



PLC-ISC INTEGRATION INSTRUCTION

ISC CAM

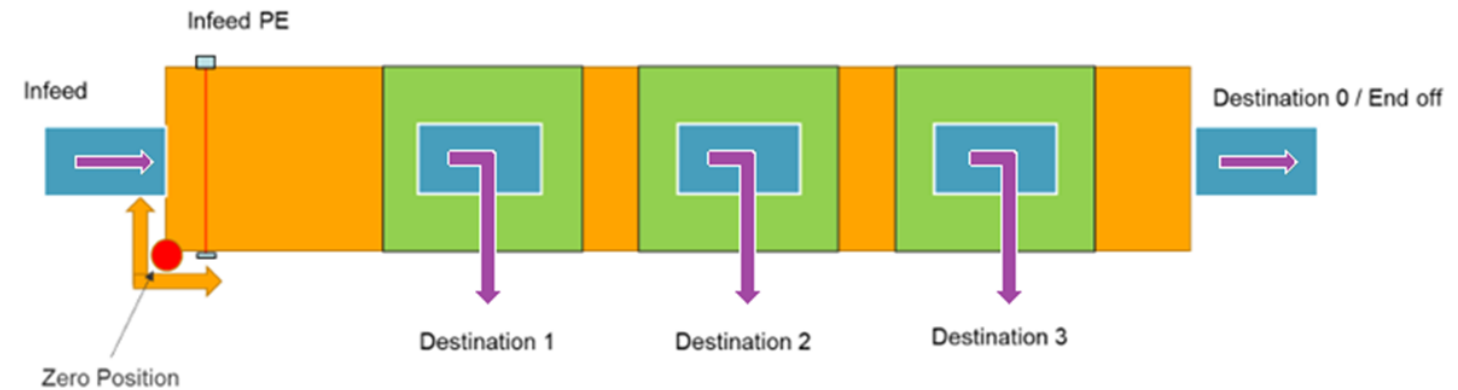
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DESTINATION IDENTIFICATION

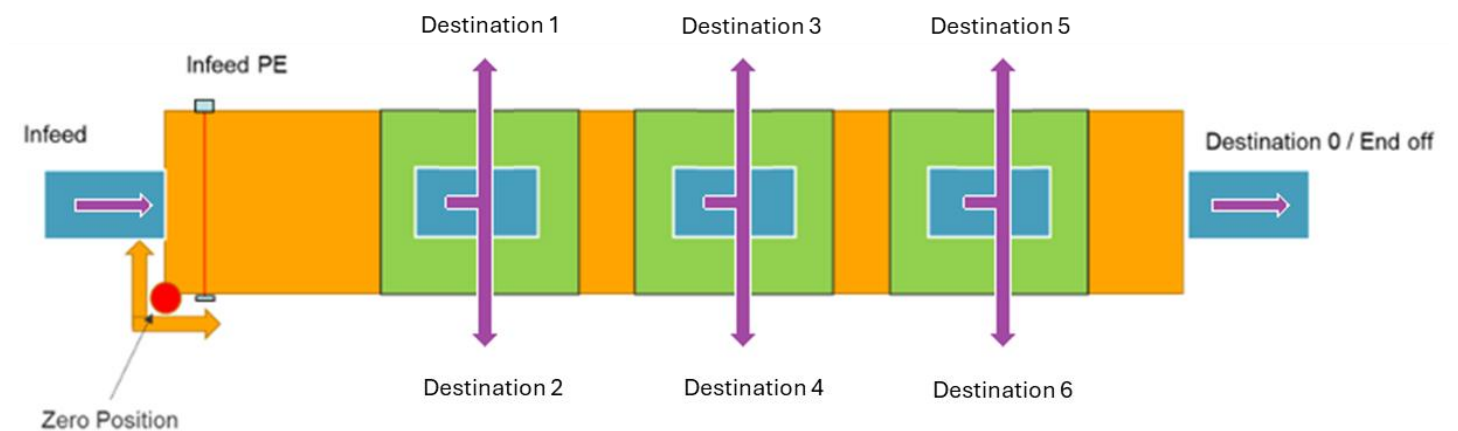
DESTINATIONS UNIDIRECTIONAL SORTER

AIM/DARB/S70X0



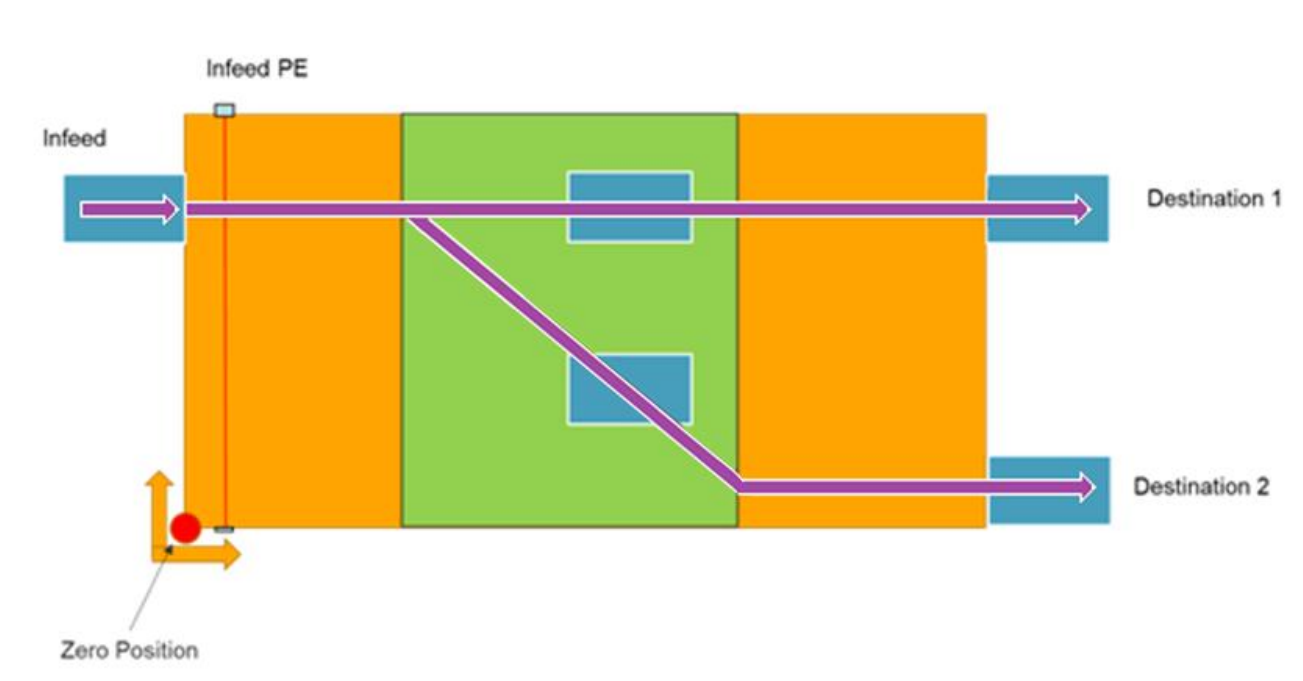
DESTINATIONS BIDIRECTIONAL SORTER

S70X0



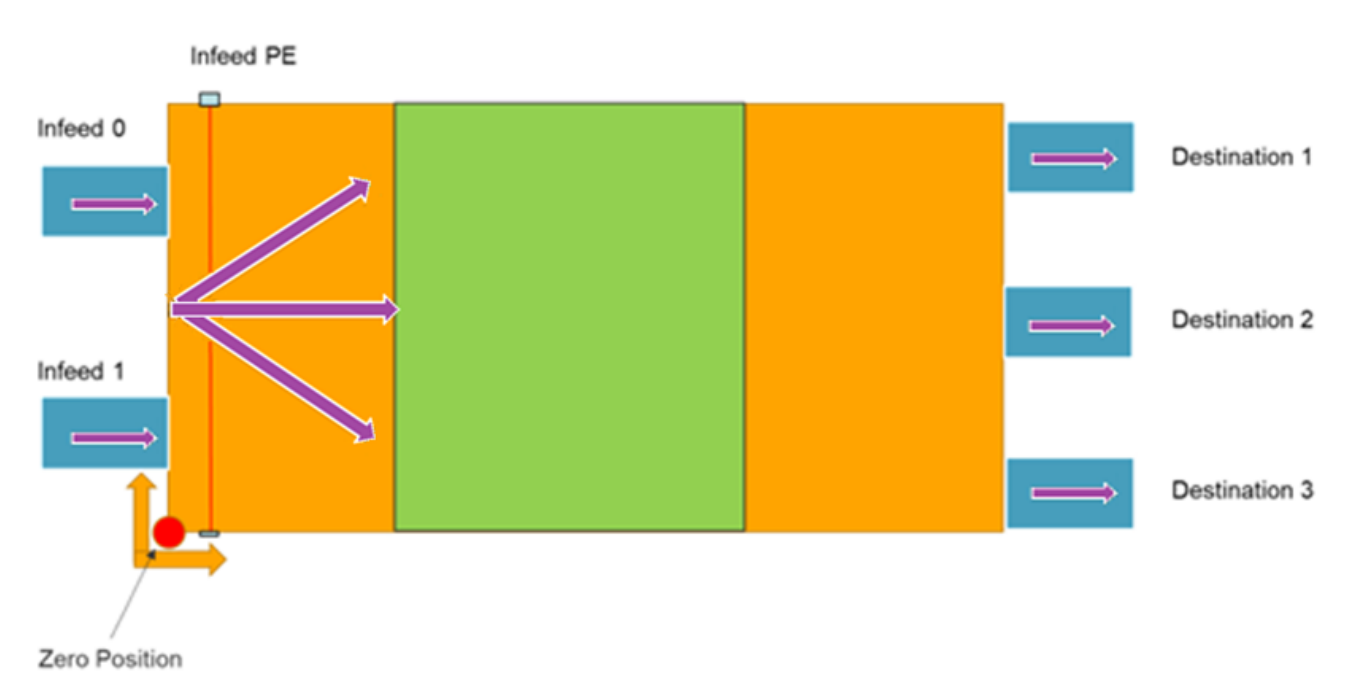
DESTINATIONS SWITCH 1-2

AIM/DARB/S70X0



DESTINATIONS SWITCH 1-3 / 2-3

S70X0



BASIC SIGNALS FROM PLC

In order to have proper response from ISC CAM, it is necessary that the basic signals are correct when a PLC is connected to ISC CAM. No matter which mode (external/internal) is being used, the following signals should be set:

Motor running: This signal should be set on whenever motor is running. If signal is not set, a fault will be given on the ISC CAM.

Active carryway enable right/left: in case of bidirectional belt, the applicable directions per active carryway should be set to be enabled. In case of unidirectional belt, this value can be ignored.

Active carryway enable: in case of unidirectional belt, the applicable active carryways should be set to be enabled. In case of bidirectional belt, this value can be ignored.

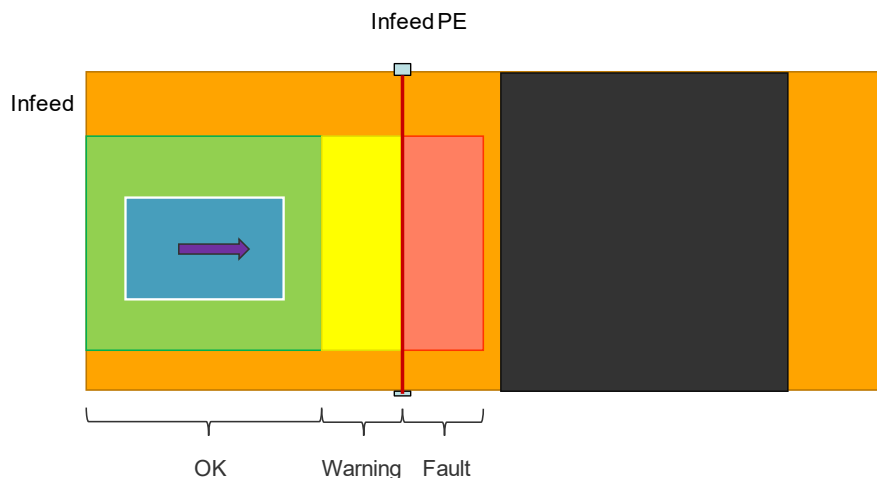
Run mode: Should be set either to External or Internal, depending on which mode is being used. External mode will use the product destination signal to assign destination for products. Internal mode will use the internal mode product counters to assign destinations for products.

PRODUCT DESTINATION SIGNAL

When changing the product destination (by reject signal or product destination number from PLC), the change of signal should be received before the product leading edge comes to the infeed PE (photoeye). The exact time when signal is expected is set in the configuration parameter PLC comm timing window (default 50ms before infeed PE).

It is good practice to be setting the signal for the next product at the moment that the previous product has passed the infeed photoeye. The current status of the photoeye signal can be seen in the cyclic communication from ISC CAM to PLC.

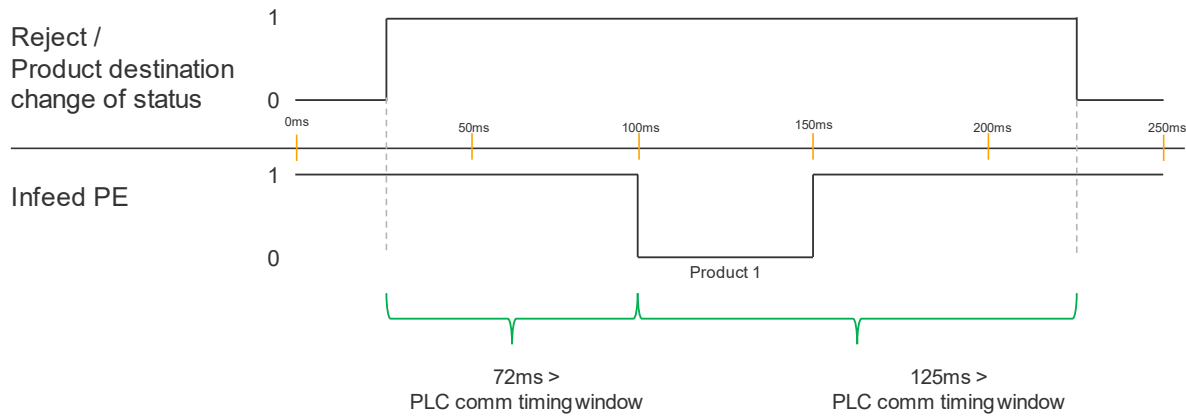
When change of signal is received before the infeed PE, but too close to it, a warning is given (product destination signal received late). When change of signal is received just after the infeed PE, a fault is given (product destination signal received too late). When signal is not received at a correct time, it can result in having product going to wrong destination.



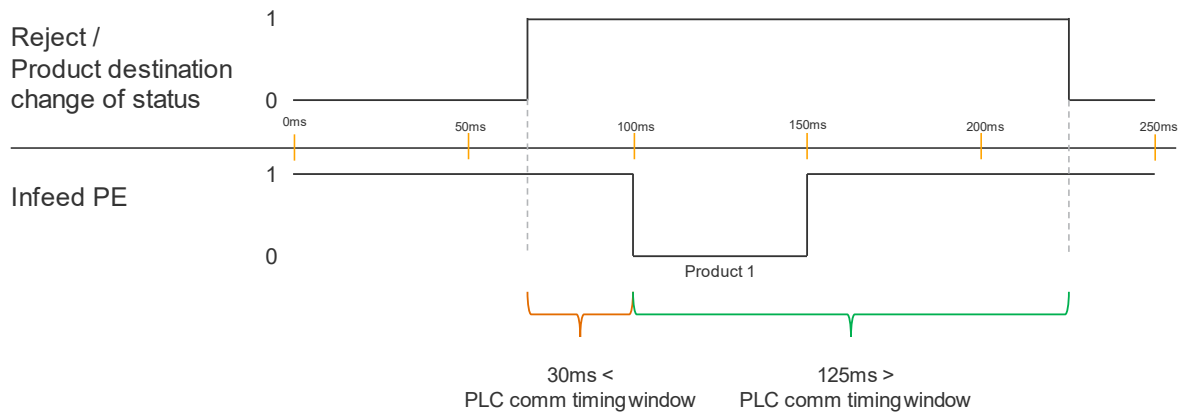
Please see below the timing diagrams for product destination timing.

Please note that by default infeed PE signal is normally closed.

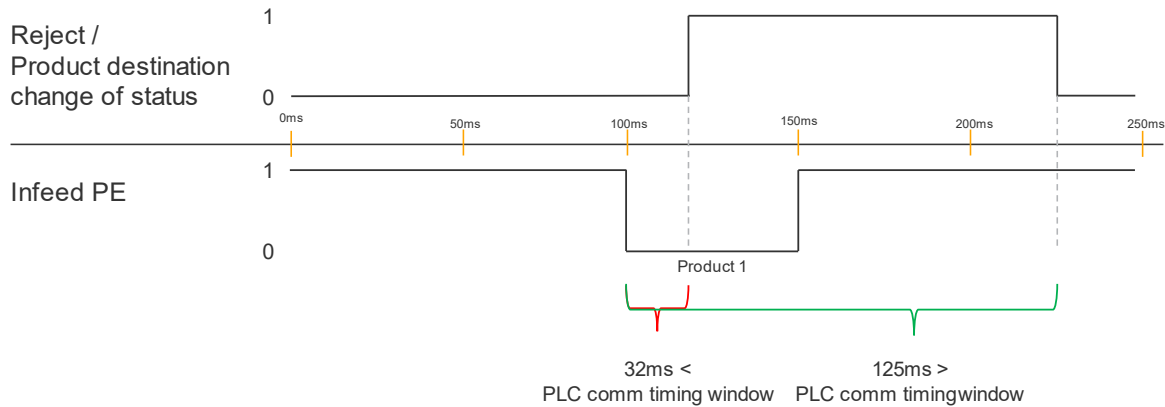
Product destination timing - OK



Product destination timing - Warning



Product destination timing - Fault



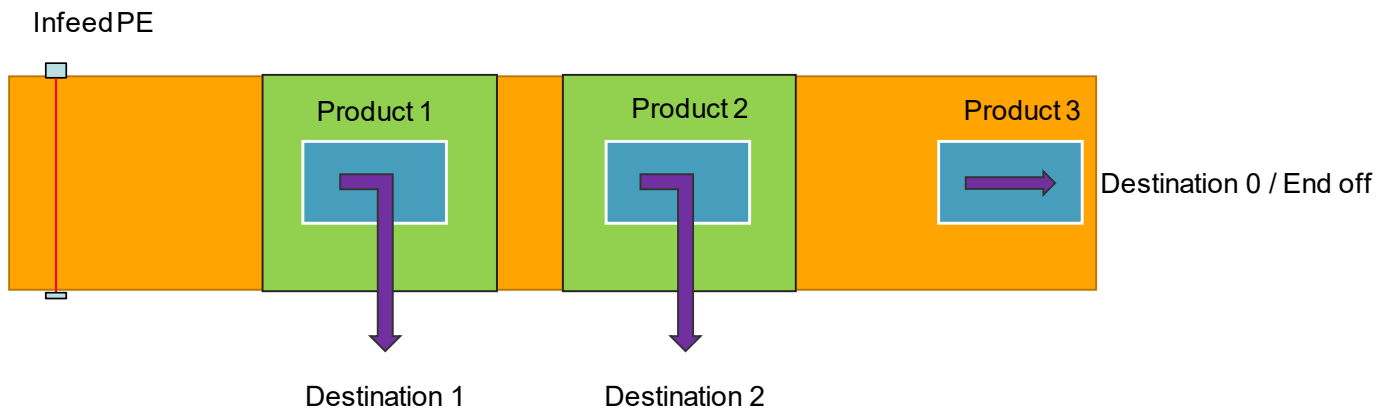
PRODUCT DESTINATION EXTERNAL MODE

When running ISC CAM in external mode, the PLC needs to send the destination information for each product.

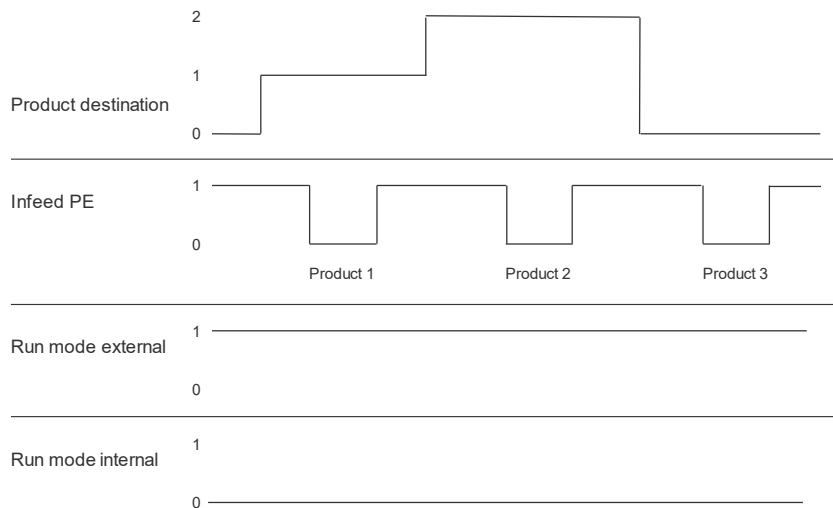
Please see the Divert destination document for proper destination numbers.

The correct timing for product destination command can be seen in Product destination signal part.

When using external mode, command External mode needs to be true, while command Internal mode needs to be false.

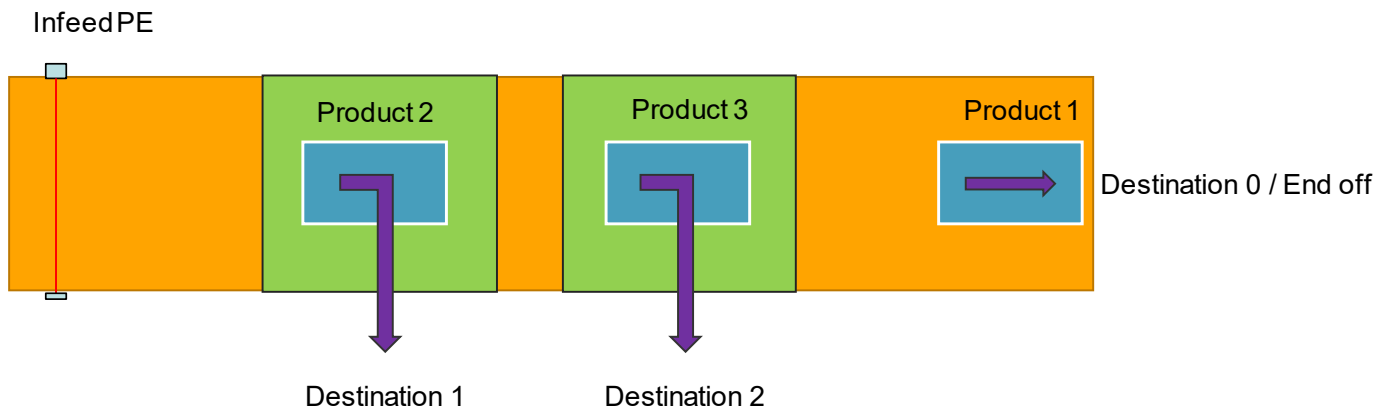


Product destination external

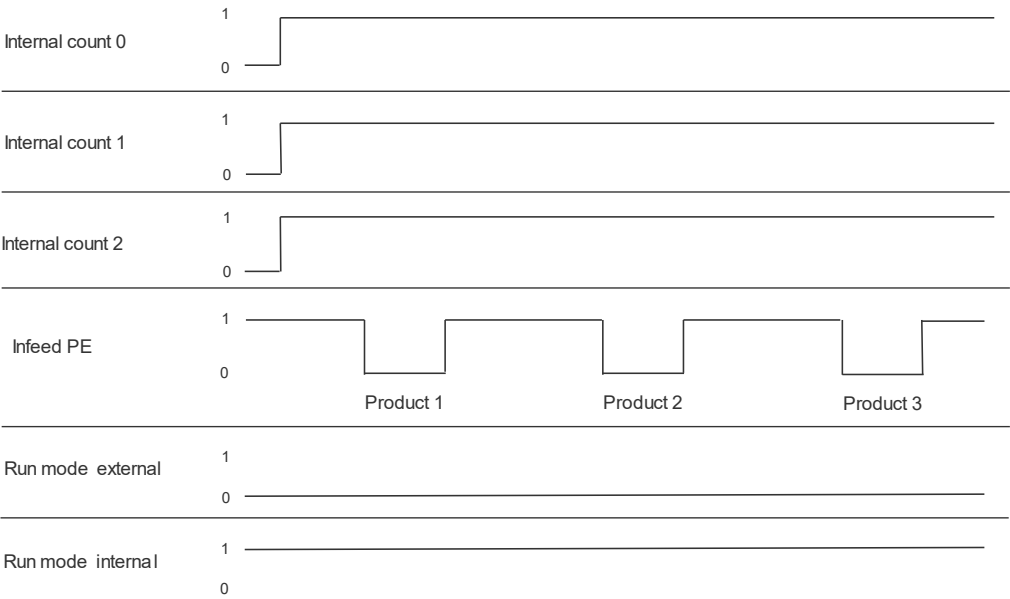


PRODUCT DESTINATION INTERNAL MODE

In internal mode the internal mode destination counters are being used to assign the destination for each product. In internal mode, it can be set how many products should go to each destination. When using internal mode, command Internal mode needs to be true, while command External mode needs to be false.



Product destination internal

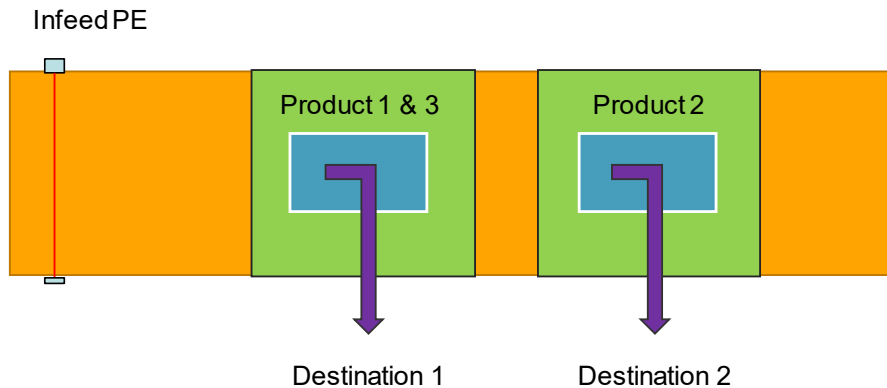


REJECT SIGNAL

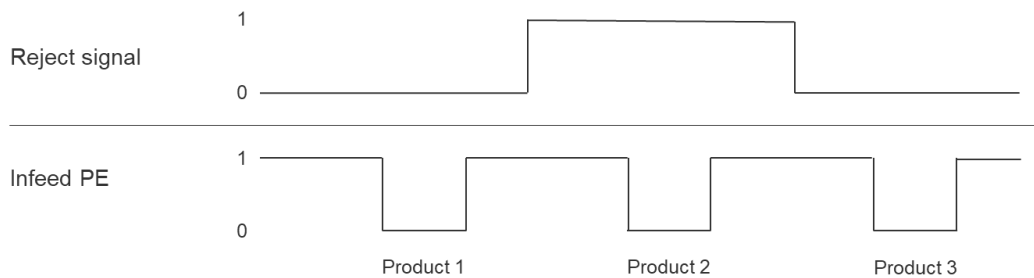
When reject signal is enabled, it is possible to send a reject command through a 24v signal. The correct timing for reject signal can be seen in Product Destination Signal.

The reject destination can be specified on the vHMI or through the parameter writing from the PLC.

In the example below, it can either be used in internal or external mode. In both situations all products have been set to go to destination 1. Reject destination has been set to 2.



Reject signal



ACTIVE CARRYWAY ENABLE/DISABLE

It is possible to disable active carryways for example in case of full exit conveyor. If using bidirectional belts, it is possible to disable both directions (left/right) independently.

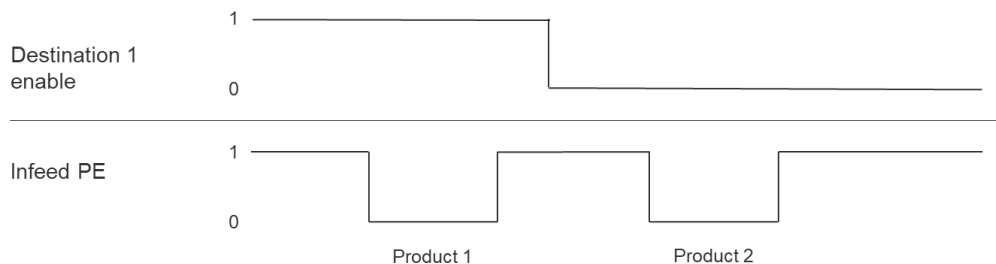
When product is set to the disabled destination, it will be reassigned to predefined default destination, provided this default destination is further along the belt. If it is not possible to use default destination, product will be sent end off. This ensures efficient product management even when certain destinations are not operational.

Default destination can be set on the vHMI or through parameter writing from the PLC.

In the example below, it can either be used in internal or external mode. All products have been set to go the destination 1. Default destination has been set to end off.



Active carryway enable/disable

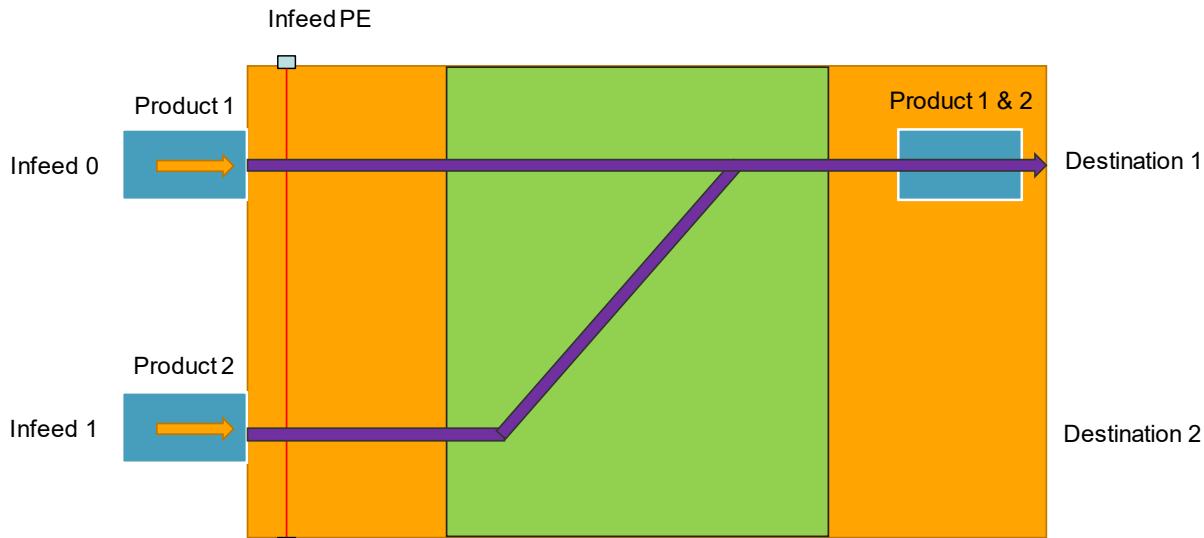


PRODUCT INFEEED

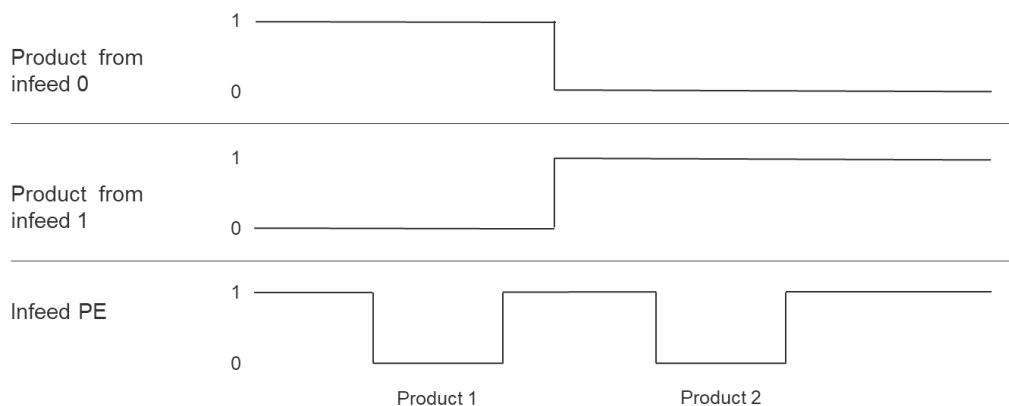
When using dual infeeds, it is necessary to set from the PLC which infeed is being used. By default, destinations are the same no matter which infeed is being used, the path that the product takes is different.

The infeed information needs to be received by the ISC CAM before the next product arrives at the infeed photo eye.

In the example below, it can either be used in internal or external mode. All products have been set to go the destination 1.



Product infeed



OVERRIDE ACTIVE CARRYWAY

It is possible to override the output to the valve(s). This overrides any outputs that ISC-CAM would send on normal operation. The output(s) can be set either on or off.

With DARB (S4500) and AIM (S800) the output values can be either 0 (off) or 1 (on).

With S70X0 the output values can be from 0-65535, since each valve on valvebank can be set individually. Please see the vHMI instructions for more information.

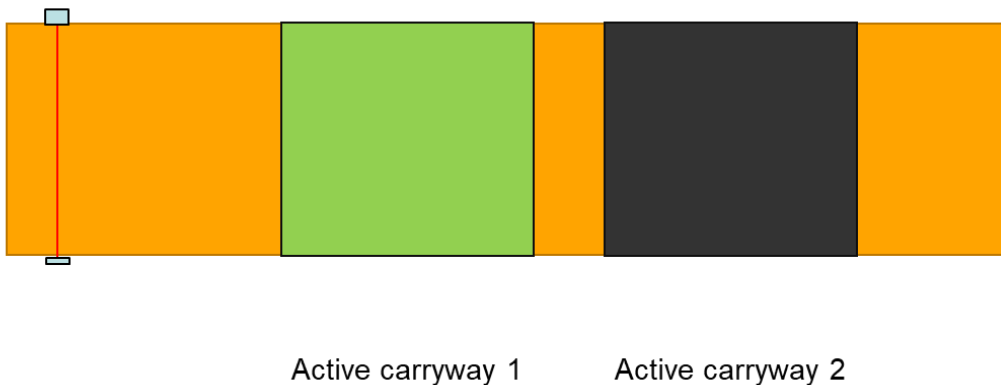
In the example below, active carryway 1 is first overridden to be on, after a while it is overridden to be off. After this the override is deactivated.

Override active carryway pointer: Defines the active carryway, where the value will be overwritten. For example, value 2 will set the override value for active carryway 2.

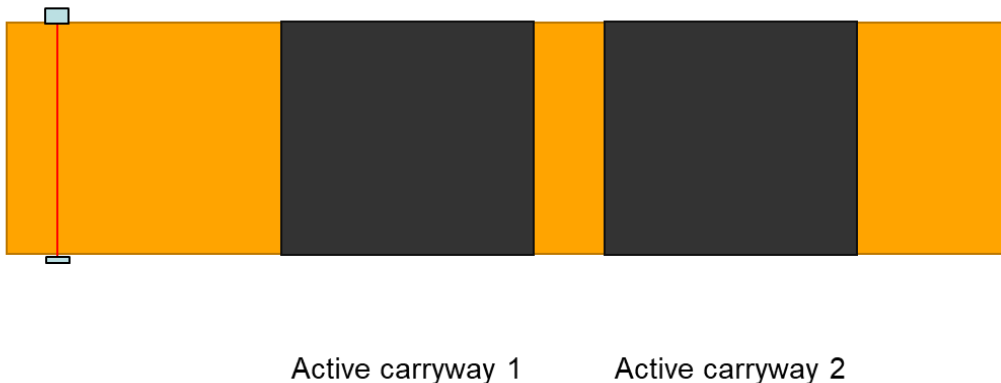
Override active carryway value: Defines the override value that will be written to selected active carryway. For example, AIM technology value 1 would mean forcing valve 'on' while value 0 would mean forcing valve 'off'.

Enable override active carryway: When override is enabled, it will use the value that has been set earlier with 'override active carryway pointer' and 'override active carryway value'. This parameter can be used to prime 'override active carryway pointer' and 'override active carryway value' and then executed, by setting 'Enable override active carryway' to 1.

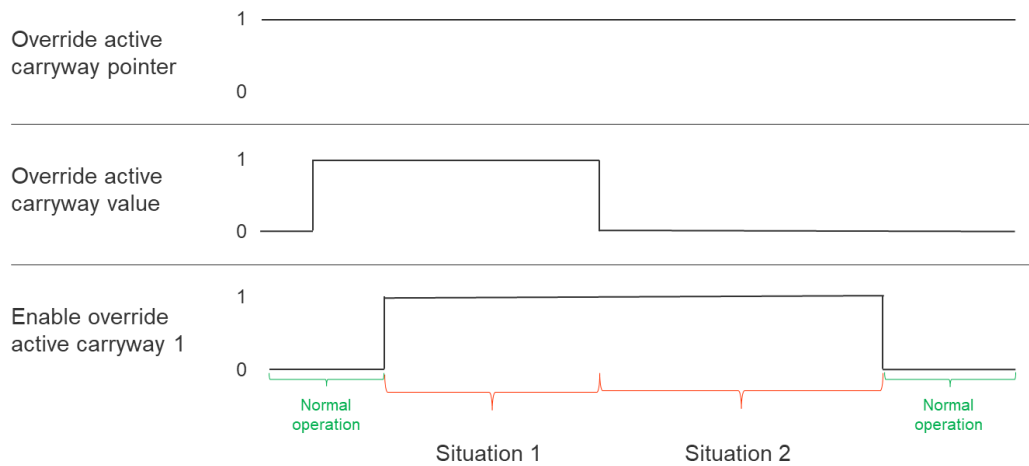
Situation 1 – Active carryway 1 active



Situation 2 – Active carryway 1 deactive



Override active carryway



PARAMETER STRUCTURE

Parameters are divided into different parameter groups. When writing or reading a parameter, it is important to know the parameter group and parameter number. These can be seen in the Interlocks document.

PARAMETER UNIT CONVERSION

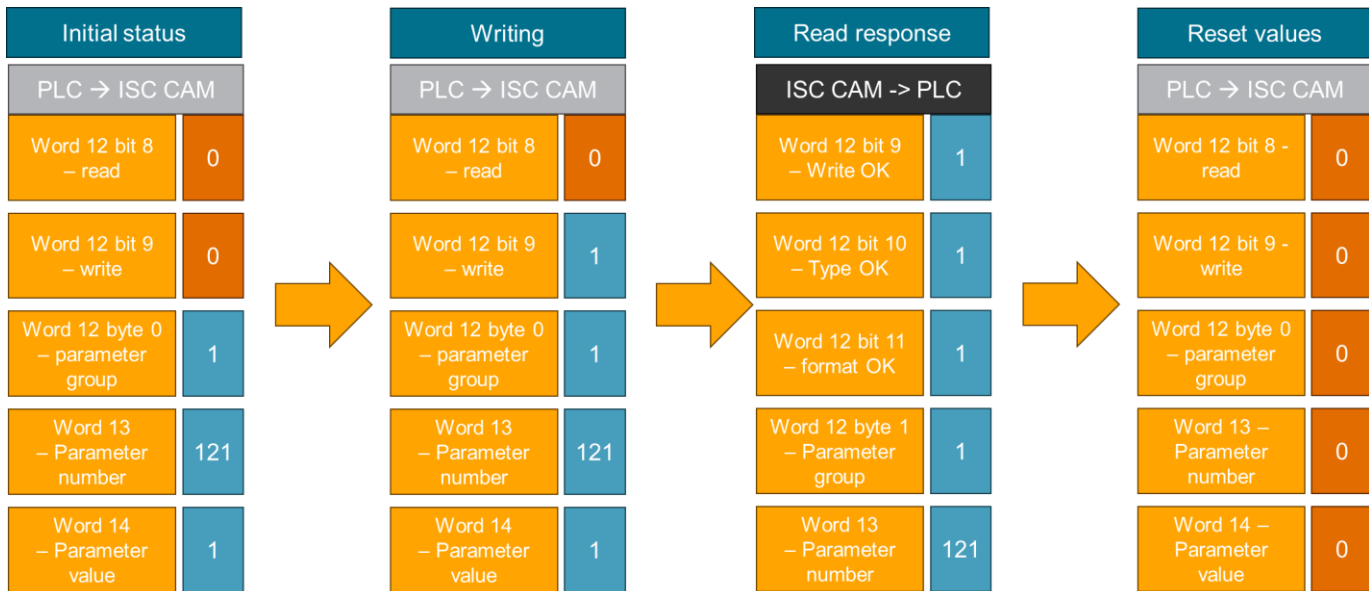
Different parameters have different units. It is important to note this from the Interlocks file. Interlocks file also explains how to do the conversion of the parameter values.

PARAMETER WRITING

Writing a parameter happens only in the rising trigger of the write command. Please see below the proper sequence on getting a parameter written properly.

In this example parameter 'Reject destination' will be set to value 1.

In the interlocks file Parameter group in this case is 1 and parameter number 121.



Initial status: Parameter values should be set while write command is still false, to make sure that correct parameter information is available when the write command goes from false to true.

Writing: To write the parameter value, write command needs to be set to true.

Read response: To confirm that parameter writing has been successful, the response from ISC CAM should be checked.

Write OK: If writing was successful, this value is 1.

Type OK: If parameter exists and is also writeable, this value is 1.

Format OK: If value of the parameter is in allowed range, this value is 1.

Parameter group: This value confirms to which parameter group the parameter belongs that was written. This should match the parameter group which was sent to ISC CAM.

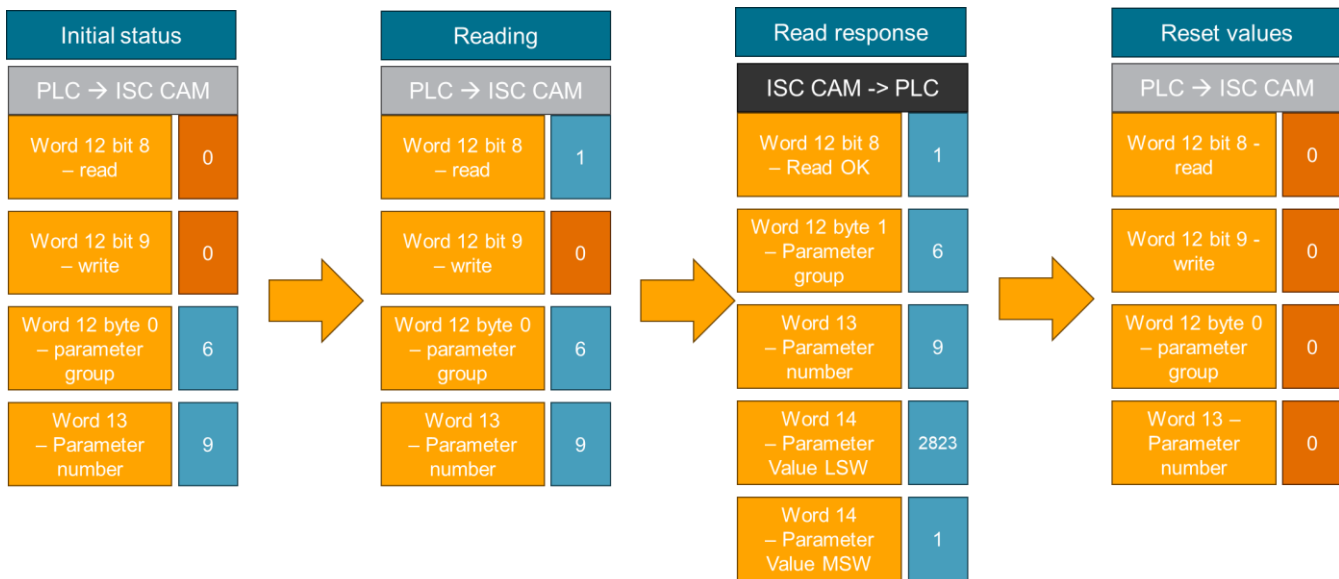
Parameter number: This value confirms which parameter number was written. This should match the parameter number which was sent to ISC CAM.

Reset values: all values should be reset after receiving feedback from the ISC CAM.

PARAMETER READING

Reading a parameter happens only in the rising trigger of the read command. Please see below the proper sequence on getting a parameter written properly.

In this example parameter 'Runtime counter' value will be read.
In the interlocks file Parameter group in this case is 6 and parameter number 9.



Initial status: Parameter values should be set while read command is still false, to make sure that correct parameter information is available when the read command goes from false to true.

Reading: To read the parameter value, read command needs to be set to true.

Read response: The current parameter value in the ISC CAM can be seen in the response from the ISC CAM.

Read OK: If reading was successful, this value is 1.

Parameter group: This value confirms to which parameter group the parameter belongs that was read. This should match the parameter group value which was sent to ISC CAM.

Parameter number: This value confirms which parameter number was read. This should match the parameter number which was sent to ISC CAM.

Parameter value LSW: Least significant word for the value. This should be combined with MSW to get the full value. In this example LSW value 2823 equals 2823.

Parameter value MSW: Most significant word for the value. This should be combined with LSW to get the full value. In this example MSW value 1 equals 65536.

Total value: LSW + MSW. In this example total value equals $2823 + 65536 = 68359$.

In the interlocks file the runtime value needs to be converted. Value gotten from ISC CAM equals 1.024 seconds. Meaning total value in seconds = $68359 \times 1.024 = 70000$ seconds. Which can further be converted to DD:HH:MM:SS format, meaning 00:19:26:40.

Reset values: all values should be reset after receiving feedback from the ISC CAM.

TIA PORTAL INTEGRATION OF ISC CAM

DOWNLOAD THE GSDML FILE.

1. Download “ISC CAM Network Integration Support Files” folder from the [Intralox Smart Carryway webpage](#). Within that folder there will be two important documents.
2. “GSDML-INTRALOX-ISC-CAM-V2.xml”
3. “TIA_LIBRARY_15.1_ISC_CAM_v2”

ADD THE GSDML FILE TO TIA PORTAL PROJECT.

4. Select “Options” scroll to and select “Manage general station description file (GSD),” Figure 1
5. A window will open “Manage general station description files” click on the ellipse button, Figure 2
6. A windows explorer will open, browse to the saved folder location of the downloaded GSD file, step 1a, click “Select Folder, Figure 3.
7. Check the box of the correct GSDML file in the Manage window and select “Install,” Figure 4.
8. An installation complete window will appear, click close, Figure 5.
9. Upon closing the Hardware catalog, it shall be updated to include the ISC CAM module.
10. Go to “Device configuration” then “Network view,” Figure 6.
11. Open the “Hardware catalog”
12. Navigate to the “ISC CAM PN Device,” Other field devices > PROFINET IO > I/O > Intralox > Intralox > ISC CAM > ISC CAM PN Device, Figure 7.
13. Drag and drop device in “Network view”
14. Click on “Not assigned” on the “ISC CAM PN Device,” Figure 8.
15. Select the IO controller to connect the ISC CAM module.
16. A connection shall be established to the IO controller, Figure 9.

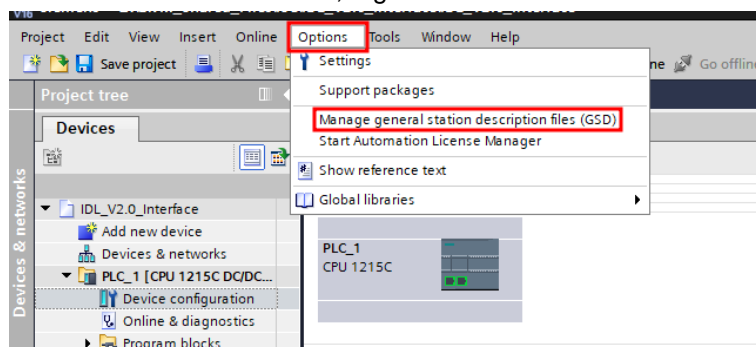


Figure 1: Options > Manage GSD Files

SETTING UP COMMUNICATION

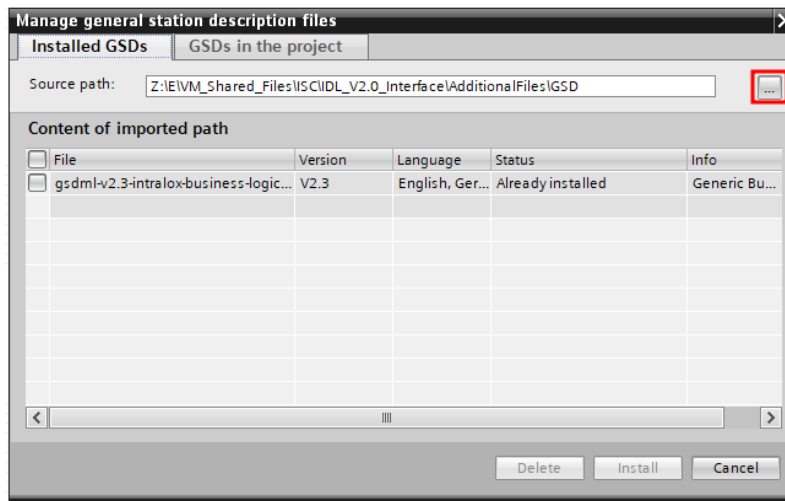


Figure 2: Manage GSD Files > Browse Button

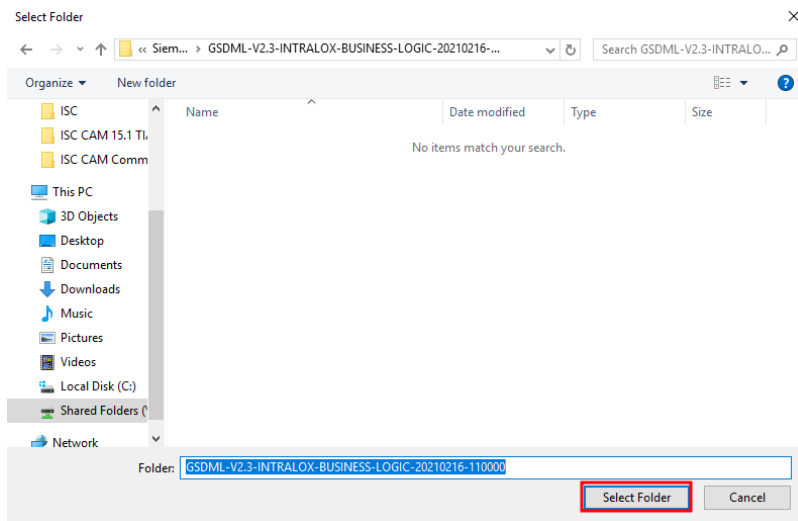


Figure 3: GSD Folder Selection – Browse

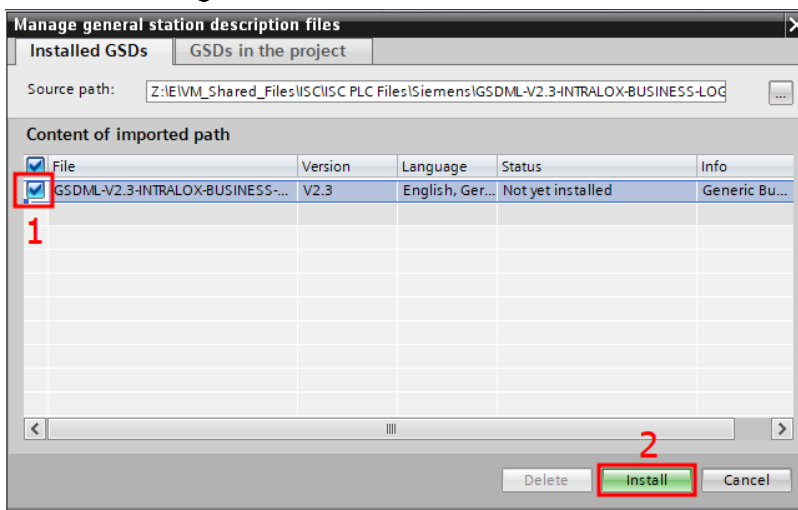


Figure 4: Install GSD File

SETTING UP COMMUNICATION

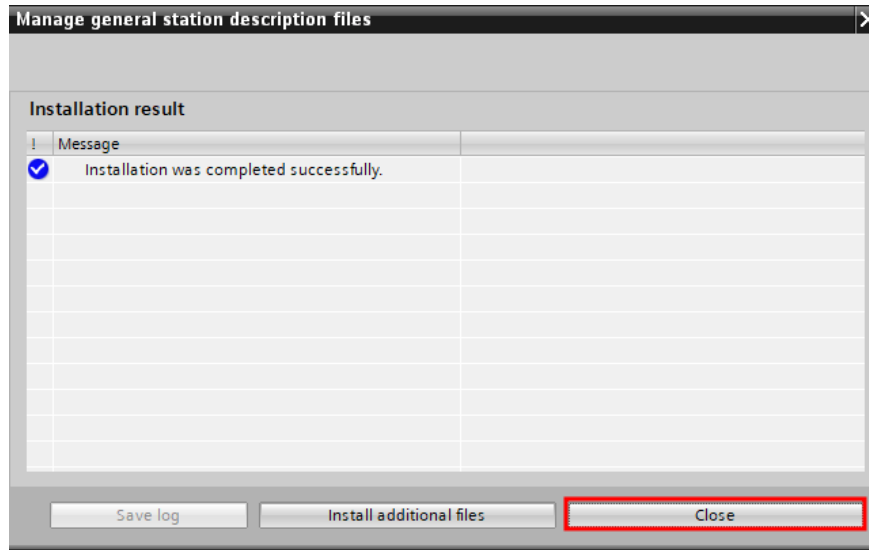


Figure 5: Installation Result Window

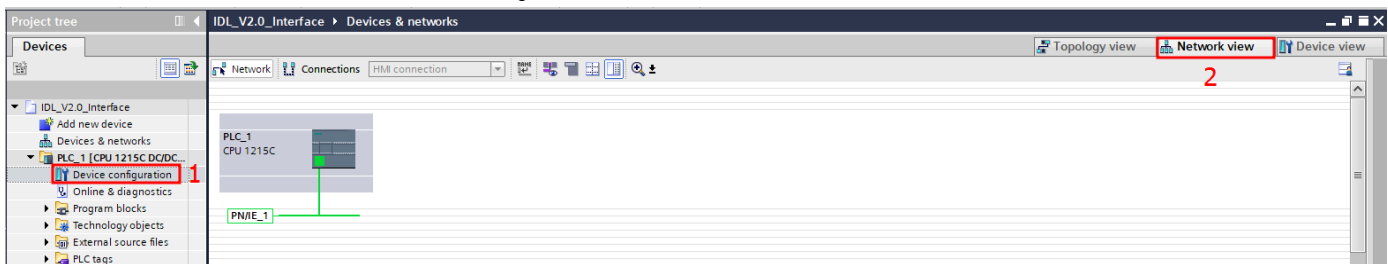


Figure 6: Device Configuration > Network View

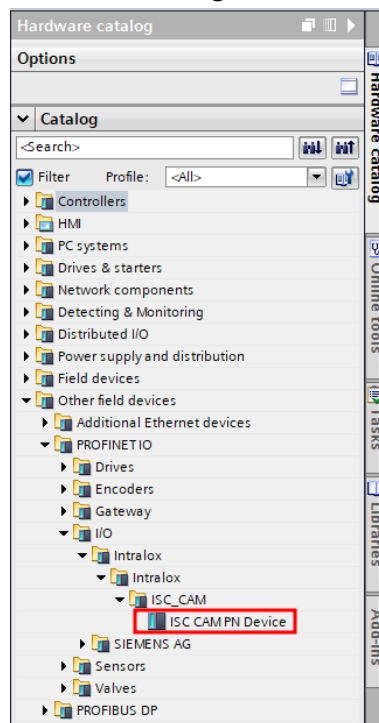


Figure 7: ISC CAM PN Device Hardware Catalog Selection

SETTING UP COMMUNICATION



Figure 8: Connect ISC CAM to IO Controller

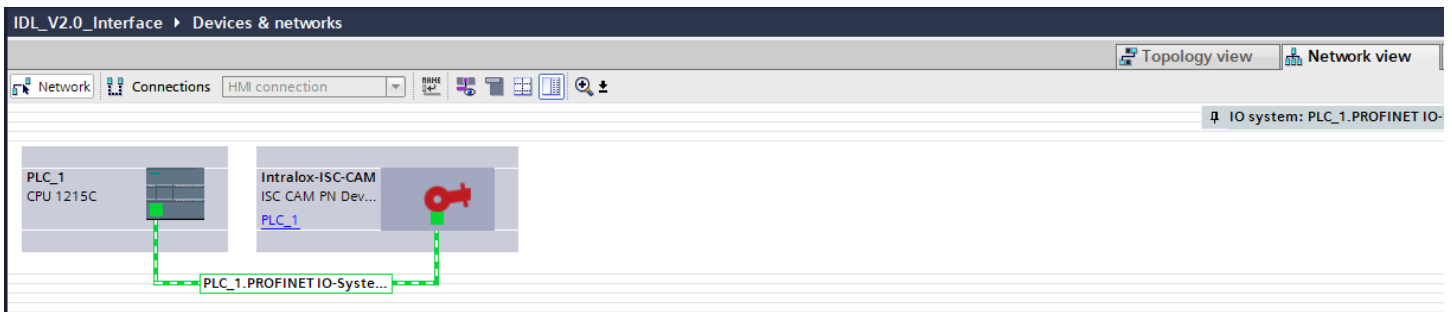


Figure 9: IO Controller Link

SETUP DEVICE CONNECTION

17. Connect to an ISC CAM via Ethernet connection.
18. Using the "Intralox ISC Service Tool" verify that computer is connected to ISC CAM by clicking "Search" button, Figure 10.
19. If the search is successful then a device will populate in the list with IP Address, Device type, etc., Figure 10.
20. In TIA Portal program open "Online access" find and open the adapter which is connected to ISC CAM. An ISC CAM device with the same IP address shall be listed under that adapter, Figure 11.
21. Open the ISC CAM device in the "Online access" tree. Go to "Online & diagnostics," Figure 11.
22. Choose "Functions" from the left column, Figure 12.
23. Verify the "MAC address" matches the connected device, Figure 12.
24. Can also verify connected ISC CAM device by selecting the "LED flashes" check box to the left of "Assign name" in Figure 13.
25. Change the IP Address to match the address of the project, Figure 12.
26. Provide a correct "Subnet mask" for the device, Figure 12.
27. Click "Assign IP address," Figure 12.
28. Scroll down to "Assing PROFINET device name" and enter "PROFINET device name" which matches the project, the click "Assign Name," Figure 13.

SETTING UP COMMUNICATION

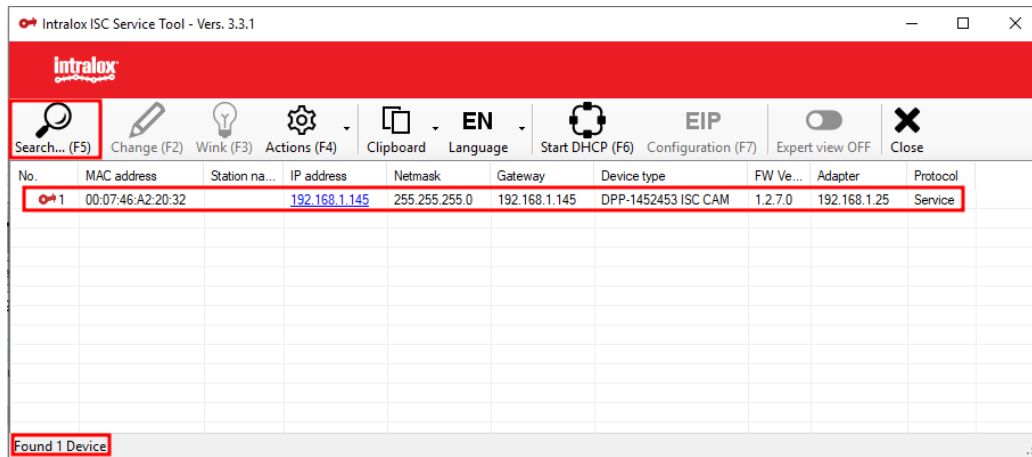


Figure 10: Intralox ISC Service Tool Search

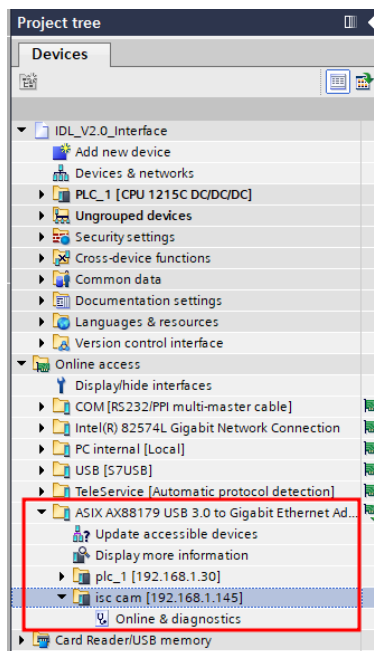


Figure 11: Online Access for Connecting ISC CAM to Project

SETTING UP COMMUNICATION

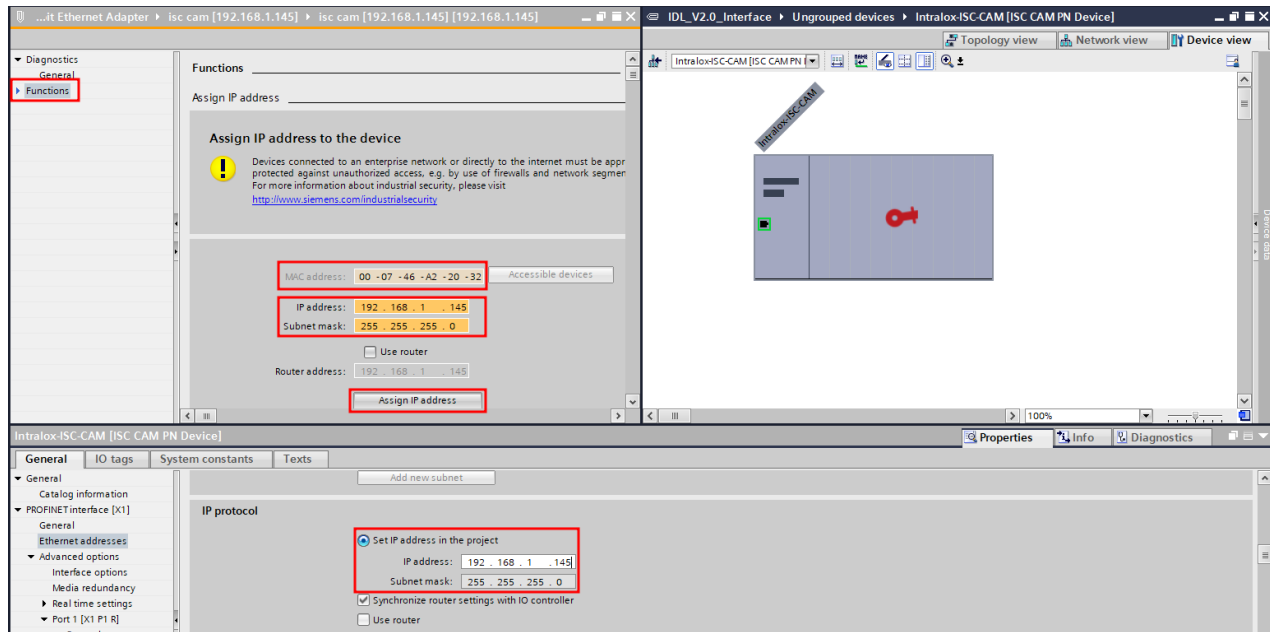


Figure 12: Setting IP Address for ISC CAM device

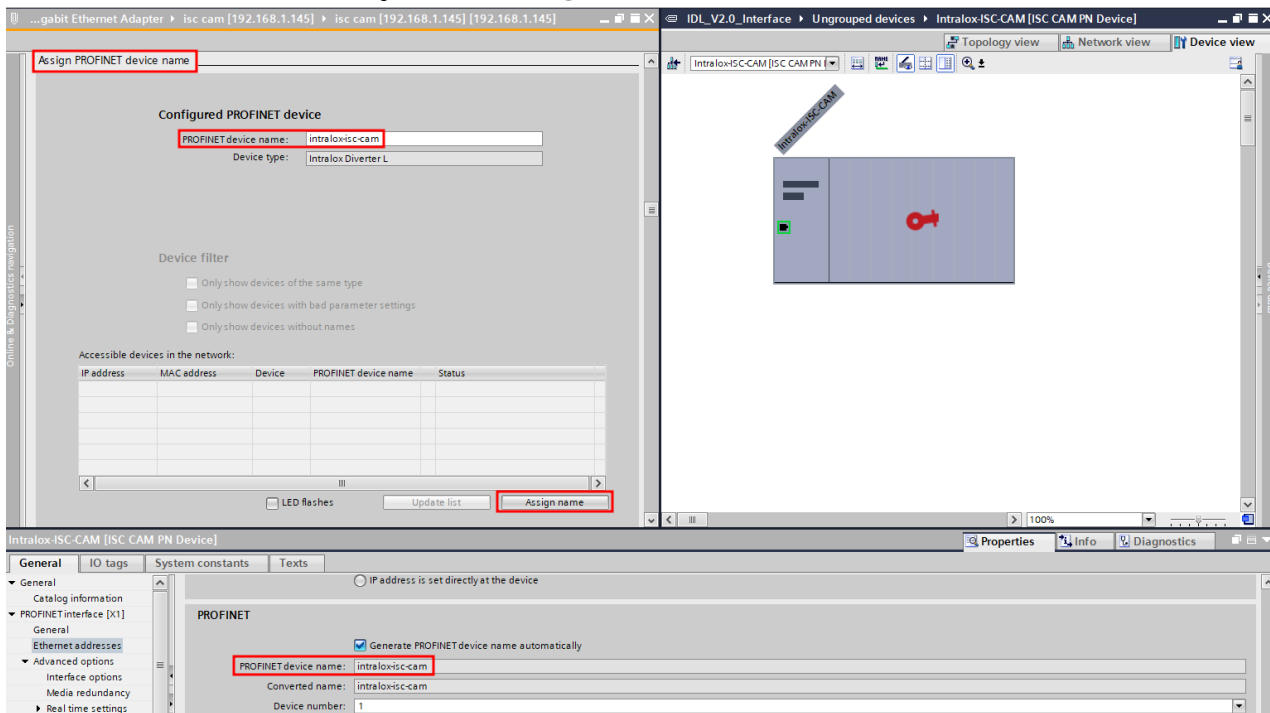



Figure 13: Configure Profinet Device Name for ISC CAM

SETTING UP COMMUNICATION

ADD ISC CAM PLC TAGS TO PROGRAM FROM LIBRARY FILE

29. Choose Libraries from the right-hand column, Figure 14.
30. Choose “Global libraries”, Figure 14.
31. Click on “Open global library”  button, Figure 14.
32. A file explorer window will open, navigate to the downloaded library file “TIA_LIBRARY_15.1_ISC_CAM_v2” and click “Open,” Figure 14.
33. If the TIA Portal project is a version newer than V15.1 a new window will appear, “Open library,” Figure 15.
34. Select One of the products listed “Totally Integrated Automation Portal” or “STEP 7 Basic” and select “Upgrade,” Figure 15.
35. After the upgrade or opening of the library file. The library “TIA_LIBRARY_15.1_ISC_CAM_v2” shall be listed in the “Global Libraries,” Figure 16.
36. Open “TIA_LIBRARY_15.1_ISC_CAM_v2” Library, Figure 16.
37. Open “Master copies,” Figure 16.
38. The “ISC_CAM_Tags” can drag and drop into PLC tags of the project, Figure 16.

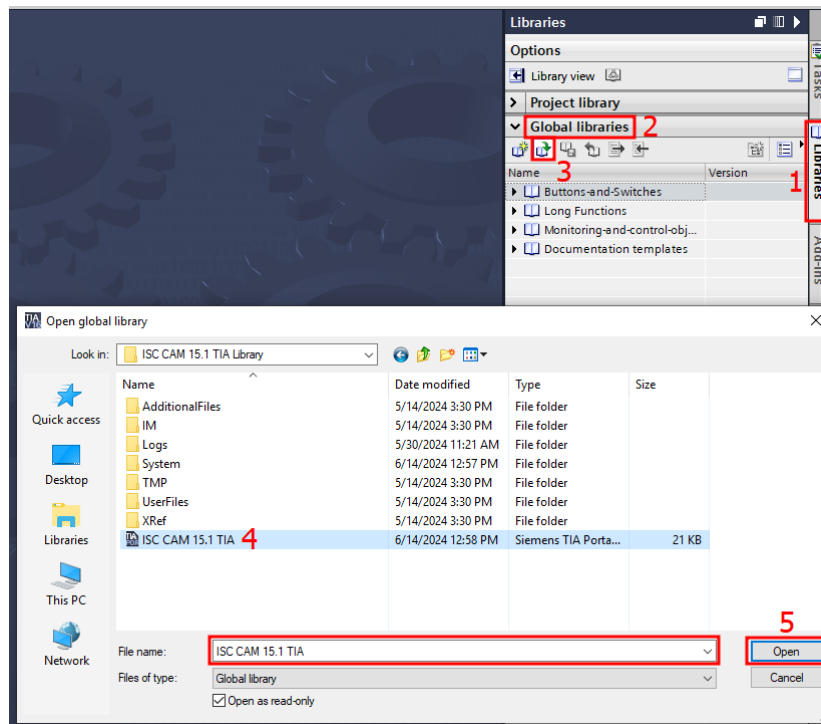


Figure 14: Adding Global Library to TIA Portal Project

SETTING UP COMMUNICATION

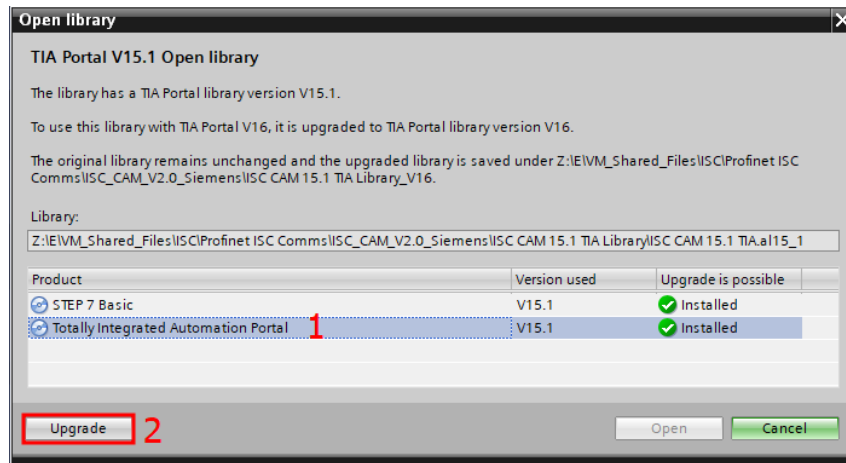


Figure 15: Library Upgrade from V15.1 to Newer Version of TIA Portal Project

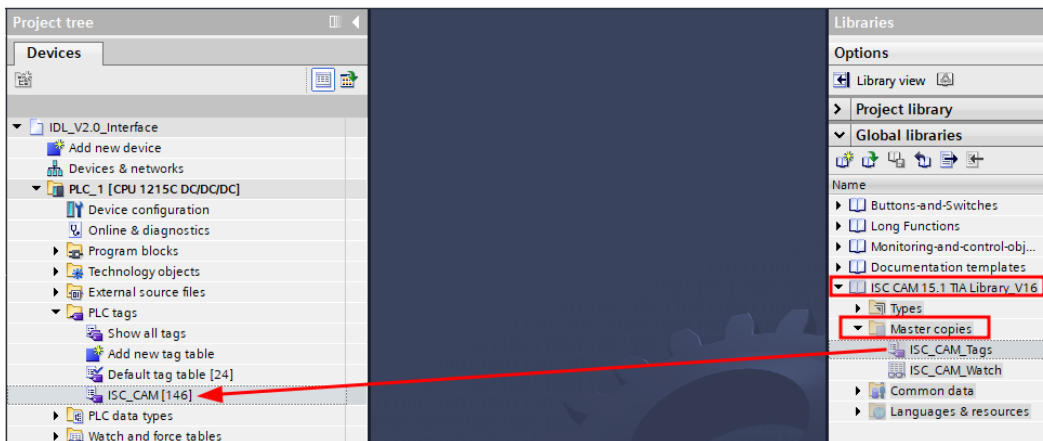


Figure 16: Adding ISC CAM PLC Tags to Project

CONFIGURE THE INPUT AND OUTPUT SIZE OF THE DEVICE.

39. Select "Device configuration" in the project, Figure 17.
40. Choose ISC CAM from the drop-down menu in "Device view," Figure 17.
41. Expand the window to the right of the device to view the "Device overview," Figure 17.
42. Open the "Hardware catalog" to the right of the "Device overview," Figure 17.
43. Open the "Module" in "Hardware catalog," Figure 17.
44. Drag and drop "IN 16 WORD" into "Device overview" "Slot" 1, Figure 17.
45. Drag and drop "OUT 16 WORD" into "Device overview" "Slot" 2, Figure 17.

SETTING UP COMMUNICATION

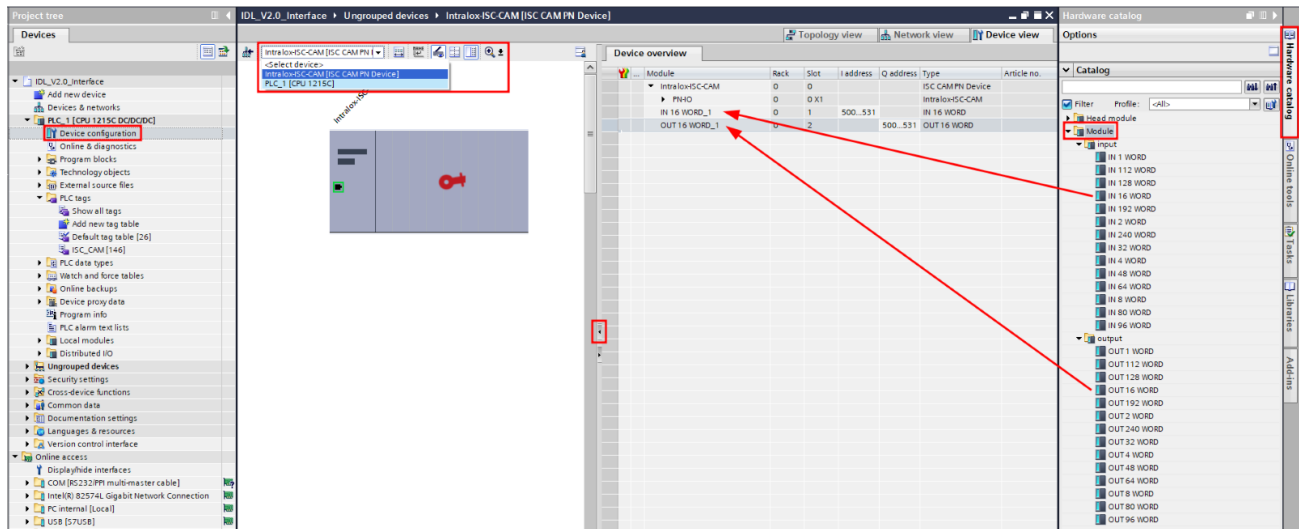


Figure 17: Configure Input and Output Size of ISC CAM Device

SETUP ADDRESS FOR INPUT AND OUTPUT OF DEVICE AND CONNECT PLC TAGS

46. Library file address for PLC tags is **input 500-531** and **output 500-531**.
47. If the address space 500...531 is occupied for Inputs or Output, follow steps 50-60 for how to change the PLC tags addresses. If the space is available, follow steps 48-49.
48. Double click or highlight the entire "I address" field, type 500 and press enter. The value in the field for ISC CAM shall change to 500...531, Figure 18.
49. Double click or highlight the entire "Q address" field, type 500 and press enter. The value in the field for ISC CAM shall change to 500...531.
50. If the address range of 500...531 is reserved or used in the project. Choose the next available I & Q address space available in the TIA Portal project.
51. Open PLC tags "ISC_CAM," Figure 19.
52. Select "Address" column to organize the data in order, Figure 19.
53. Select the first input byte "i_NotUsed" data address %IB500 and change it to match the first byte of the available "I address" of the ISC CAM "Device overview," Figure 19.
54. With the mouse pointer hover of the first input byte at the bottom right-hand corner of the "Address" "%IB75" until the pointer icon changes to a + icon press and hold the left mouse button. Then drag all the way to the last input word "i_ParameterValueMSW" "%IW530" and let go of the left mouse button. By doing this step all the PLC tags shall change addresses to match the "I address" of the ISC CAM device, Figure 20.
55. A window will appear "AutoFill" choose "Overwrite tags" and press "OK," Figure 21.
56. Verify the address range of the input tags is within the range of the "I address" for the ISC CAM device.
57. If the output address range is used in the project, then steps 7e...7k will need to be completed for the output PLC tags and ISC CAM device output mapping. Figures 22-23.
58. Change the first output PLC tag "q_NotUsed(1)" "%Q500.0" to match the first "Q address," Figure 22.
59. Starting with the updated tag (q_NotUsed(1)) Address, grab the bottom right corner with the mouse icon and drag down all the way to the last output word "q_NotUsed(36)," Figure 23.
60. When the AutoFill window appears choose "Overwrite tags" and click "OK," Figure 21.

SETTING UP COMMUNICATION

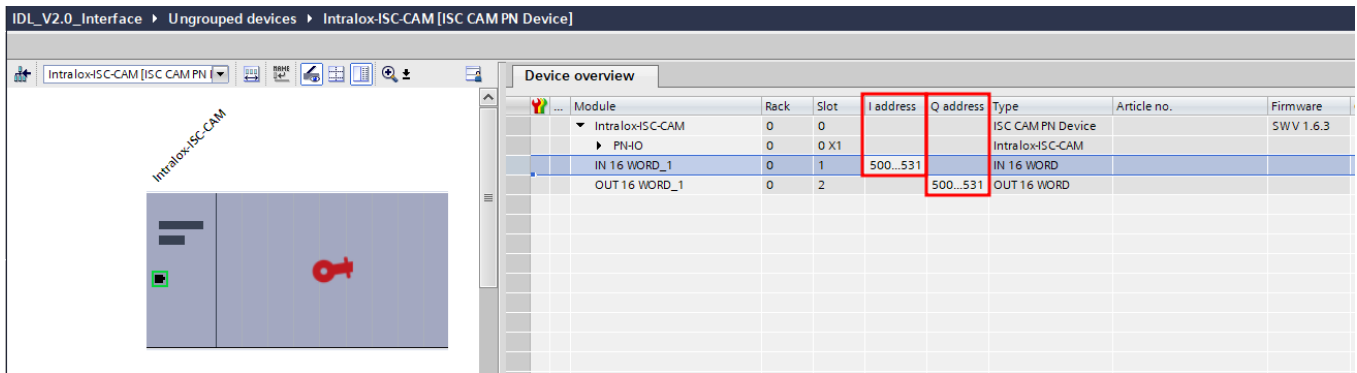


Figure 18: Set I and Q Address of ISC CAM Device

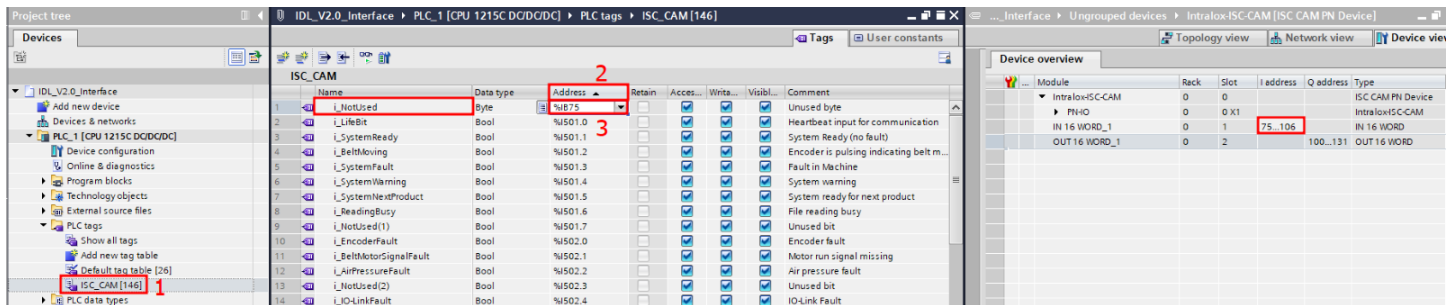


Figure 19: Changing First Input Byte of the ISC CAM PLC Tags

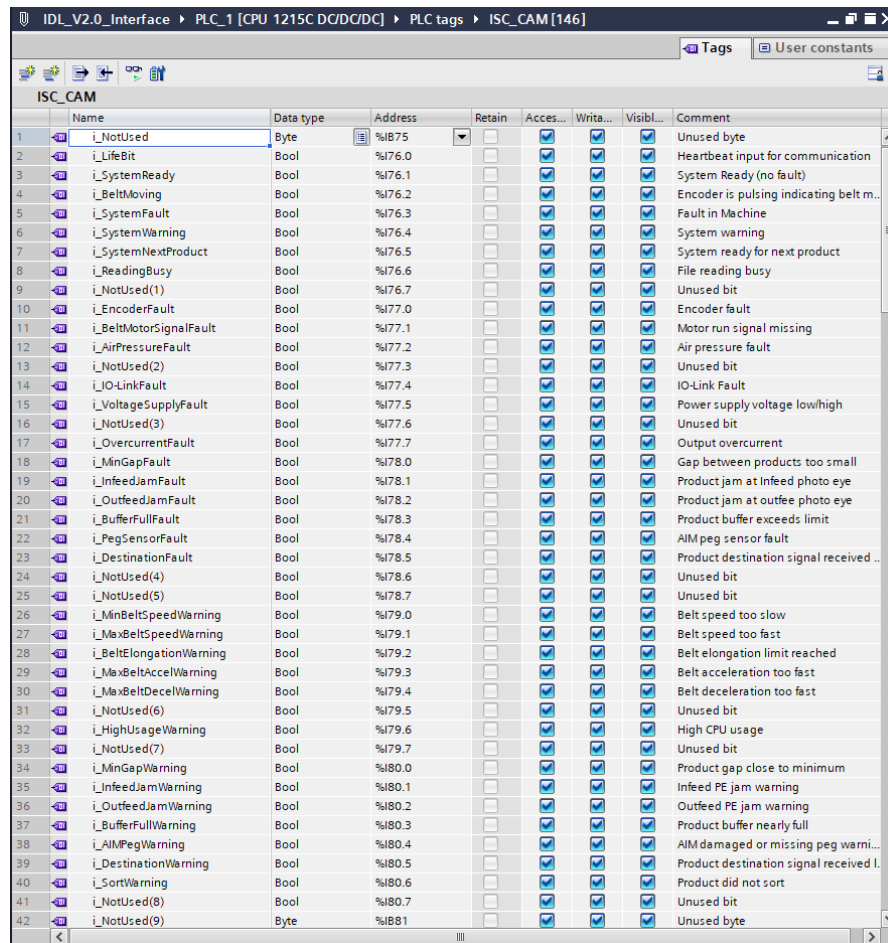


Figure 20: Input Address Change to Match ISC CAM Device

SETTING UP COMMUNICATION

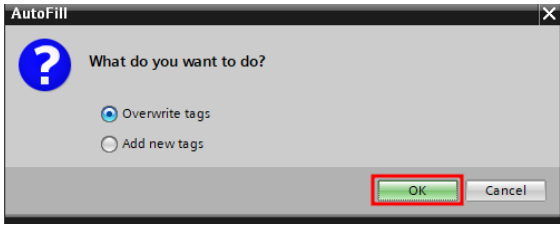


Figure 21: AutoFill Window – Overwrite Tags

...215C DC/DC/DC] > PLC tags > ISC_CAM [146]

Tags User constants

ISC_CAM

	Name	Data type	Address
70	i_Parameter	Int	%IW102
71	i_ParameterValueLSW	Int	%IW104
72	i_ParameterValueMSW	Int	%IW106
73	q_NotUsed(1)	Bool	%Q100.0
74	q_Reserved(1)	Bool	%Q500.1
75	q_NotUsed(2)	Bool	%Q500.2

IDL_V2.0_Interface > Ungrouped devices > Intralox-ISC-CAM [ISC CAM PN Device]

Device overview

Module	Rack	Slot	I address	Q address	Type
Intralox-ISC-CAM	0	0			ISC CAM PN Device
PN-IO	0	0 X1			Intralox-ISC-CAM
IN 16 WORD_1	0	1	75...106		IN 16 WORD
OUT 16 WORD_1	0	2		100...131	OUT 16 WORD

Figure 22: Change Output PLC Tags to Match Device Q Address

...U 1215C DC/DC/DC] > PLC tags > ISC_CAM [146]

Tags User constants

ISC_CAM

	Name	Data type	Address
140	q_NotUsed(33)	Bool	%Q124.5
141	q_NotUsed(34)	Bool	%Q124.6
142	q_NotUsed(35)	Bool	%Q124.7
143	q_ParameterGroup	Byte	%QB125
144	q_Parameter	Int	%QW126
145	q_ParameterValue	Int	%QW128
146	q_NotUsed(36)	Int	%QW130
147	<Add new>		

IDL_V2.0_Interface > Ungrouped devices > Intralox-ISC-CAM [ISC CAM PN Device]

Device overview

Module	Rack	Slot	I address	Q address	Type
Intralox-ISC-CAM	0	0			ISC CAM PN Device
PN-IO	0	0 X1			Intralox-ISC-CAM
IN 16 WORD_1	0	1	75...106		IN 16 WORD
OUT 16 WORD_1	0	2		100...131	OUT 16 WORD

Figure 23: Last Output PLC Tag Address to Match Device

SETTING UP COMMUNICATION

ADDING A SECOND DEVICE TO A TIA PORTAL PROJECT

61. Follow the previous steps to setup a new device. Each ISC CAM added to a project will have to have a unique name.
62. When adding more than one ISC_CAM PLC tags to a project. It is important to make the correct selection when prompted. When dragging the library file into the PLC tags project. A “Paste” window will open, make sure to select “Rename and paste objects” and press “OK,” Figure 24. This will rename all the tags automatically.
63. Make sure to follow previous steps for connecting the PLC tags to the appropriate I and Q address of the “Device overview,” Figure 25 & 26.

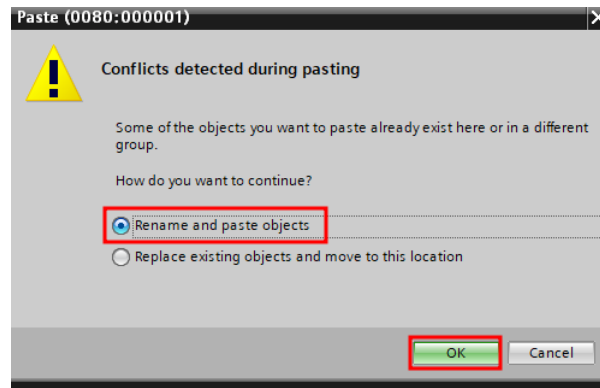


Figure 24: Paste Warning When Adding More Than One ISC CAM PLC Tags to a Project

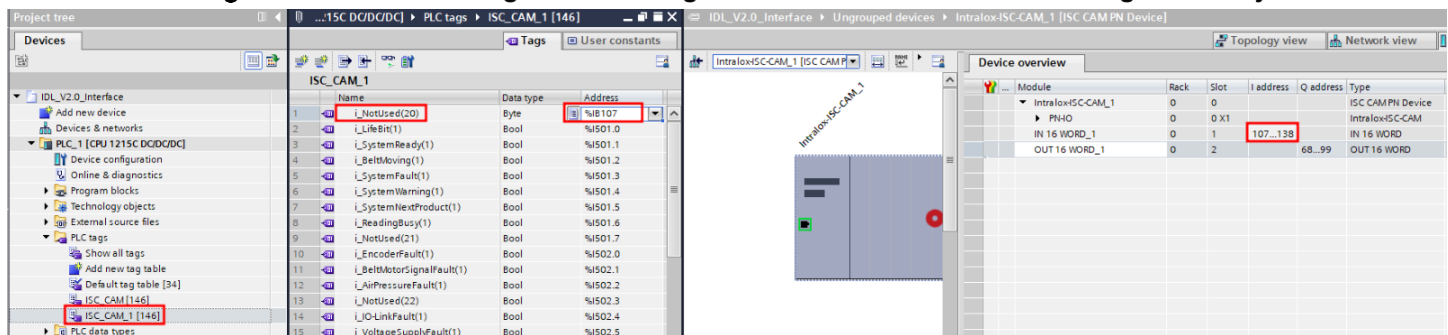


Figure 25: Updating Input ISC CAM PLC Tags for a Project

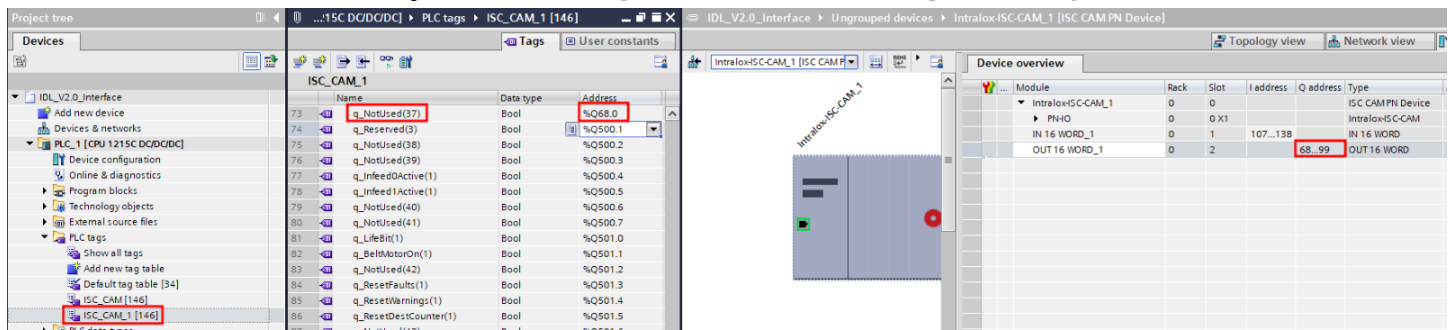


Figure 26: Updating Output ISC CAM PLC Tags for Project

ROCKWELL GENERIC ETHERNET DEVICE (GED) INTEGRATION OF ISC CAM

DOWNLOAD THE GED FILES.

1. Download “ISC CAM Network Integration Support Files” folder from the [Intralox Smart Carrway webpage](#). Within that folder there will be several important documents.
2. GED_ISC_CAM_v2.L5K – Generic Ethernet Device for ISC CAM
3. AOI_ISC_CAM_v2_INPUTS.L5K – AOI to convert data for inputs which do not fit the INT data format of the GED.
4. AOI_ISC_CAM_v2_OUTPUTS.L5K – AOI to convert data for output which do not fit the INT data format of the GED.
5. UDT_ISC_InDataConversion.L5K – data type to match AOI Inputs.
6. UDT_ISC_OutDataConversion.L5K – data type to match AOI Outputs.
7. EXAMPLE_ISC_CAM_v2_COMM_ETHERNETIP.ACD – example program which includes items 2, 3, 4, 5, and 6.

IMPORT THE GENERIC ETHERNET DEVICE TO A STUDIO 5000 PROJECT.

8. Open the “Controller Organizer,” Figure 27.
9. Right click on “Ethernet” tree for the PLC which will have the ISC connection, Figure 26.
10. From the list choose “Import Module,” Figure 27.
11. A file explorer window “Import Module” will open. Navigate to GED_ISC_CAM_v2.L5K and “Open” the file, Figure 28.
12. An “Import Configuration – GED_ISC_CAM_v2.L5K” window will open. Update the name and description for the project if you would like it to be something other than the default, then click “OK”, Figure 29.
13. **Note:** The name will need to be unique if more than one ISC CAM module is added to a project.
14. After the import of the GED tags should have automatically been added to the program with descriptions, Figure 30.
15. If creating a Generic Ethernet Device, see Figure 31 for Assembly Instances.

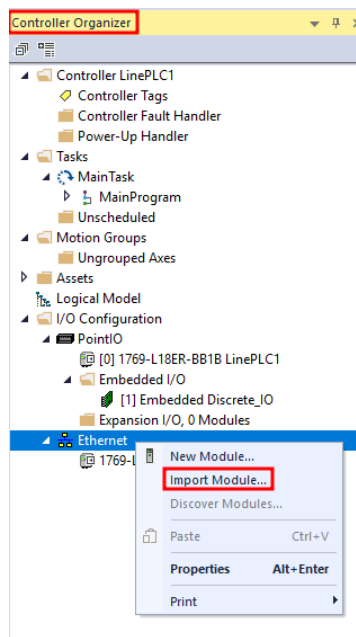


Figure 27: Import Module from Controller Organizer Ethernet Tree

SETTING UP COMMUNICATION

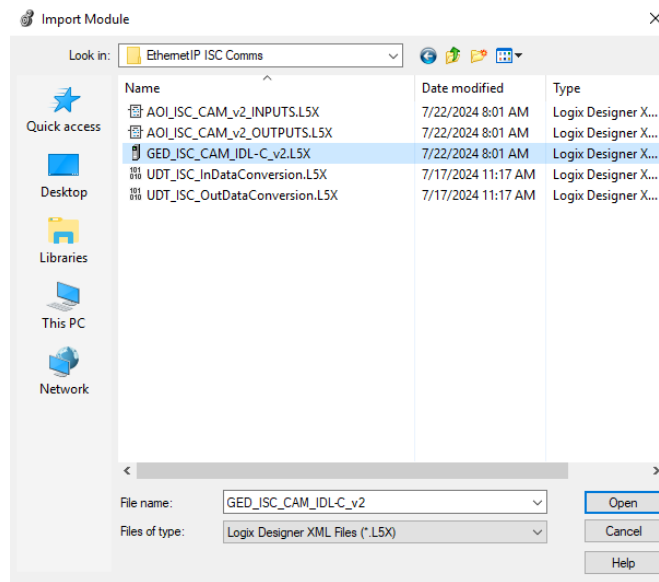


Figure 28: Import Module File Explorer GED_ISC_CAM_IDL-C_v2.L5X

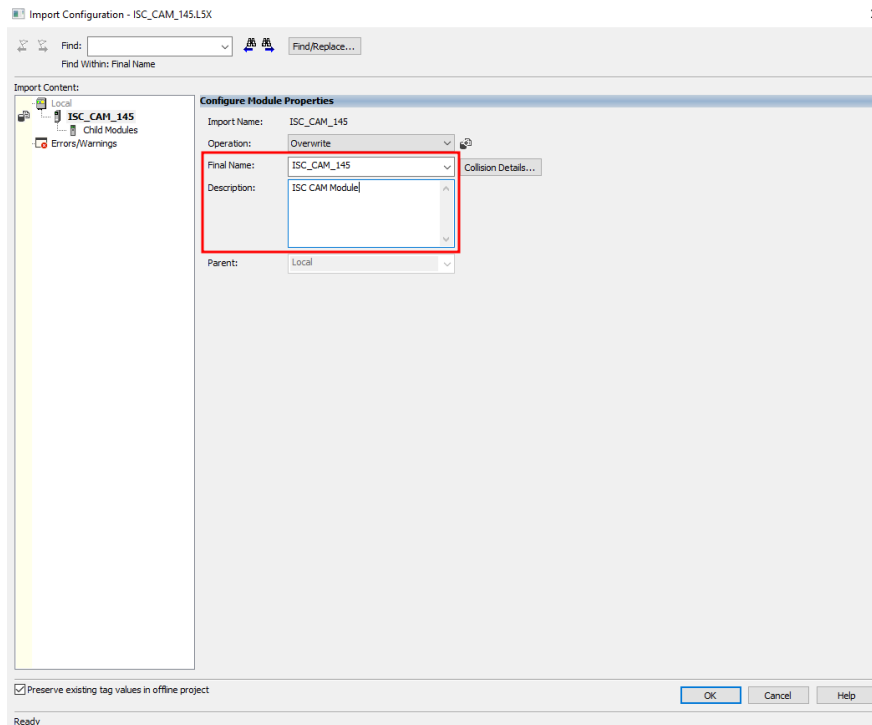


Figure 29: Import Configuration – ISC_CAM_145

SETTING UP COMMUNICATION

Name	Value	Style	Data Type	Description
ISC_CAM_145I	(...)		AB:ETHERNET_MODULE_INT_32Bytes:0	
ISC_CAM_145I.Data	(...)	Decimal	INT[16]	
ISC_CAM_145I.Data[0]	8	Decimal	INT	Status
ISC_CAM_145I.Data[1]	-4097	Decimal	INT	Fault Code Word 1
ISC_CAM_145I.Data[2]	-1	Decimal	INT	Fault Code Word 2
ISC_CAM_145I.Data[3]	0	Decimal	INT	ProductsOnBelt - Count of current products on the belt (Optional in V1 scope)
ISC_CAM_145I.Data[4]	0	Decimal	INT	Split Word - 0-7 Products on Belt Byte, 8-15 Belt Speed Byte
ISC_CAM_145I.Data[5]	0	Decimal	INT	Throughput - number of product induced per minute
ISC_CAM_145I.Data[6]	0	Decimal	INT	Destination last product Byte - bits 0-7
ISC_CAM_145I.Data[7]	0	Decimal	INT	Spare Word
ISC_CAM_145I.Data[8]	0	Decimal	INT	Spare Word
ISC_CAM_145I.Data[9]	0	Decimal	INT	Spare Word
ISC_CAM_145I.Data[10]	0	Decimal	INT	Spare Word
ISC_CAM_145I.Data[11]	0	Decimal	INT	Spare Word
ISC_CAM_145I.Data[12]	257	Decimal	INT	Parameter group 1 byte - bits 0-7, Parameter feedback 1 byte - 8-15
ISC_CAM_145I.Data[13]	49	Decimal	INT	Parameter
ISC_CAM_145I.Data[14]	2	Decimal	INT	Parameter value LSW
ISC_CAM_145I.Data[15]	0	Decimal	INT	Parameter value MSW
ISC_CAM_145O	(...)		AB:ETHERNET_MODULE_INT_32Bytes:0:0	
ISC_CAM_145O.Data	(...)	Decimal	INT[16]	
ISC_CAM_145O.Data[0]	0	Decimal	INT	Status
ISC_CAM_145O.Data[1]	256	Decimal	INT	Product destination 1 Byte - bits 0-7 - Run modes 1 Byte - bits 8-15
ISC_CAM_145O.Data[2]	0	Decimal	INT	Spare word
ISC_CAM_145O.Data[3]	8	Decimal	INT	Destination 0 1 Byte - bits 0-7, Destination 1 1 Byte - bits 8-15
ISC_CAM_145O.Data[4]	5	Decimal	INT	Destination 2 1 Byte - bits 0-7, Destination 3 1 Byte - bits 8-15
ISC_CAM_145O.Data[5]	12	Decimal	INT	Destination 4 1 Byte - bits 0-7, Destination 5 1 Byte - bits 8-15
ISC_CAM_145O.Data[6]	2	Decimal	INT	Destination 6 1 Byte - bits 0-7, Reserved set 0 1 Byte - bits 8-15
ISC_CAM_145O.Data[7]	0	Decimal	INT	Carryway enable 1 byte - bits 0-7 Override active carryway pointer 1 byte - bits...
ISC_CAM_145O.Data[8]	0	Decimal	INT	Carryway control
ISC_CAM_145O.Data[9]	0	Decimal	INT	Override active carryway value
ISC_CAM_145O.Data[10]	0	Decimal	INT	Spare word
ISC_CAM_145O.Data[11]	0	Decimal	INT	Spare word
ISC_CAM_145O.Data[12]	257	Decimal	INT	Parameter group 1 byte - bits 0-7 Parameter R/W 1 byte - bits 8-15
ISC_CAM_145O.Data[13]	49	Decimal	INT	Parameter

Figure 30: ISC_CAM_145 Controller Tags

Module Properties Report: Local (ETHERNET-MODULE 1.001)

General Connection Module Info

Type: ETHERNET-MODULE Generic Ethernet Module

Vendor: Rockwell Automation/Allen-Bradley

Parent: Local

Name: ISC_CAM_145

Description: ISC CAM Module

Comm Format: Data - INT

Address / Host Name

☒ IP Address: 192 . 168 . 1 . 145

☐ Host Name:

Connection Parameters

	Assembly Instance	Size	
Input:	101	16	(16-bit)
Output:	110	16	(16-bit)
Configuration:	106	0	(8-bit)

Status Input:

Status Output:

Status: Offline

OK Cancel Apply Help

Figure 31: GED Assembly Instances

SETTING UP COMMUNICATION

IMPORT ADD-ON INSTRUCTIONS – INPUT AND OUTPUT

16. Within the “Controller Organizer” open the “Assets” folder then right click “Add-On Instructions” and select “Import Add-On Instruction...,” Figure 32.
17. In the file explorer “Import Add-On Instruction” navigate to “AOI_ISC_CAM_v2_INPUTS.L5K” and “Open” the file, Figure 33.
18. An “Import Configuration – AOI_ISC_CAM_v2_INPUTS” window opens press “OK” to add file to project, Figure 34.
19. Follow steps 16, 17, and 18 to import AOI_ISC_CAM_v2_OUTPUTS.L5K add-on instruction.
20. Both AOI_ISC_CAM_v2_INPUTS and AOI_ISC_CAM_v2_OUTPUTS add-on instructions shall be added to the project, Figure 35.

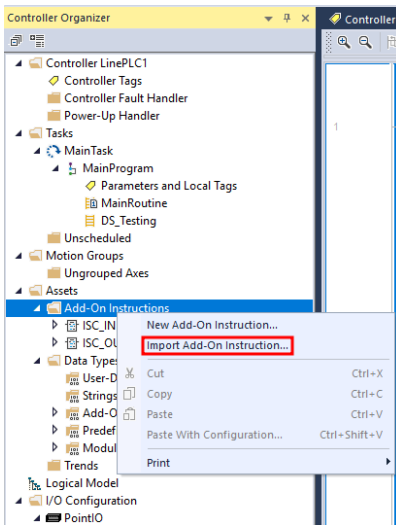


Figure 32: Import Add-On Instruction Controller Organizer

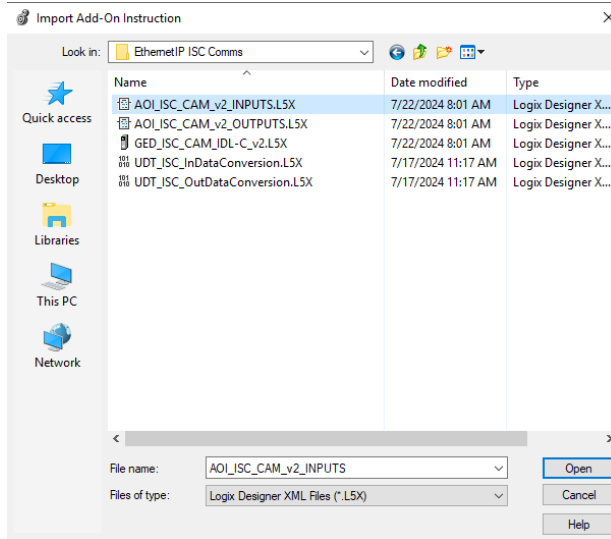


Figure 33: File Explorer Import Add-On Instruction -AOI_ISC_CAM_v2_INPUTS.L5X

SETTING UP COMMUNICATION

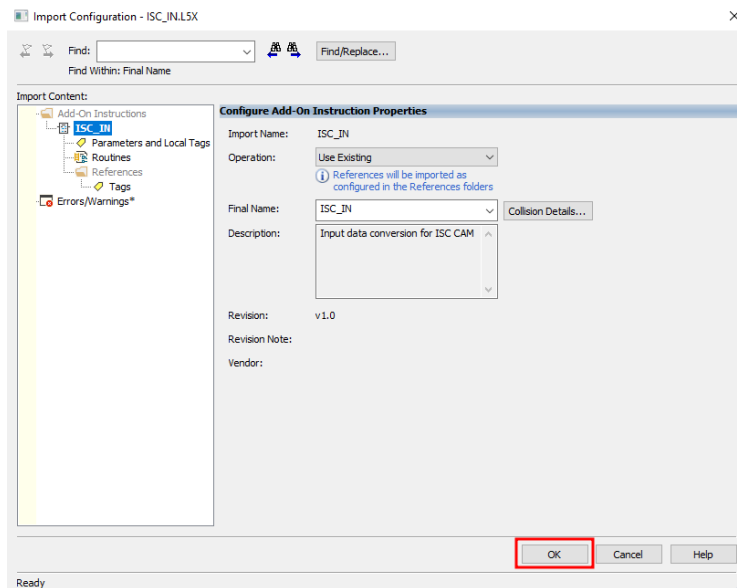


Figure 34: Import Configuration – ISC_IN.L5X

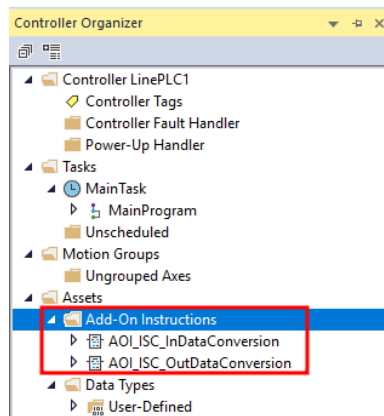


Figure 35: AOI_ISC_InDataConversion Added to Studio 5000 Project

ADDING INPUT ADD-ON INSTRUCTION (AOI).

21. The AOI_ISC_CAM_v2_INPUTS can be added to a rung in the program by simply dragging and dropping.
22. Create a data type for the AOI to store data. Double click in the “AOI_ISC_CAM_v2_INPUTS” field and type a unique data type name, then right click on the name, and select “New xyz.” The “Data Type” shall be AOI_ISC_CAM_v2_INPUTS to match the AOI. Make sure the scope of the program is correct and click create, Figure 36.
23. Add the ISC CAM Module inputs words which correspond to the AOI, Figure 37.
24. Create unique data types for the next four AOI output items of size INT, Figure 37. Already created UDTs could be used for this step.
25. Create unique data types for the next four AOI output items of size BOOL, Figure 37. Already created UDTs could be used for this step.

NOTE: There are input and output UDTs which could be used with the AOIs. The UDTs are an exact match for the AOI, see section “Adding UDTs for Input and Output AOI’s.”

SETTING UP COMMUNICATION

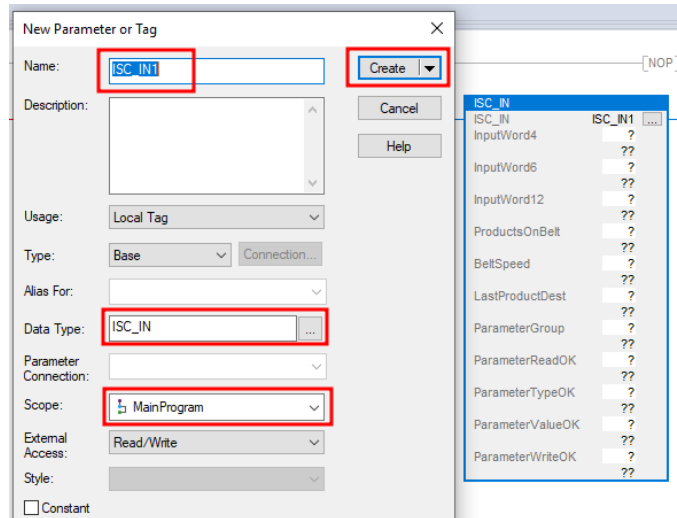


Figure 36: New Data Type (ex. ISC_In) for AOI

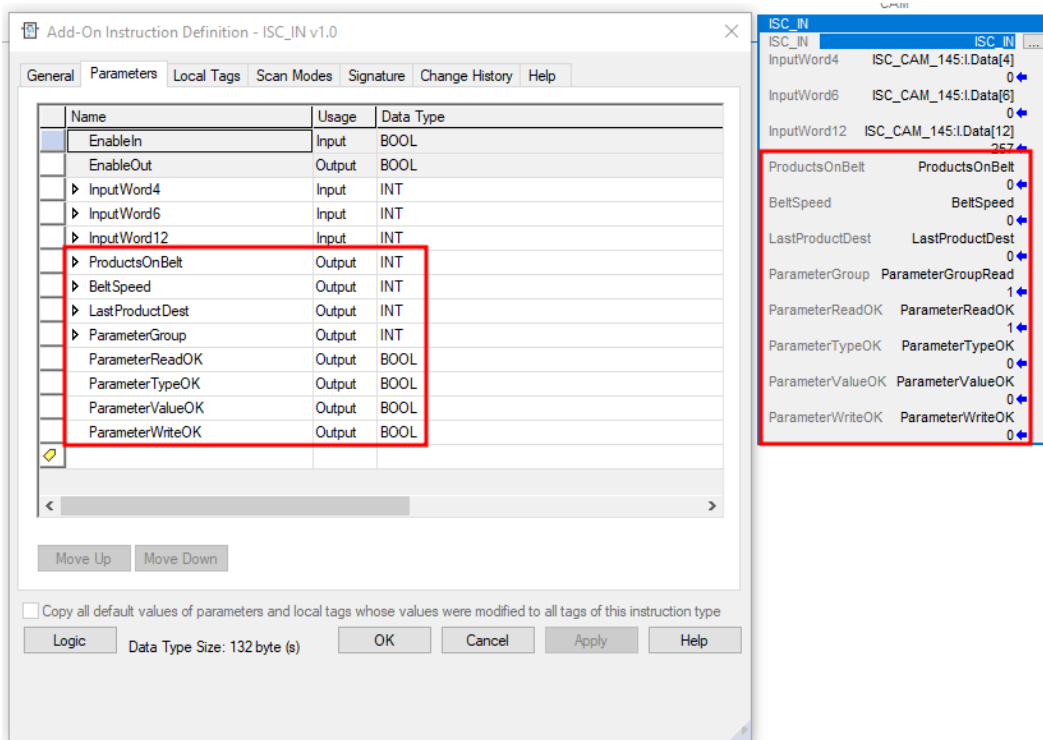


Figure 37: Output Data Types for ISC_In AOI

ADDING OUTPUT ADD-ON INSTRUCTION (AOI).

26. The AOI_ISC_CAM_v2_OUTPUTS can be added to a rung in the program by simply dragging and dropping.
27. Create a data type for the AOI to store data. Double click in the "AOI_ISC_CAM_v2_OUTPUTS" field and type a unique data type name, then right click on the name, and select "New xyz." The "Data Type" shall be AOI_ISC_CAM_v2_OUTPUTS to match the AOI. Make sure the scope of the program is correct and click create, like Figure 36.
28. Add the ISC CAM outputs words which correspond to the AOI, Figure 38. There is a UDT which includes each of the parameters, items 30-33 have more information.
29. Create unique data type names for all f the parameters in the AOI_ISC_CAM_v2_OUTPUTS, Figure 38.

SETTING UP COMMUNICATION

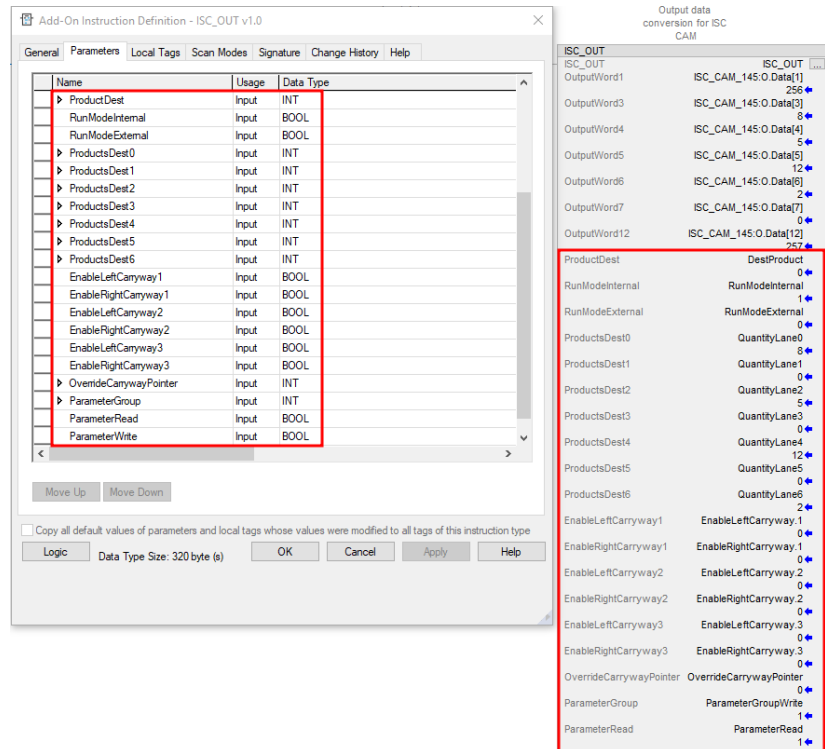


Figure 38: Input Data Types for ISC_OUT AOI

ADDING USER-DEFINED DATA TYPES (UDT) FOR INPUT AND OUTPUT AOI'S

30. Right-Click on "User-Defined" under "Data Types" and select "Import Data Type," Figure 39.
31. Make sure to import "UDT_ISC_InDataConversion" and "UDT_ISC_OutDataConversion," Figure 40.
32. An input and output data type can be added to the program scope which includes the AOIs.
33. The data types match the AOI parameters, Figure 41 & 42.

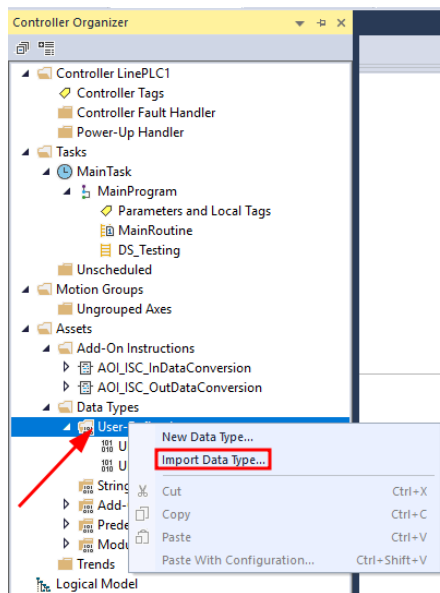


Figure 39: Import Data Type

SETTING UP COMMUNICATION

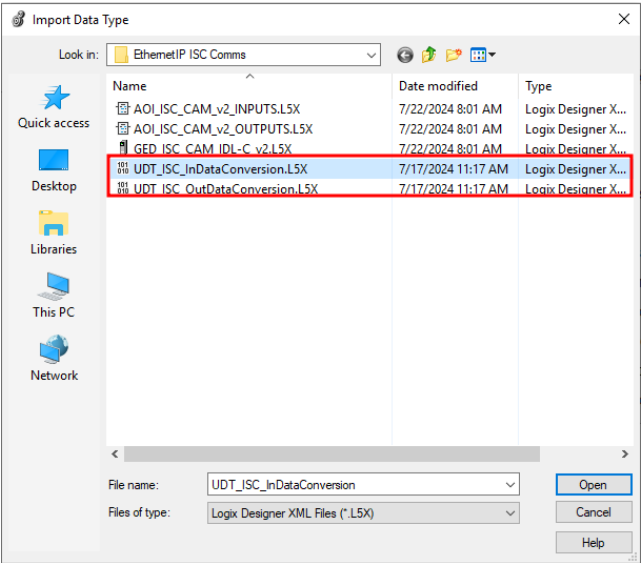


Figure 40: UDT Files to Import

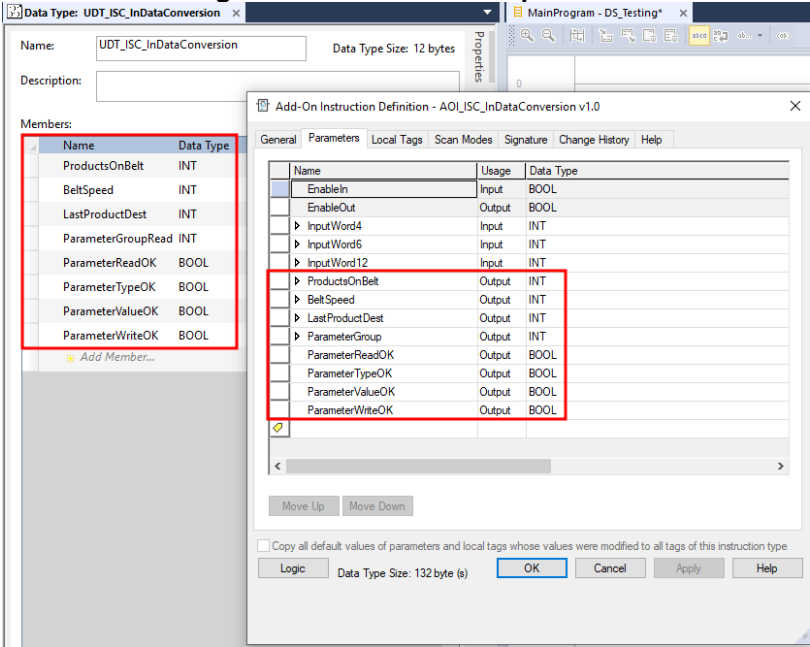


Figure 41: UDT Input to Match AOI

SETTING UP COMMUNICATION

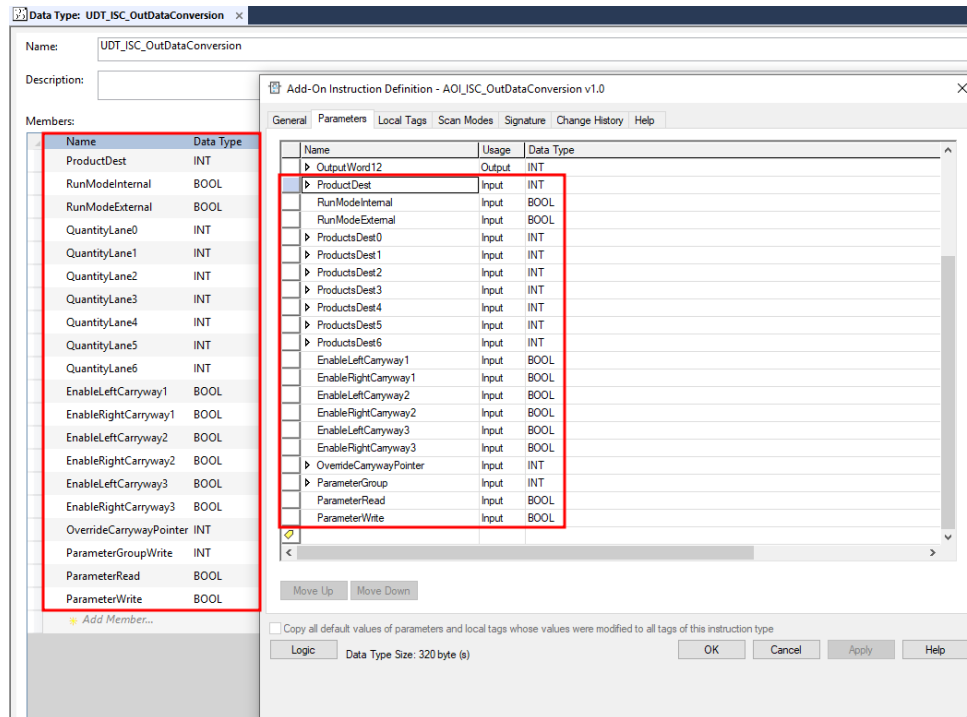


Figure 42: UDT Output to Match AOI

ISC CAM INTEGRATION USING ELECTRONIC DATA SHEET

1. Download "ISC CAM Network Integration Support Files" folder from the [Intralox Smart Carway webpage](#). Within that folder there will be a document.
 - a. EDS_ISC_CAM_v2.EDS – Electronic data sheet for ISC CAM
2. Import the electronic data sheet to your programming environment.
3. After importing the electronic data sheet, you will need to add and configure the module. This typically involves setting up the IP address (Using the "Intralox ISC Service Tool"), device name, and keying.
Please note that keying needs to be disabled!
4. Verify the Configuration: The module should now be configured in your programming environment and the device should be available in your Ethernet tree.