

RSLogix5000 Add-On Instructions: Inspection Results Ready

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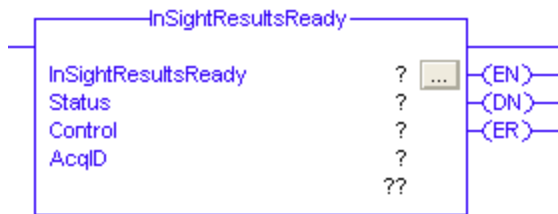
In-Sight Sensor Inspection Results Ready (InSightResultsReady)

The InSightResultsReady instruction is used to monitor inspections and wait for a specific AcqID (Acquisition Count) and when it is found, the inspection results for that acquisition can be moved to other tags in the PLC before they are overwritten with the next set of inspection results. This instruction is used in a ControlLogix or CompactLogix PLC using an Ethernet/IP implicit connection to the In-Sight camera. When the InSightResultsReady instruction is enabled, the (EN) bit is latched until the AcqID passed in is matched to a set of inspection results. When the match is found, the done (DN) bit is set and the EN bit is unlatched. When the DN bit is set, the Inspection Results should be read and stored in a different tag before they are overwritten. If a match is not found the instruction sets the error bit (ER) and the EN bit is unlatched. All of the handshaking between the PLC and the camera is handled inside the instruction. The user only needs to enable the instruction when a new AcqID is generated and wait for the DN or ER bit to be set.

The InSightResultsReady instruction should be coupled with either the InSightCameraTrigAcq or the InSightNetworkTrigAcq Add-On instruction to easily read the inspection results for a triggered acquisition.

RSLogix5000-AOI Inspection Results Ready (Continued)

This Add-On instruction should be used with an In-Sight camera added to the ControlLogix PLC using the Cognex Add-On Profiles. In-Sight cameras at firmware version 3.30.0 and newer support the Add-On Profiles. In-Sight cameras at firmware version 3.40.0 and newer support the Add-On instructions since the Status.Acquisition Count is implemented.

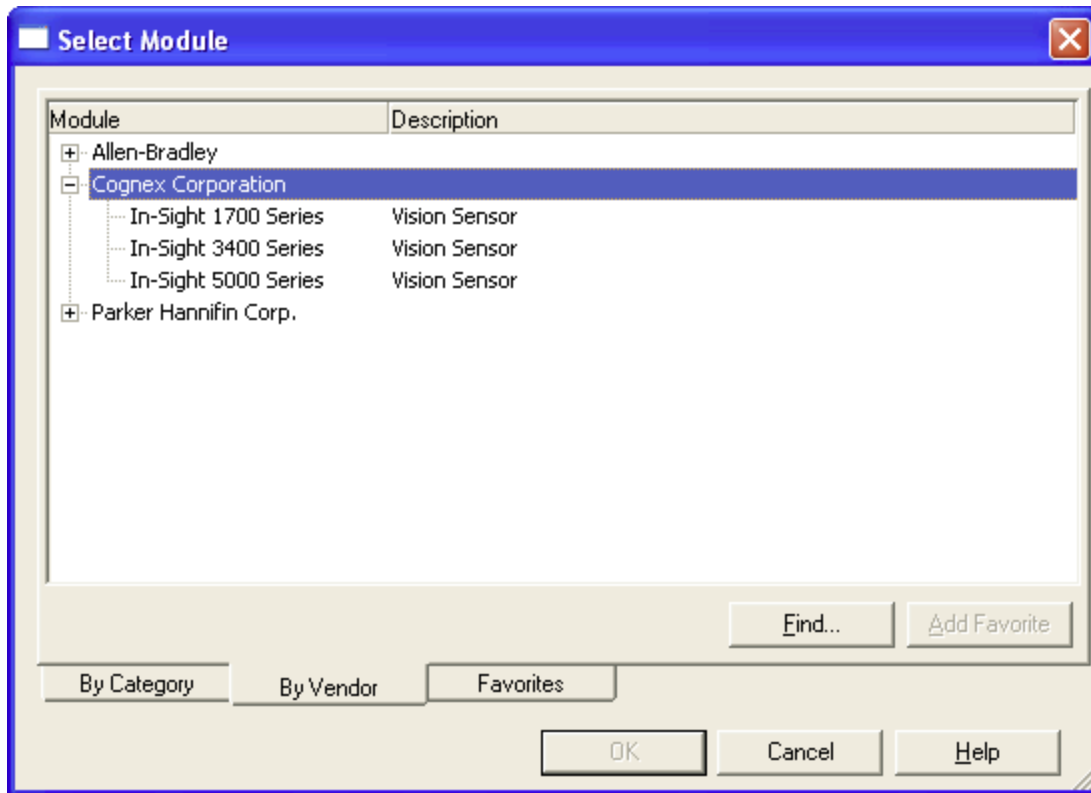


Parameters

Operand	Type	Format	Description
InSightResultsReady	Control	tag	control structure for instruction operation
Status	CC:InSight3_ Status:I:0	tag (from Module Defined type when add camera to I/O)	In-Sight camera status bits and words
Control	CC:InSight3_ Control:O:0	tag (from Module Defined type when add camera to I/O)	In-Sight camera control bits
AcqID	DINT	tag	Acquisition Count (ID) of triggered acquisition

Using the InSightResultsReady Add-On Instruction in RSLogix5000 (requires v16.00+)

1. Verify that RSLogix5000 v16.00 or later is installed
2. Open RSLogix5000
3. On the File Menu, select New...
4. Select the Controller type, select revision 16, give the controller a name, and add a description.
5. Under the I/O Configuration node in the Controller Organizer pane on the left, add a Cognex In-Sight camera to the configuration.



Use the Cognex Add-On Profile by selecting the correct In-Sight Series camera under the Cognex Corporation node in the Select Module dialog.

6. A New Module dialog will appear asking you to configure the In-Sight camera. Select and fill in the appropriate information for your camera.

Set the Requested Packet Interval (RPI) to the maximum amount of time in which you require the results information (DN bit set) after the inspection has completed.

As a guideline, set the Requested Packet Interval (RPI) to at most 1/4 of the acquisition triggering period. For example, if you trigger acquisitions at a rate of 1500 PPM (25 PPS) which is an acquisition triggered every 40 ms then set the RPI to at most 10 ms to detect acquisitions correctly.

Click OK and you will see the camera in the I/O tree under the Ethernet node.

7. Right click the Add-On Instructions node and select Import Add-On instruction... from the context menu and browse to the InSightResultsReady.L5X file. Click the Import button. The InSightResultsReady Add-On Instruction now appears under the Add-On

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instructions node.

8. Open the Main Routine, add a rung, click the Add-On tab in the Instruction toolbar:



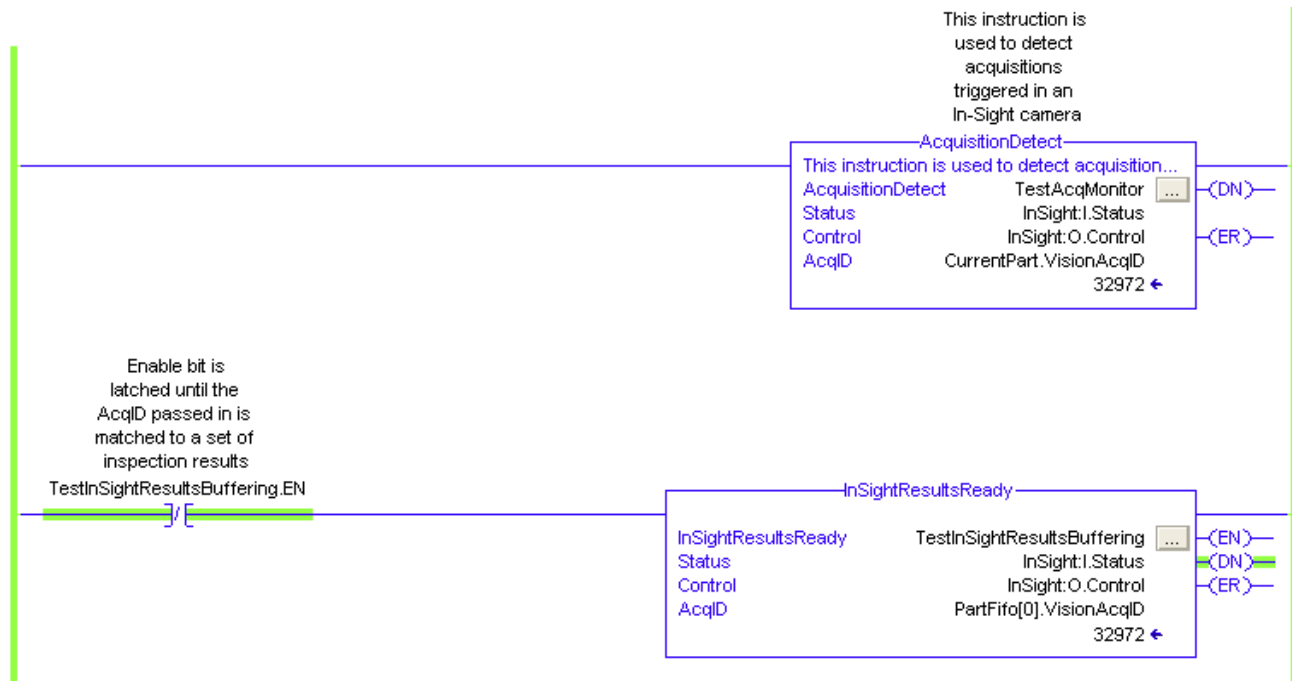
then click the InSightRe button to insert the instruction on the rung.

9. After it is inserted, edit the instruction's operands similar to the following:
 - a. InSightResultsReady is the control structure for the instruction, type in a tag name, right click on the name and create a new tag of the InSightResultsReady type.
 - b. Status is the status structure from the module defined type when the camera was added to the configuration using the Add-On Profile. If you named your camera OCVTop, the status structure would be OCVTop:I.Status. You can also find this by looking in the controller tags when you double click the Status field in the instruction and click the arrow in the listbox.
 - c. Control is the control structure from the module defined type when the camera was added to the configuration using the Add-On Profile. Using the above example, the control structure would be OCVTop:O.Control.
 - d. AcqID is an input tag passed in containing the Acquisition Count of the completed acquisition that the instruction will return the inspection results for. It is a DINT and its value will range from 0 to 65535.
10. Add a rung before the rung with the InSightResultsReady instruction and put some input logic on the rung to trigger an acquisition and obtain the Acquisition Count. Use either the InSightNetworkTrigAcq or InSightCameraTrigAcq for ease in obtaining an AcqID.
11. On the rung with the InSightResultsReady instruction add input logic to use the DN bit from the InSightNetworkTrigAcq or InSightCameraTrigAcq instruction and the AcqID returned. Download the project to the PLC and change to Run mode.
12. Connect to the camera in the PLC's I/O configuration using In-Sight Explorer. Load a job that uses ReadEIPBuffer and/or WriteEIPBuffer functions and make sure the Image function's Acquisition trigger is set to Camera or create a new job as noted.
13. Toggle the input bit on then off on the rung with the InSightNetworkTrigAcq or InSightCameraTrigAcq instruction. Note that the DN bit should be set and the tag in the AcqID field should have changed from -1 to a value between 0 and 65535. The DN bit should also be set on the InSightResultsReady instruction indicating the inspection results are ready to be read in the Status and InspectionResults structures for the acquired

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image. Toggle the bit on then off again, the AcqID value should increment again and new results will be available in the Status and InspectionResults structures.

Sample Usage



Notes

With high speed acquisition triggering applications, care must be taken to not trigger beyond the limits of the camera or else acquisitions and associated inspection results may be missed. Setting the RPI too large may result in missed acquisition triggers from the PLC or missed Acquisition Counts returned from the camera. Setting the RPI too small may have a performance impact on your network and with the In-Sight camera.