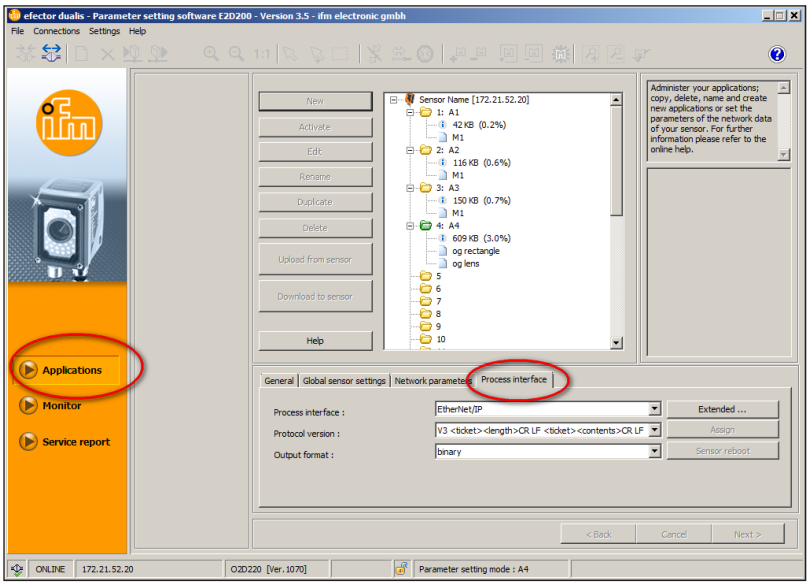
Name	Description	Version	Size	Download
O2D Sensor firmware 1031 upgrade	Sensor firmware for update from FW1019/1020 to FW1031	1031	7118 kb	Download
O2D Sensor firmware 1070 upgrade	Date: 08.01.2015 Changelog O2D2xxREL_1070 sensor firmware ******DE****** Kompatibilität: - Kompatibel mit aktueller (Stand Jan. 2015) und älterer VSMonitoring Software Neue Features: - NA Geänderte Features: - NA Bugfixes: - Problem behoben, wenn PCIC Applikationswechsel und das Monitoring-Tool gleichzeitig benutzt werden. - Problem behoben, wenn Sensor während eines PCIC Applikationswechsels eine Disconnect Nachricht vom Monitoring-Tool empfängt ******EN***** Compatibility: - compatible with current (stand Jan. 2015) VS Monitoring Tool and older versions New features: - NA Changed features: - NA Bugfixes: - solved issue if PCIC application switching and monitor-tool are used at the same time - solved issue if sensor receives a disconnect message from VS Monitoring during PCIC application switch	1070	5245 kb	Download

2. Open the configuration software, V3.5.61 or higher, and connect to the O2D sensor. The software can be downloaded from the link.

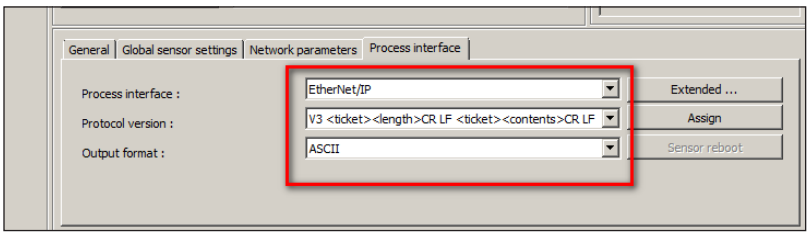
   https://www.ifm.com/us/en/downloadarea/DualisContent

E2D200 operating software V3_5_061	Operating software for O2Dxxx ********DE********** - Kompatibel zu allen O2D-Geräten ab Firmware 1031 - Neue Funktionen: keine - Fehler behoben: Verbindung zu Geräten, die mit DHCP konfiguriert sind und über die Sensorsuche gefunden wurden. ********EN********** - Compatible with all O2D-Units with firmware 1031 or higher - New features: no - Bugs fixed: Connecting to devices possible if configured with DHCP and found by senor search	V3.5.061	33540 kb	Download

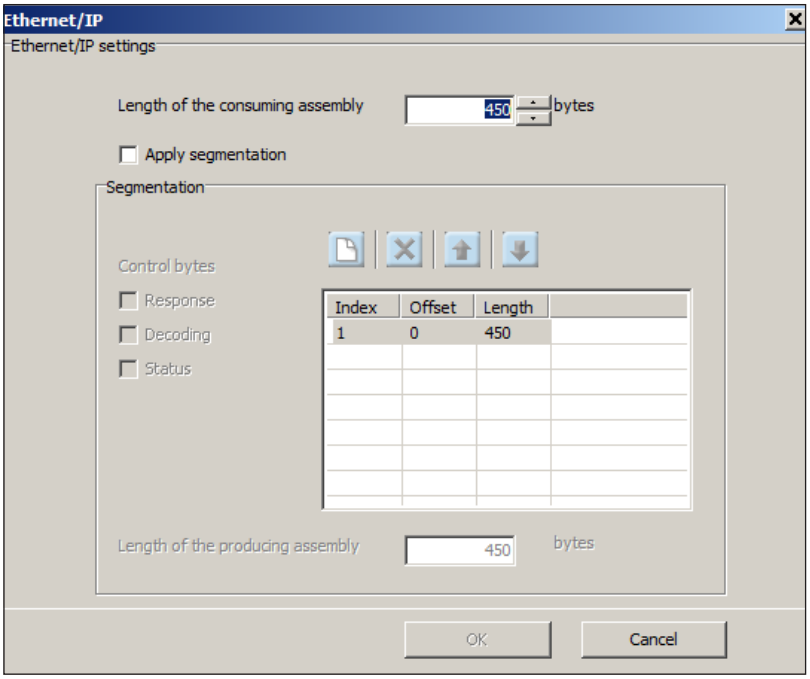
3. Set the process interface of the sensor.
   - Click on Application tab.



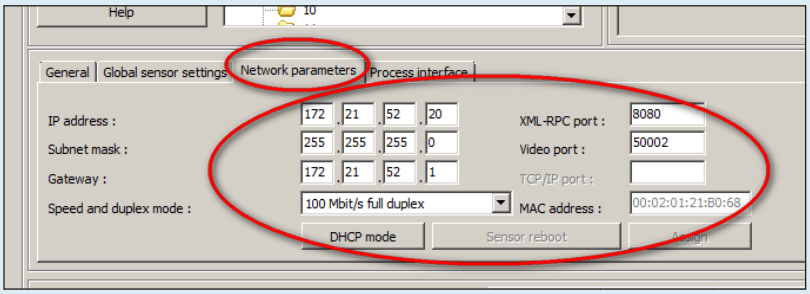
   - Click on the Process interface tab.
     - Process interface should be selected to EtherNet/IP
     - Protocol version should be V3.
     - Output format should be ASCII.



- Click on Extended tab.
  - Verify the information shown matches.



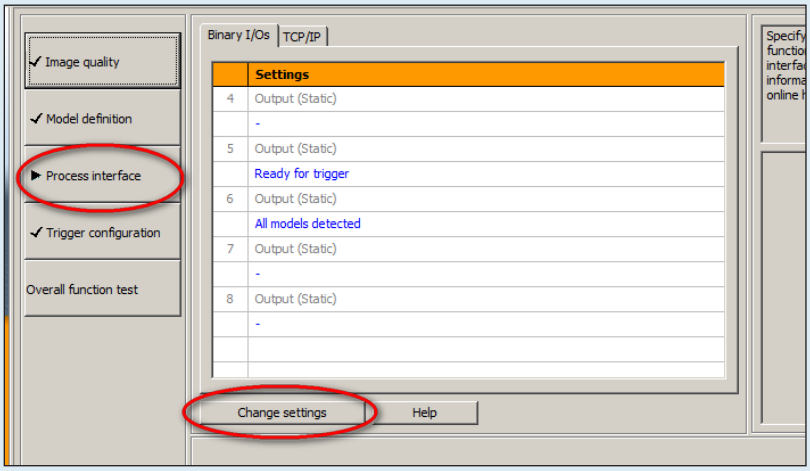
4. Set the IP Address.
   - Click on the Network parameters tab.
     - Verify or change the IP address.
     - Click Assign if a change has been made.



5. Create applications as desired.

6. Create models as required.

7. While in the Process Interface tab, click “Change settings”.



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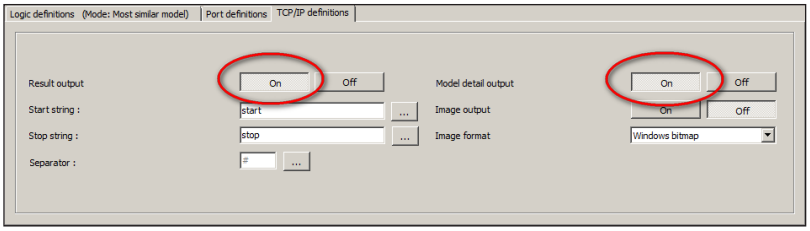
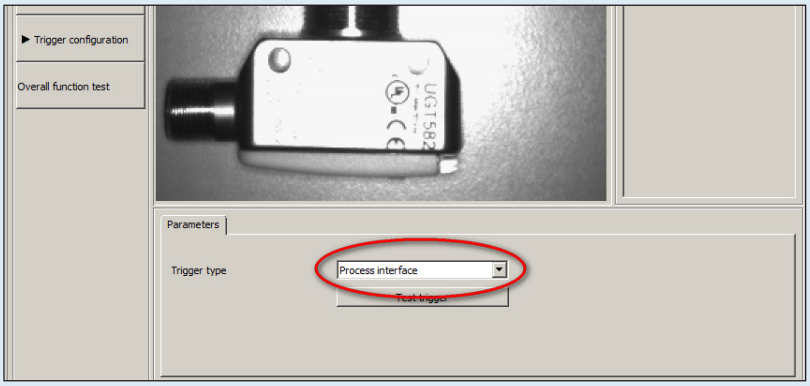
8. In the “TCP/IP”, activate “Result output” and “Model detail output”.



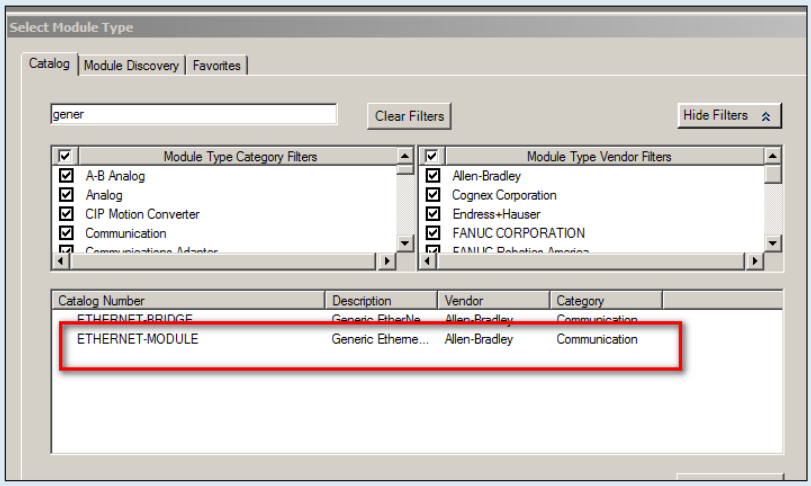
9. Under the Trigger configuration, select "Process interface" for trigger.



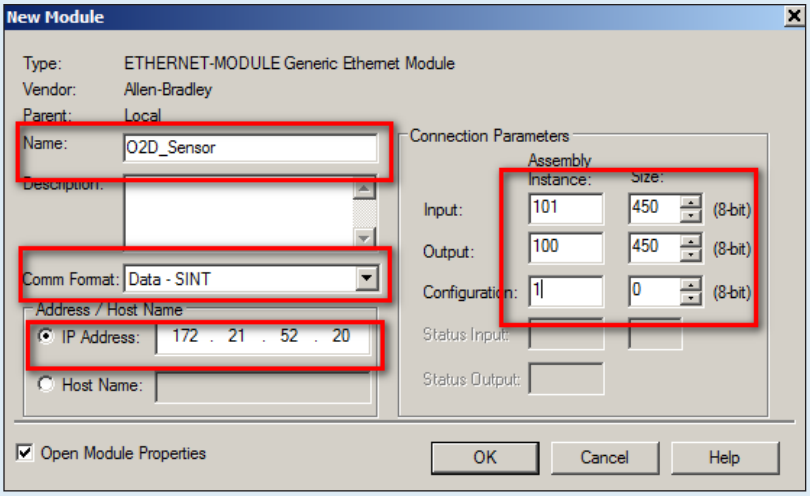
10. Perform an overall function test and save the application.

11. Launch RS Logix and create a new program.

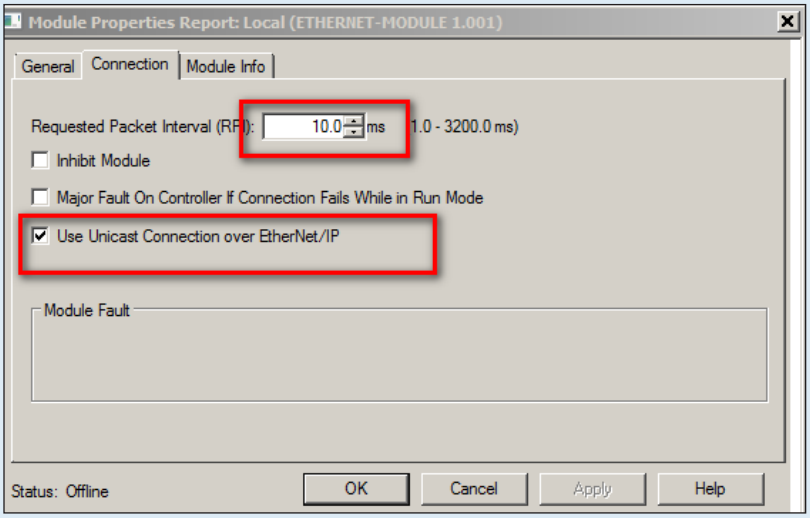
12. Create a Generic Ethernet Module.



13. Assign the Generic Ethernet Module to these settings.
    - Assign the name O2D_Sensor to the module.
      - Set the Comm Format to Data – SINT.
      - Set the IP Address of the sensor.
      - Set the Connection Parameters as shown.
      - Click on OK.

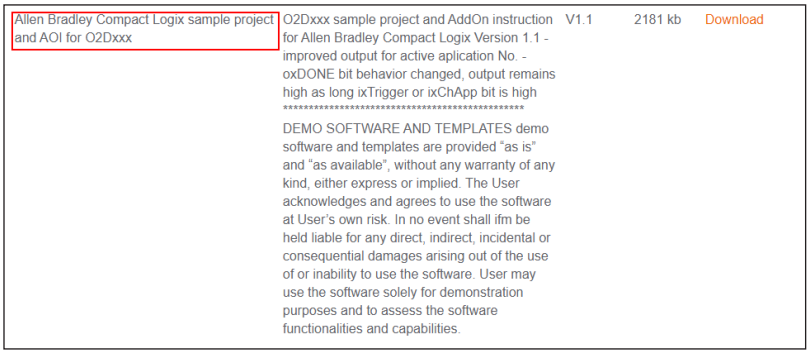


- Verify the Module Property matches.



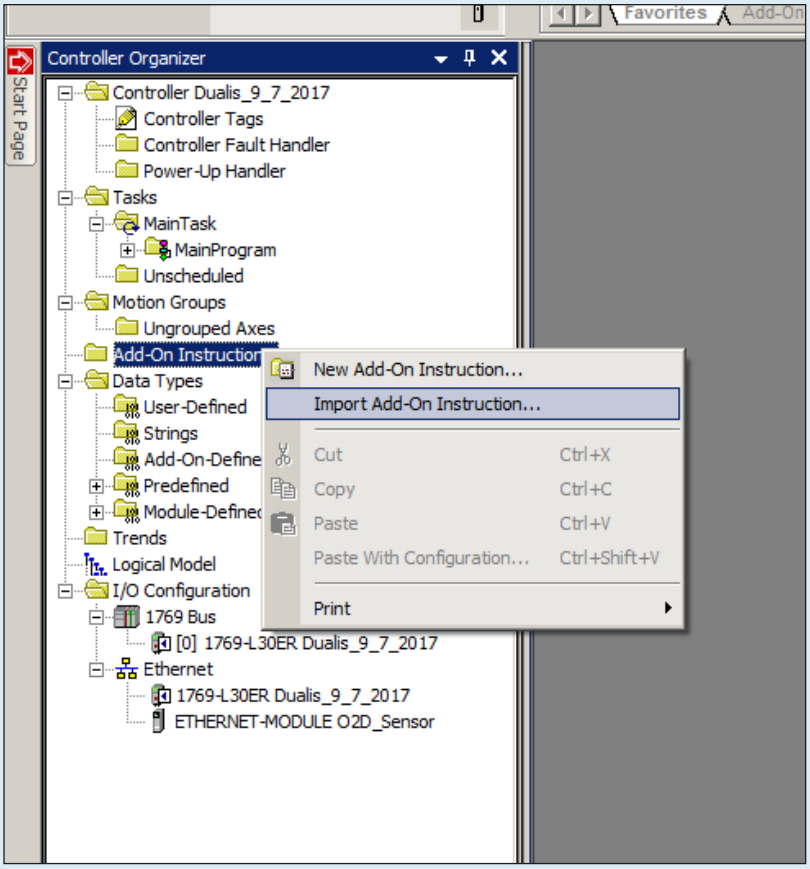
14. Download the AOI from the website, latest version is 1.1.

    https://www.ifm.com/us/en/downloadarea/DualisContent

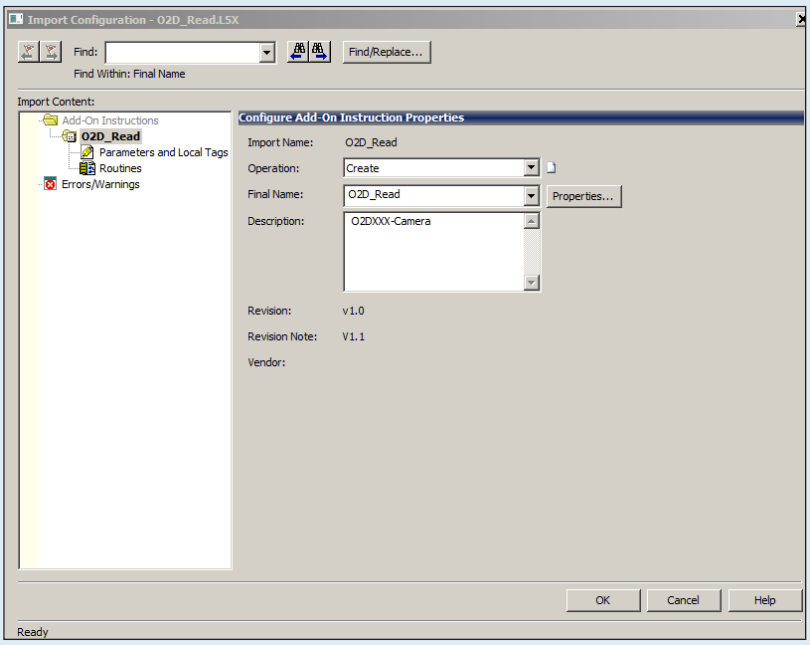


Allen Bradley Compact Logix sample project and AOI for O2Dxxx	O2Dxxx sample project and AddOn instruction for Allen Bradley Compact Logix Version 1.1 - improved output for active aplication No. - oxDONE bit behavior changed, output remains high as long ixTrigger or ixChApp bit is high ********** DEMO SOFTWARE AND TEMPLATES demo software and templates are provided "as is" and "as available", without any warranty of any kind, either express or implied. The User acknowledges and agrees to use the software at User's own risk. In no event shall ifm be held liable for any direct, indirect, incidental or consequential damages arising out of the use of or inability to use the software. User may use the software solely for demonstration purposes and to assess the software functionalities and capabilities.	V1.1	2181 kb	Download

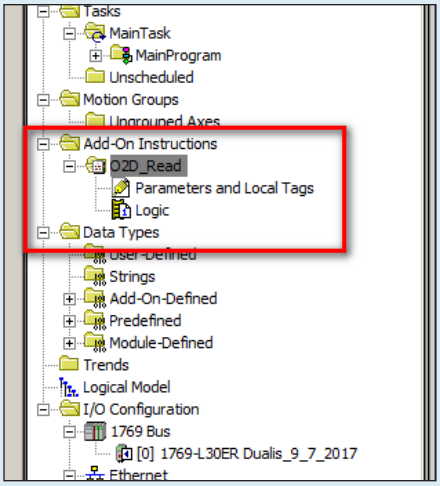
15. Import the O2D_Read instruction.
    - Right click Add-On Instructions and select Import Add-On Instruction.
    - Select the O2D_Read.L5X that was downloaded and click import.



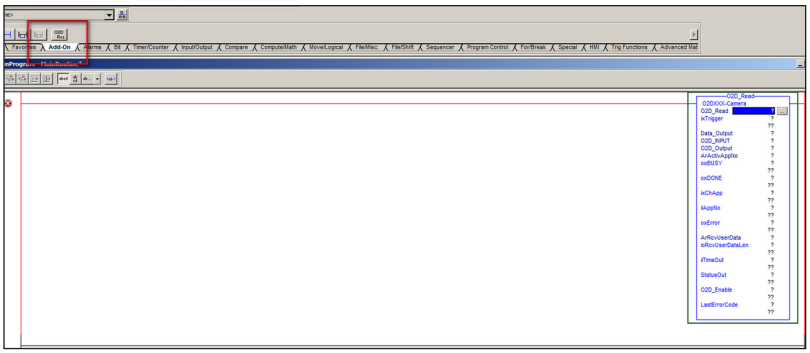
- Click OK to confirm import configuration.



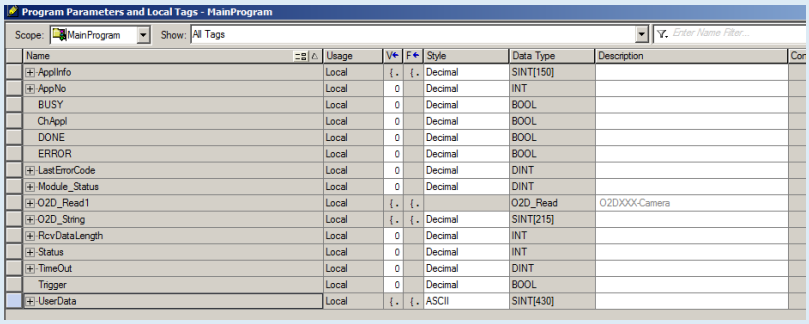
- The O2D_Read Instruction will be shown under the Add-On Instructions folder.



16. Insert the O2D_Read Add on to the rung under the Main Routine.



17. Define the variable tags.

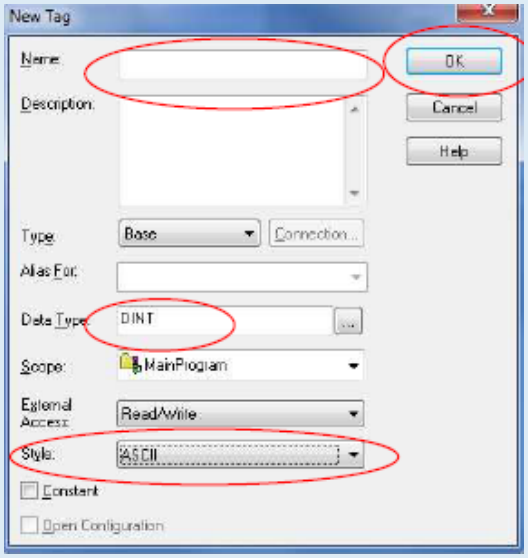


Program Parameters and Local Tags - MainProgram

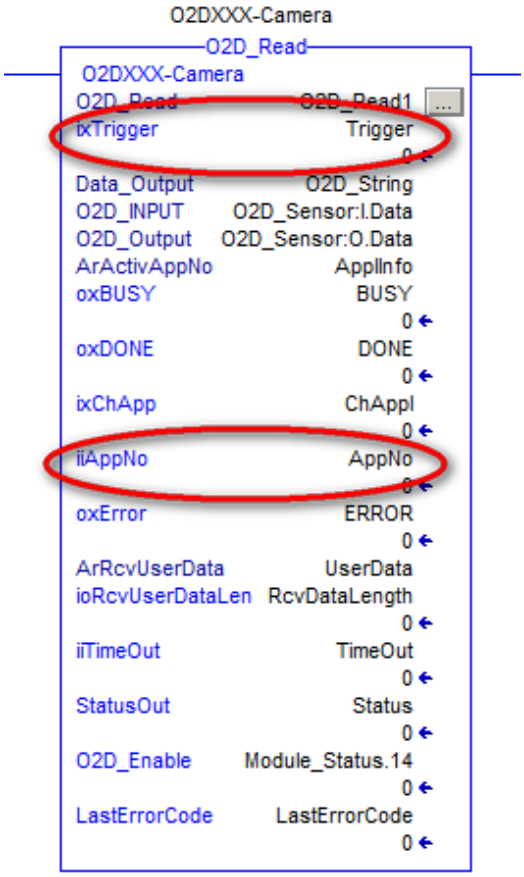
Scope: MainProgram Show: All Tags

Name	Usage	V	F	Style	Data Type	Description
AppInfo	Local	{ .	{ .	Decimal	SINT[150]	
AppNo	Local	0		Decimal	INT	
BUSY	Local	0		Decimal	BOOL	
ChAppl	Local	0		Decimal	BOOL	
DONE	Local	0		Decimal	BOOL	
ERROR	Local	0		Decimal	BOOL	
LastErrorCode	Local	0		Decimal	DINT	
Module_Status	Local	0		Decimal	DINT	
O2D_Read1	Local	{ .	{ .		O2D_Read	O2DXXX-Camera
O2D_String	Local	{ .	{ .	Decimal	SINT[215]	
RcvDataLength	Local	0		Decimal	INT	
Status	Local	0		Decimal	INT	
TimeOut	Local	0		Decimal	DINT	
Trigger	Local	0		Decimal	BOOL	
UserData	Local	{ .	{ .	ASCII	SINT[430]	

- Double Click on “Program tags” in Main Program to open the tag definition table.
- Use Ctrl-W to access a new tag and create tags listed.

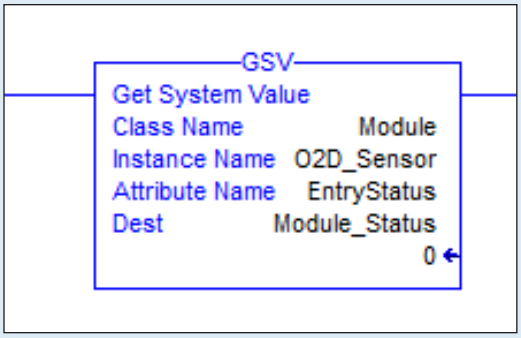


18. Assign all the variable tags to the respective instruction variable (tag) as shown in the example.



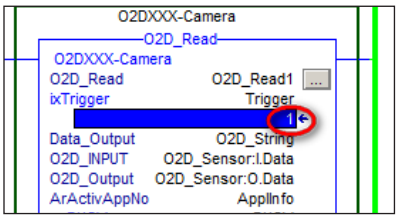
19. Add a new Path Rung to the program.

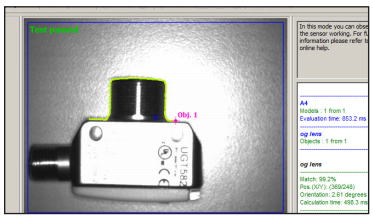
20. Insert a GSV command and define the tags like shown.



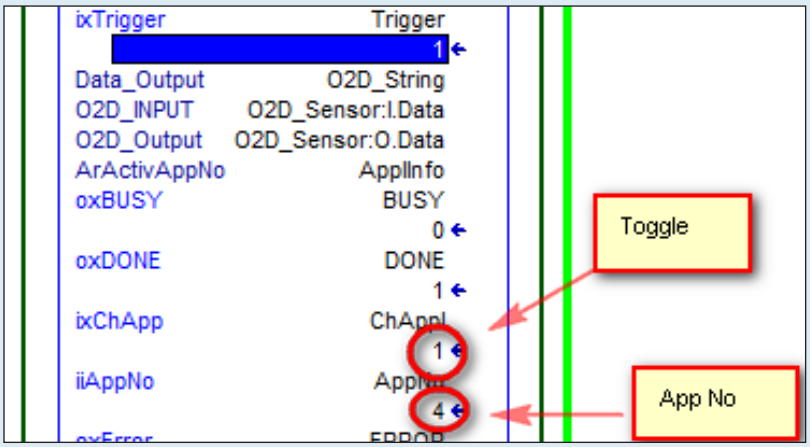
21. Download the program.

22. Toggle the trigger (Ctrl-T) to start an evaluation.

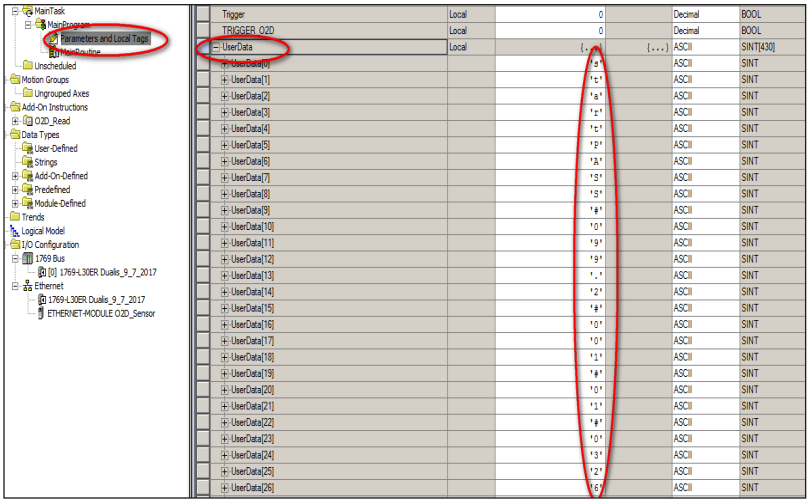




23. To change applications:
    - Enter the application number in the “iiAppNo” tag
    - Toggle the “ixChApp” tag on and then off after the “Busy” bit goes low.
    - Toggle the trigger and the application will change.



24. The data can be accessed under the “UserData” in “Parameters and Local Tags”.



- Input Data Results

<start><result><sc><match><sc><instances>[<sc><model info>]
[<sc><image info>]<stop>

<start>	start string according to setting in the operating program.
<sc>	separator according to setting in the operating program.
<stop>	stop string according to setting in the operating program.
<result>	total result, either 'PASS' or 'FAIL' string.
<match>	overall match quality, in the format <digit><digit><digit>.<digit>, for example '089.5' for 89.5% match.
<instances>	character string with 3 digits (decimal number) for the number of objects found (instances).
[<model info>]	optional detailed information, only if object detail output has been enabled in the operating program. Format <model_index><sc><x><sc><y><sc><red><sc><match_quality> <model_index> two-digit model number. <x> character string with 4 digits, decimal number for X position of the object (in pixels); zero point left. <y> character string with 4 digits, decimal number for Y position of the object (in pixels); zero point top. <rot> character string with six characters for the orientation of the object e.g. +179.0 or –001.3. <match_quality> match quality, in the format <digit><digit><digit>.<digit>, for example ‘089.5’ for 89.5% match.
[<image info>]	optional image information only if image output in the operating program has been enabled. Format: <format><sc><length><sc><image data> <format> ‘RAW’, ‘JPG’ or ‘BMP’ according to the setting of the image format in the operating program. <length> 9-digit decimal number for the quantity of image data in bytes. <image data> image data in the given format.

- Values in the output parameter StatusOut

Status / error code				Description
0	0	0	0	Command completed successfully
1	0	0	2	Establish a first connection
2	0	0	0	Initialise the sensor
7	0	x	x	Instruction operates in the online trigger mode
			0	Wait for a command
			1	Send a command to the sensor
			2	Wait for a response from the sensor
			3	Receive data from the sensor
		0		No command in process
		4		Configuration activation command "a + configuration no." active
		8		Trigger command "t" active
		9		Configuration request command "a?" active
8	8	x	x	Error code
			0	Not specified
			1	The sensor does not respond within the set timeout
			2	Invalid length information in the response data
			3	Trigger response longer than the receive buffer set
			4	Command not accepted by the sensor
			5	Command not allowed