



Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



1. Ensure the firmware version of the O2V sensor is 5058 or higher and update if necessary. Use the link below to download the firmware.

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

Name	Description	Version	Size	Download
O2V sensor firmware V5050 upgrade	Fehlerbereinigung: - Neue IO-Controller Firmware vu11. FW5050 wurde auf Grund einer Anpassung im Produktionsprozess erstellt. - Ein Update von V5049 auf V5050 ist nicht erforderlich. Fixer errors: -New IO-controller firmware vu11. FW5050 was created for a change in the production process. An update from V5049 to V5050 is not required.	V5050	2177 kb	Download
O2V sensor firmware V5058 upgrade	Changelog ifm O2V firmware Version: 5058 Date: 06.06.2016 ***** DE ***** Neue Funktionen - keine Geänderte Funktionen - keine Fehlerbehebung - Kommunikation mit VS Monitoring Tool verbessert. ***** EN ***** New features: - None Changed features - None Bug fixes: - Communication with VS monitoring tool improved.	5058	2103 kb	Download
O2V1XX_FW5058_license	Lizenzen zu den in O2V1XX Firmware V5058	5058	648 kb	Download

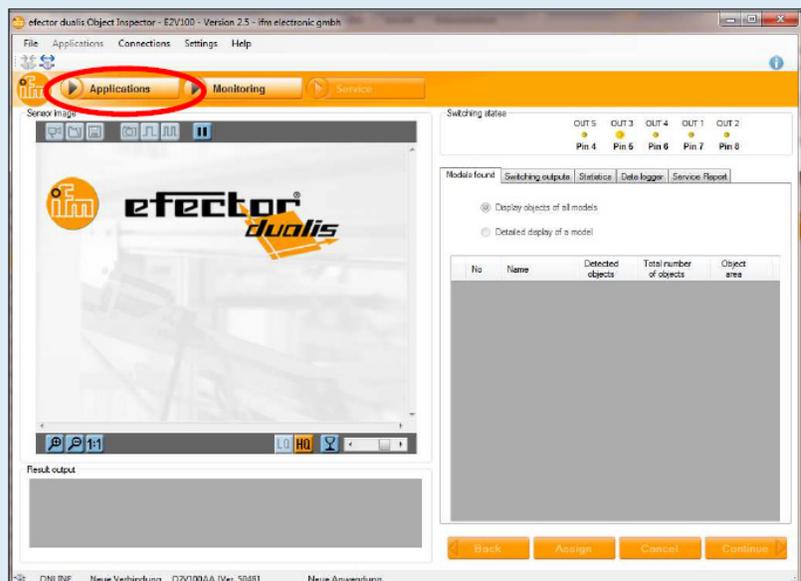
2. Open the configuration software, V2.5 or higher, and connect to the O2V sensor. The software can be downloaded from the link below.

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

Name	Description	Version	Size	Download
E2V100 operating software V2_5_057	new in this version: - bugfix - additional languages added	V2.5.057	19517 kb	Download
E2V100 operating software V2_5_058	Operating software for O2V10x *****DE***** - voll kompatibel zu allen O2V-Geräten ab Firmware 5048 - funktioniert mit O2V-Geräten mit Firmware 5036, aber ohne neue Funktionen der Software und Firmware - Neue Funktionen: keine - Fehler behoben: Kommunikation in Windows 7 System verbessert zur Unterstützung von ifm Panel-PCs. *****EN***** - fully compatible with all O2V-Units with firmware 5048 or higher - works with O2V-units with firmware 5036, but new features of the operating software or firmware are not available - New features: no - Bugs fixed: Communication in Windows 7 systems improved to support ifm panel-PC. Unzip this file into a local folder and start the application with a double-click onto the "DualisOV.exe" file.	V2.5.058	22886 kb	Download
E2V200 2.5 License	Lizenzen zu den in der E2V200 Software 2.5 integrierten Open-Source Bestandteilen	2.5	279 kb	Download

3. Set the process interface of the sensor.

- Click on Applications tab.

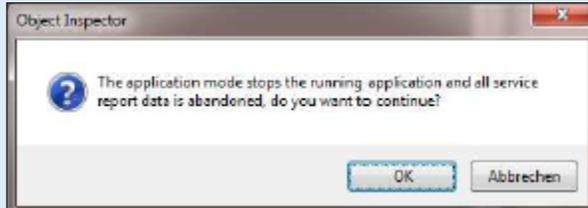




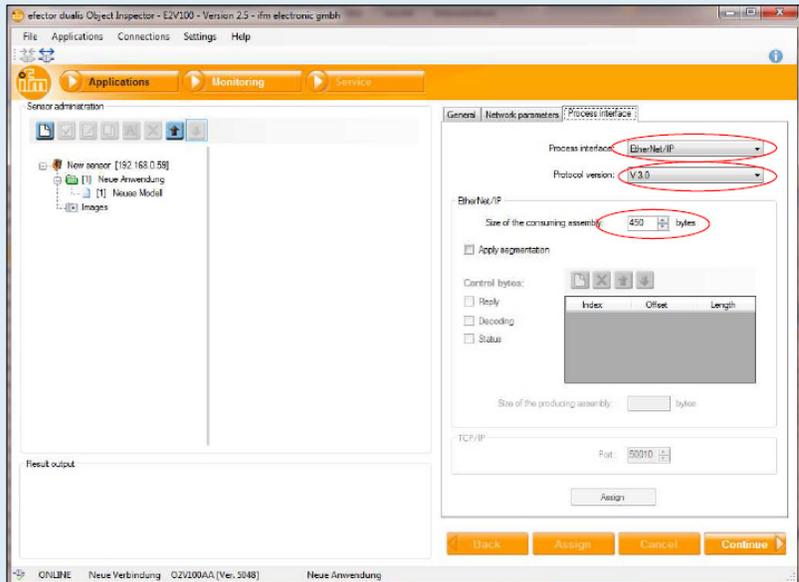
Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- This pop-up box will be displayed.
- Click OK.

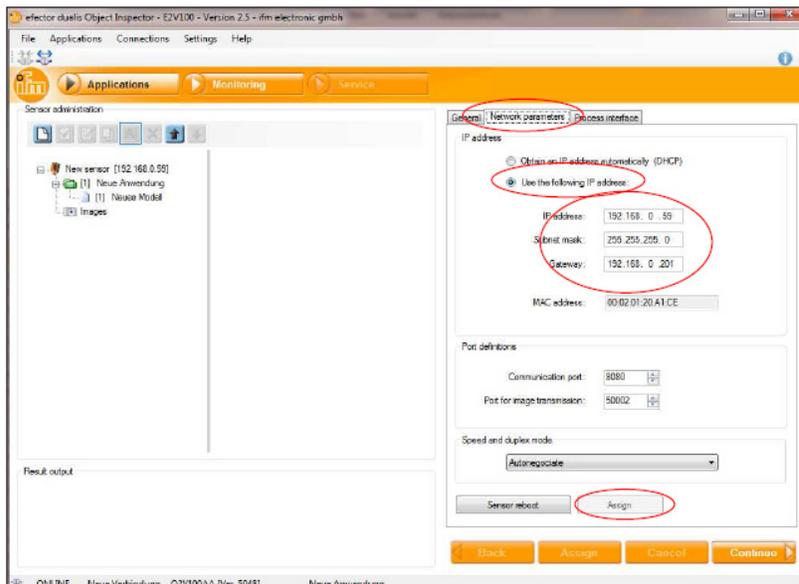


- Click on the Process interface tab.
 - Process interface should be selected to EtherNet/IP.
 - Protocol version is V 3.0
 - Set the size of the consuming assembly to 450 bytes.



4. Set the IP Address.

- Click on the Network parameters tab.
 - Select "Use the following IP address".
 - Verify the IP Address of the O2V.
 - Click Assign if changes have been made.

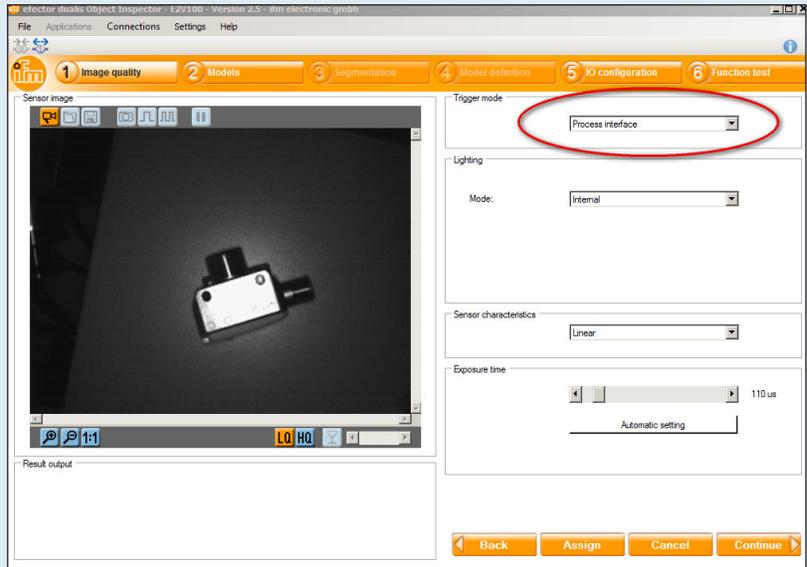




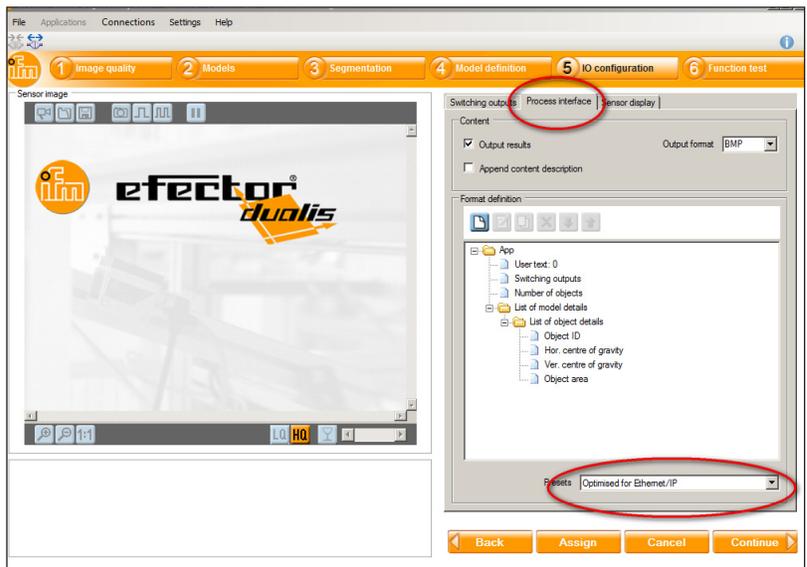
Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- 5. Create applications as required.
- 6. For trigger mode, select "Process interface."



- 7. Create models as required.
- 8. Set up the IO configuration.
 - Click on the Process interface tab.
 - Under Presets, select "Optimised for Ethernet/IP".
 - Insert "Display" if you want to see (pass/fail)....optional.



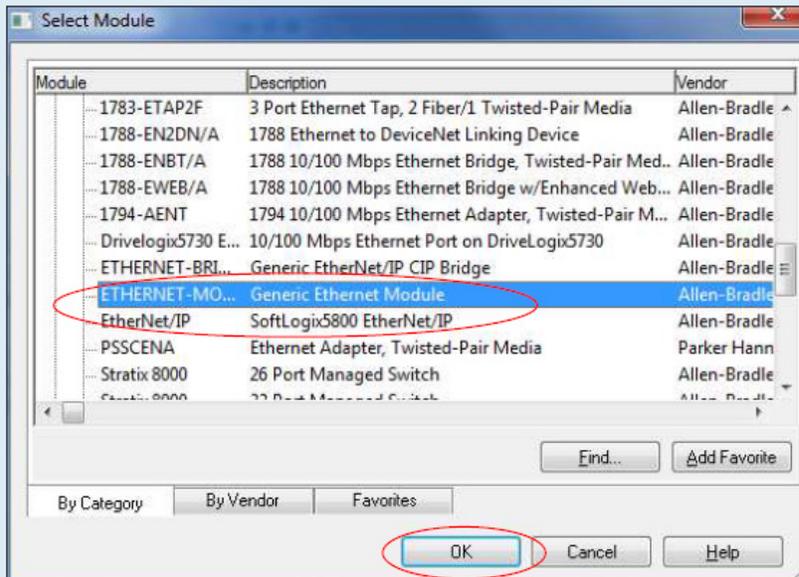
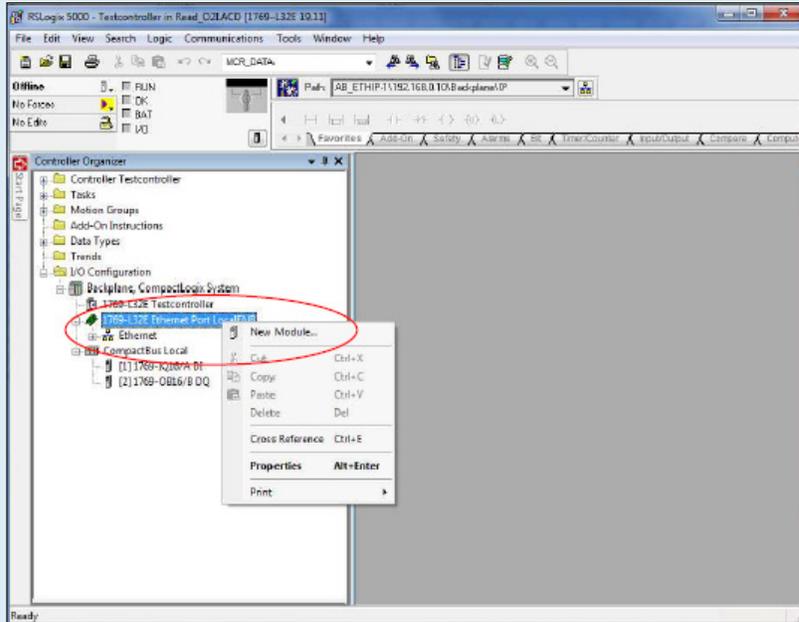
- 9. Launch RS Logix and create a new program.



Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



10. Create a Generic Ethernet Module.



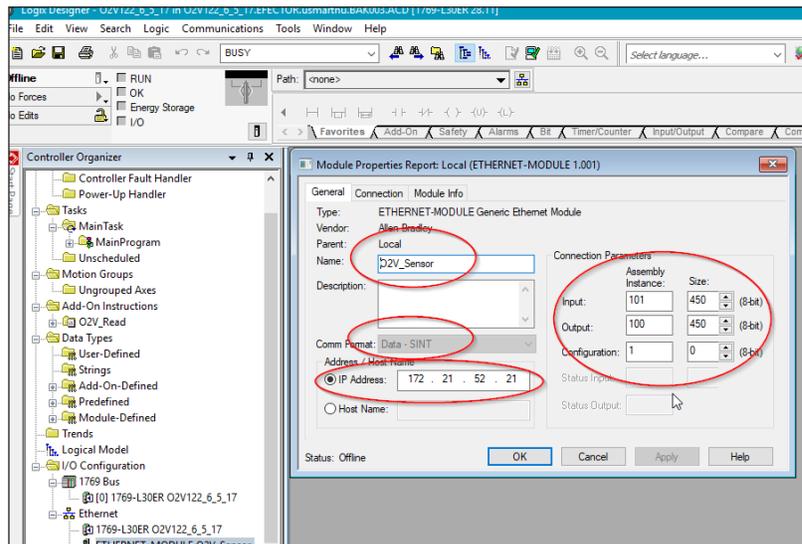


Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI

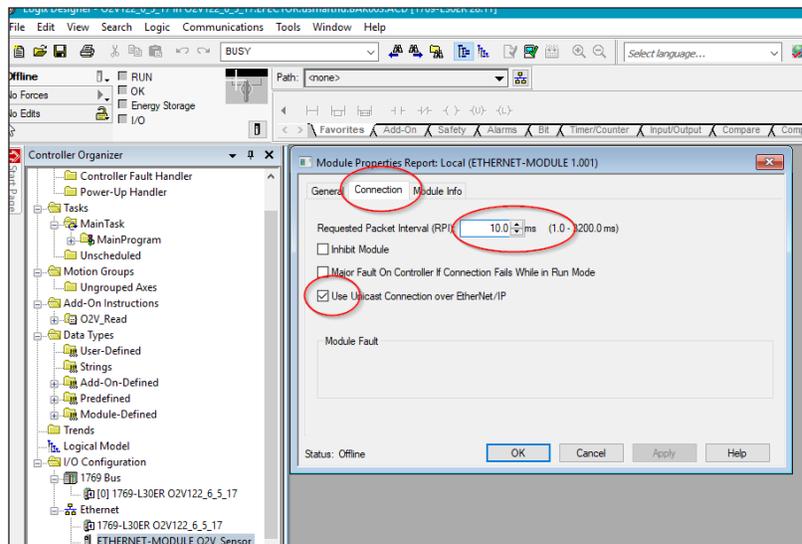


11. Assign the Generic Ethernet Module to these settings.

- Assign the name "O2V_Sensor" to the module.
- Set "Comm Format" to DATA-SINT.
- Set the IP address of the sensor.



- Set Connection parameters as shown.
- Click on OK.
- Verify that these settings are the same.





Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- 12. Download the AOI from the website, latest version is 1.2.

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

Allen Bradley Compact Logix sample project and AOI for O2Vxxx with firmware 5057 and higher

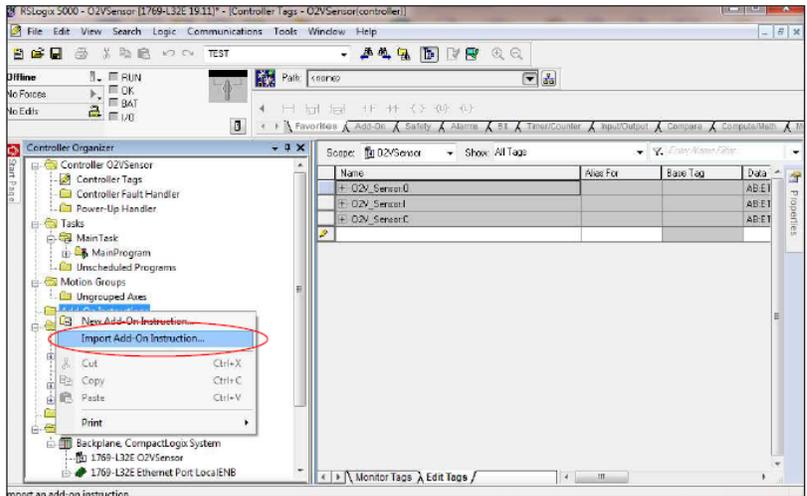
05.07.2016 Changelog: Version 1.2 - improved V1.2 output for active application No. - oxDONE bit behavior changed, output remains high as long ixTrigger or ixChApp bit is high Version 1.1 - changed command "c" to "w" for "change application procedure. Solves a "change application" and the following "get active application" function issue. O2V- sample project and AddOn instruction for Allen Bradley Compact Logix

2905 kb [Download](#)

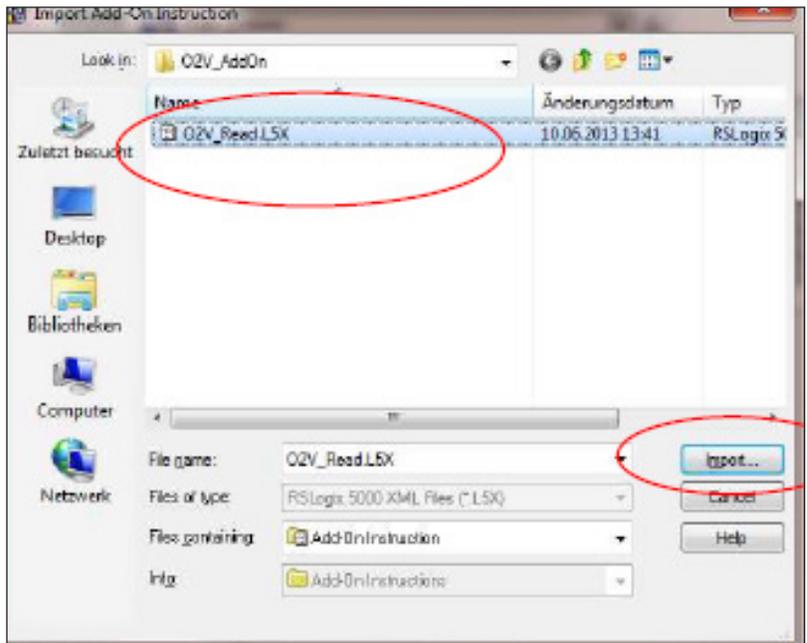
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- 13. Import the O2V_Read instruction into a project.

- Right click "Add-On Instructions" and select "Import Add-On Instruction".



- Select the O2V_Read.L5X file that was downloaded and click "Import".

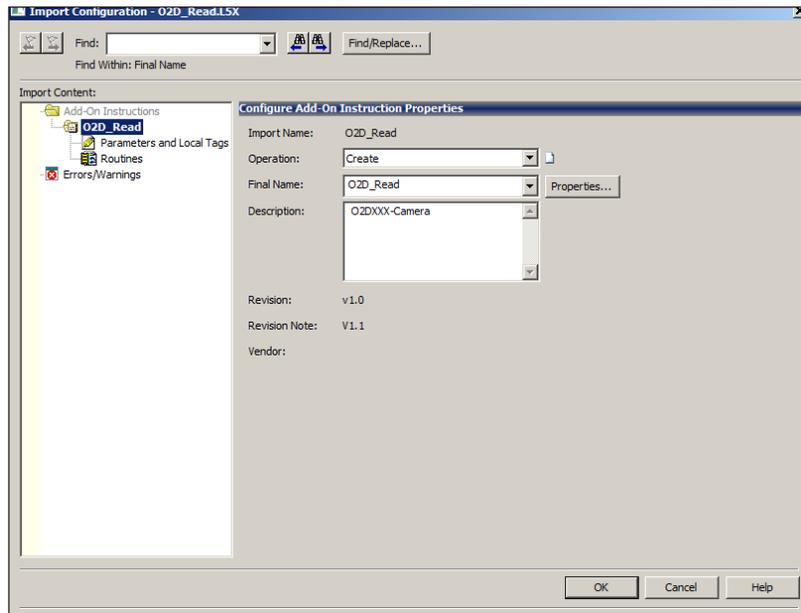




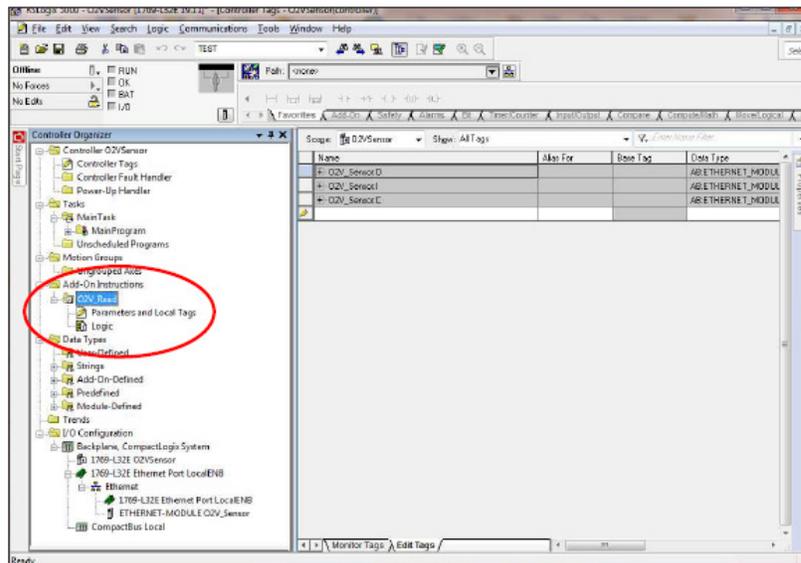
Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- Click OK to confirm import configuration.



- The O2V_Read instruction should be shown under the “Add-On Instruction” folder.





Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



14. Insert the O2V_Read Add on to the rung under the main routine.

O2V_Read

O2VXXX-Camera AddOn instruc...

O2V_Read ? ...

O2V_Enable ?

ixTrigger ?

ixChApp ??

iiAppNo ?

ArActivAppNo ?

ArRcvUserData ?

iiTimeOut ??

Data_Output ?

O2V_INPUT ?

MCR_Output ?

oxBUSY ?

oxDONE ??

oxError ?

ioRcvUserDataLen ??

StatusOut ?

LastErrorCode ??

O2V_Read

O2VXXX-Camera AddOn instruction

O2V_Read O2V_Read1 ...

O2V_Enable Module_Status.0

ixTrigger Trigger

ixChApp ChAppl

iiAppNo AppNumbe

ArActivAppNo ActAppNo

ArRcvUserData RcvBuffer

iiTimeOut TimeOut

Data_Output O2V_String

O2V_INPUT O2V_Sensor:I.Data

MCR_Output O2V_Sensor:O.Data

oxBUSY BUSY

oxDONE DONE

oxError ERROR

ioRcvUserDataLen RcvDataLength

StatusOut Status

LastErrorCode LastErrorCode

O2V_Read

Read code with O2VXXX-Camera

O2V_Read ? ...

ixTrigger ?

Data_Output ?

O2V_INPUT ?

O2V_Output ?

ArActivAppNo ?

oxBUSY ?

oxDONE ?

ixChApp ?

iiAppNo ?

oxError ?

ArRcvUserData ?

ioRcvUserDataLen ?

iiTimeOut ?

StatusOut ?

O2V_Enable ?

LastErrorCode ?

New Layout Undefined

New Layout Defined

Old Layout

15. Define each of the variable tags manually as shown.

- Double Click on "Program tags" in MainProgram to open the tag definition table.

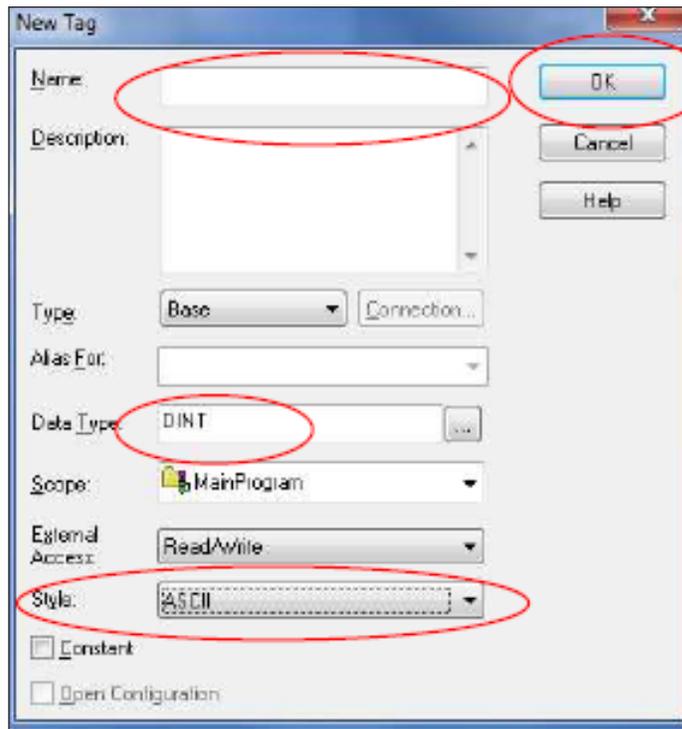
Name	Usage	Style	Data Type
ActAppNo	Local	ASCII	SINT[150]
AppNumbe	Local	Decimal	INT
BUSY	Local	Decimal	BOOL
ChAppl	Local	Decimal	BOOL
DONE	Local	Decimal	BOOL
ERROR	Local	Decimal	BOOL
LastErrorCode	Local	Decimal	DINT
Module_Status	Local	Decimal	DINT
O2V_Read1	Local	ASCII	SINT[215]
O2V_String	Local	ASCII	SINT[430]
RcvBuffer	Local	Decimal	INT
RcvDataLength	Local	Decimal	INT
Status	Local	Decimal	DINT
TimeOut	Local	Decimal	DINT
Trigger	Local	Decimal	BOOL



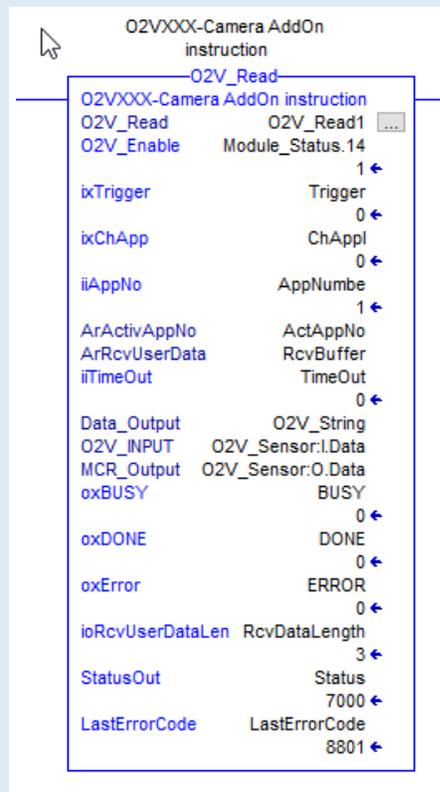
Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- Use Ctrl-W to access a New Tag and create the tags listed.



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





Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



17. Add a new path rung to the program.

18. Insert a GSV command and define the tags like the following.

GSV

Get System Value	
Class Name	Module
Instance Name	O2V_Sensor
Attribute Name	EntryStatus
Dest	Module_Status
	16384 ←

19. Download the program.

20. Toggle "Trigger" (Ctrl T) to start an evaluation.

instruction	
O2V_Read	
O2VXXX-Camera AddOn instruction	
O2V_Read	O2V_Read1 ...
O2V_Enable	Module_Status.0
	0 ←
ixTrigger	Trigger
	1 ←
ixChApp	ChAppl
	0 ←
iiAppNo	AppNumbe



21. To change applications, put the application number in the "iiAppNo" tag, then toggle the "ixChApp" tag.

	0 ←	
ixTrigger	Trigger	
	0 ←	
ixChApp	ChAppl	Toggle to change
	1 ←	
iiAppNo	AppNumbe	App number
	2 ←	
ArActivAppNo	ActAppNo	
ArRcvUserData	RcvBuffer	



Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



22. The data can be accessed under "RcvBuffer" in "Parameters and Local Tags".

Name	Usage	Value	Force Mask	Style	Data Type
RcvBuffer	Local	[...]		ASCII	SINT(430)
RcvBuffer[0]		'00'		ASCII	SINT
RcvBuffer[1]		'00'		ASCII	SINT
RcvBuffer[2]		'00'		ASCII	SINT
RcvBuffer[3]		'00'		ASCII	SINT
RcvBuffer[4]		'00'		ASCII	SINT
RcvBuffer[5]		'00'		ASCII	SINT
RcvBuffer[6]		'00'		ASCII	SINT
RcvBuffer[7]		'00'		ASCII	SINT
RcvBuffer[8]		'00'		ASCII	SINT
RcvBuffer[9]		'00'		ASCII	SINT
RcvBuffer[10]		'00'		ASCII	SINT
RcvBuffer[11]		'00'		ASCII	SINT
RcvBuffer[12]		'00'		ASCII	SINT
RcvBuffer[13]		'00'		ASCII	SINT
RcvBuffer[14]		'00'		ASCII	SINT
RcvBuffer[15]		'00'		ASCII	SINT
RcvBuffer[16]		'00'		ASCII	SINT
RcvBuffer[17]		'00'		ASCII	SINT
RcvBuffer[18]		'00'		ASCII	SINT
RcvBuffer[19]		'00'		ASCII	SINT
RcvBuffer[20]		'00'		ASCII	SINT
RcvBuffer[21]		'00'		ASCII	SINT
RcvBuffer[22]		'00'		ASCII	SINT
RcvBuffer[23]		'00'		ASCII	SINT
RcvBuffer[24]		'00'		ASCII	SINT
RcvBuffer[25]		'00'		ASCII	SINT
RcvBuffer[26]		'00'		ASCII	SINT
RcvBuffer[27]		'00'		ASCII	SINT
RcvBuffer[28]		'00'		ASCII	SINT
RcvBuffer[29]		'00'		ASCII	SINT
RcvBuffer[30]		'00'		ASCII	SINT
RcvBuffer[31]		'00'		ASCII	SINT
RcvBuffer[32]		'00'		ASCII	SINT

23. To get proper Object Area value, there needs to be a byte swamp. Change the ASCII number to HEX for the RcvBuffer and look at bytes (9) & (10).

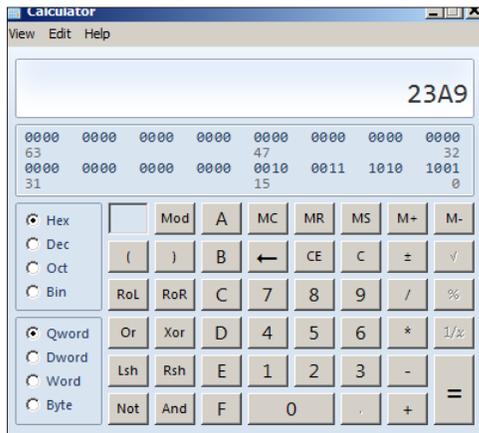
Name	Usage	Value	Force Mask	Style	Data Type
RcvBuffer	Local	Change from ASCII to HEX		Hex	SINT(430)
RcvBuffer[0]		Hex		Hex	SINT
RcvBuffer[1]		16#08		Hex	SINT
RcvBuffer[2]		16#00		Hex	SINT
RcvBuffer[3]		16#00		Hex	SINT
RcvBuffer[4]		16#00		Hex	SINT
RcvBuffer[5]		16#01		Hex	SINT
RcvBuffer[6]		16#00		Hex	SINT
RcvBuffer[7]		16#01		Hex	SINT
RcvBuffer[8]		16#00		Hex	SINT
RcvBuffer[9]		16#a9		Hex	SINT
RcvBuffer[10]		16#23		Hex	SINT
RcvBuffer[11]		16#00		Hex	SINT
RcvBuffer[12]		16#00		Hex	SINT
RcvBuffer[13]		16#00		Hex	SINT
RcvBuffer[14]		16#00		Hex	SINT
RcvBuffer[15]		16#00		Hex	SINT
RcvBuffer[16]		16#00		Hex	SINT
RcvBuffer[17]		16#00		Hex	SINT
RcvBuffer[18]		16#00		Hex	SINT
RcvBuffer[19]		16#00		Hex	SINT
RcvBuffer[20]		16#00		Hex	SINT
RcvBuffer[21]		16#00		Hex	SINT
RcvBuffer[22]		16#00		Hex	SINT
RcvBuffer[23]		16#00		Hex	SINT
RcvBuffer[24]		16#00		Hex	SINT
RcvBuffer[25]		16#50		Hex	SINT
RcvBuffer[26]		16#41		Hex	SINT
RcvBuffer[27]		16#53		Hex	SINT
RcvBuffer[28]		16#53		Hex	SINT
RcvBuffer[29]		16#0d		Hex	SINT
RcvBuffer[30]		16#0a		Hex	SINT
RcvBuffer[31]		16#00		Hex	SINT
RcvBuffer[32]		16#00		Hex	SINT



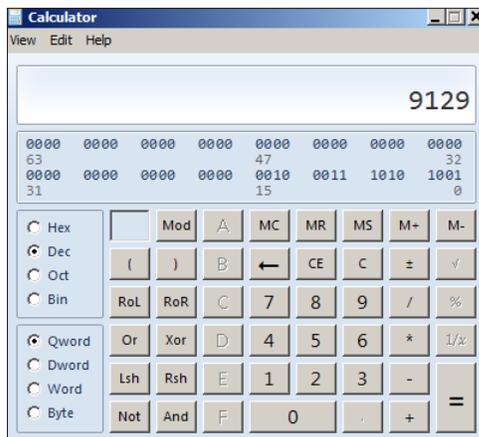
Quick set-up guide for the O2V pixel counter / blob tool sensor and AOI



- Use the calculator in Hex and but enter byte 10 first, then byte 9.



- Finally, click on DEC to get the decimal value for the Object Area



The software interface displays a sensor image of a green component. Below the image, there is a table showing the result output for model 1 (UGT).

ID	Object area
1	9129

On the right side of the interface, there is a section for switching states and a table of detected objects.

Switching states: OUT 5, OUT 3, OUT 4, OUT 1, OUT 2, Pin 4, Pin 5, Pin 6, Pin 7, Pin 8

Models found: Switching outputs, Statistics, Data logger, Service Report

Display objects of all models: Display objects of all models, Detailed display of a model

No	Name	Detected objects	Total number of objects	Object area
1	UGT	1	1	9129