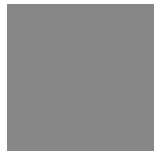


BALLUFF

Software-Description

BVS SMART *CAMERA*

Sample Program Studio5000™



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Sample Program description for SMART CAMERA

1 BVS-SC SAMPLE PROGRAM

The demo program **BVS_SC_Sample** allows a communication a Balluff Smart Camera BVS-SC_* and an AllenBradley PLC.

1.1 Sample Functions

The following commands are supported in the demo program:

Switch Application	Switches the application
Get Application ID	Gets the ID of the currently active application
Get Results	Gets the result container
Send Data	Sets the input data of the application
Get Camera Info	Gets the camera information
Get Date Time	Get the time stamp
Set Date Time	Sets the time stamp
Set Sequence Number	Sets the sequence number

The maximum read/write length of the AOI is 32.767 byte.

1.2 General Data

Program name:	BVS_SC_Sample
Called Add-On Instruction:	BVS_SC
Reserved Timers:	none
Reserved Counters:	none
Configured I/O Range	128 Byte
Invoke:	absolute
Device compatibility:	AllenBradley CompactLogix™, ControlLogix™
Software version:	Studio 5000

1.3 Description

The Studio 5000 -project „**BVS_SC_Sample**“ contains in MainRoutine an example call of the BVS_SC Add-On Instruction. The used PLC type is a AllenBradley CompactLogix™.

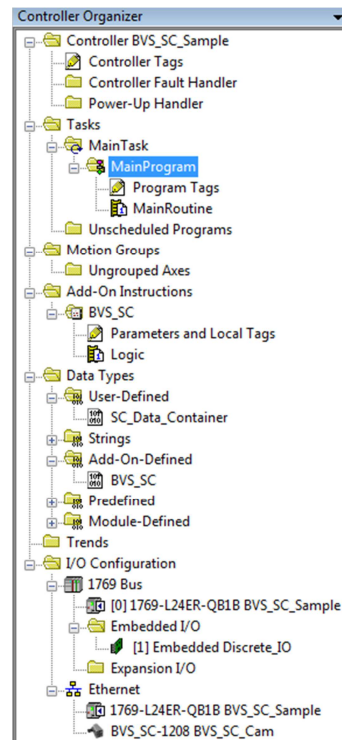
If the Tag bit Camera_StartRunmode is set, the running mode starts in the camera. The trigger input is used for this example. The inspection starts if a positive pulse is detected at the AOI Input "Camera_Trigger". If the result is ready, the AOI output Result_Ready is set. With the Tag Get_CameraResults the result container can be transmitted to the PLC.

If the results are not read from the PLC the camera overwrites the results and the not visible parameter WarnOutBufferErr is set.

Sample Program description for SMART CAMERA

1 BVS-SC SAMPLE PROGRAM

1.4 PLC program overview



(Figure LogixDesigner, BVS_SC_Sample project)

1.5 Camera system settings

The “Fieldbus” Mode has to be activated in the system settings of the camera. The byte order “Little Endian” and the IO-Link mode “PLC Gateway” is set.

System Settings		
System	Mode:	Fieldbus
	Data byte order:	Little endian
Color scheme	Status:	
System Time	Simulation mode:	<input checked="" type="checkbox"/>
	Fieldbus status:	<input checked="" type="checkbox"/>
User Management	Overflow result buffer to PLC:	<input checked="" type="checkbox"/>
	IO-Link device class:	Unknown

(Figure BVS Cockpit, system settings) The PLC settings are made according to the camera settings.

Sample Program description for SMART CAMERA

1 BVS-SC SAMPLE PROGRAM

1.6 Configuration of result container and PLC-receive data type

The variables SmartCamera send results are copied to the program tag BVS_SC1_ContData, if the tag Get_CameraResults is set on true.

The screenshot shows the 'Send results' configuration window in the BVS Cockpit. It features a toolbar with icons for configuration, loop, run once, step, and zoom. Below the toolbar, there is a 'Parameter' section with a table of variables to be sent. The table has three columns: data type, count, and variable name. The variables are: 'Check_brightness.Brightness_va' (int16, 2), 'Code_lesen.Included_text' (string, 256), 'Code_lesen._Position_in_X_dire' (real32, 4), and 'Code_lesen.Tool_processing' (bool, 1). A checkbox 'Use for inspection processing:' is checked.

Parameter	Count	Variable Name
int16	2	Check_brightness.Brightness_va
string	256	Code_lesen.Included_text
real32	4	Code_lesen._Position_in_X_dire
bool	1	Code_lesen.Tool_processing

(Figure BVS Cockpit, result data)



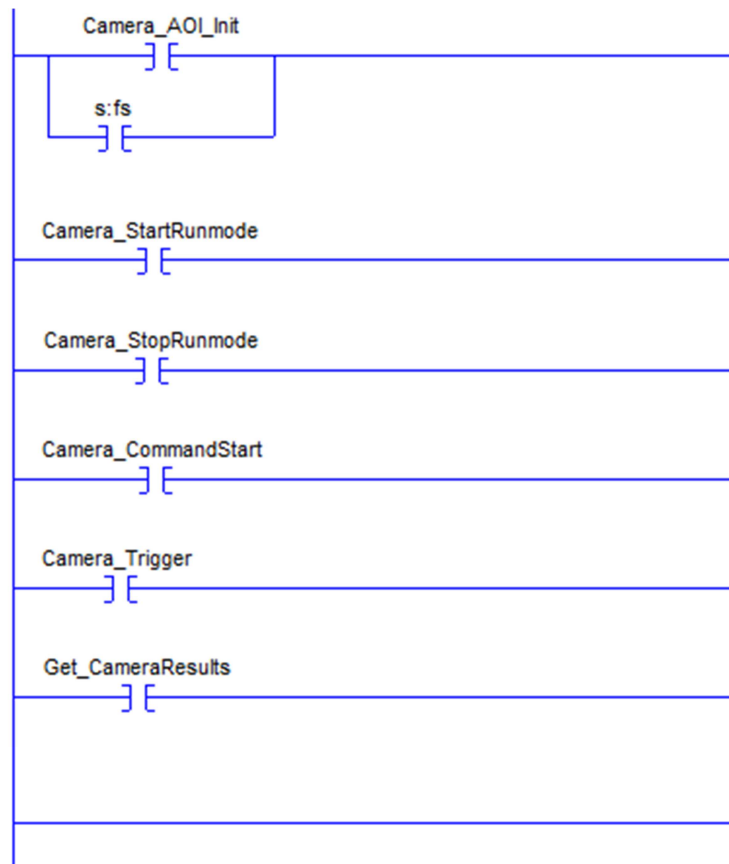
(Figure BVS_SC_Sample, MainRoutine, copy result data from camera container to specific tags)

Sample Program description for SMART CAMERA

1 BVS-SC SAMPLE PROGRAM

1.7 Control and watch options in Main Routine

- 1.7.1 AOI control options**
- Camera_AOI_Init – AddOnInstruction is initialized
 - Camera_StartRunmode – SmartCamera is started
 - Camera_StopRunmode – SmartCamera is stopped
 - Camera_CommandStart – SmartCamera commando is started
 - Camera_Trigger – SmartCamera is triggered
 - Get_CameraResults – gets the results from SmartCamera

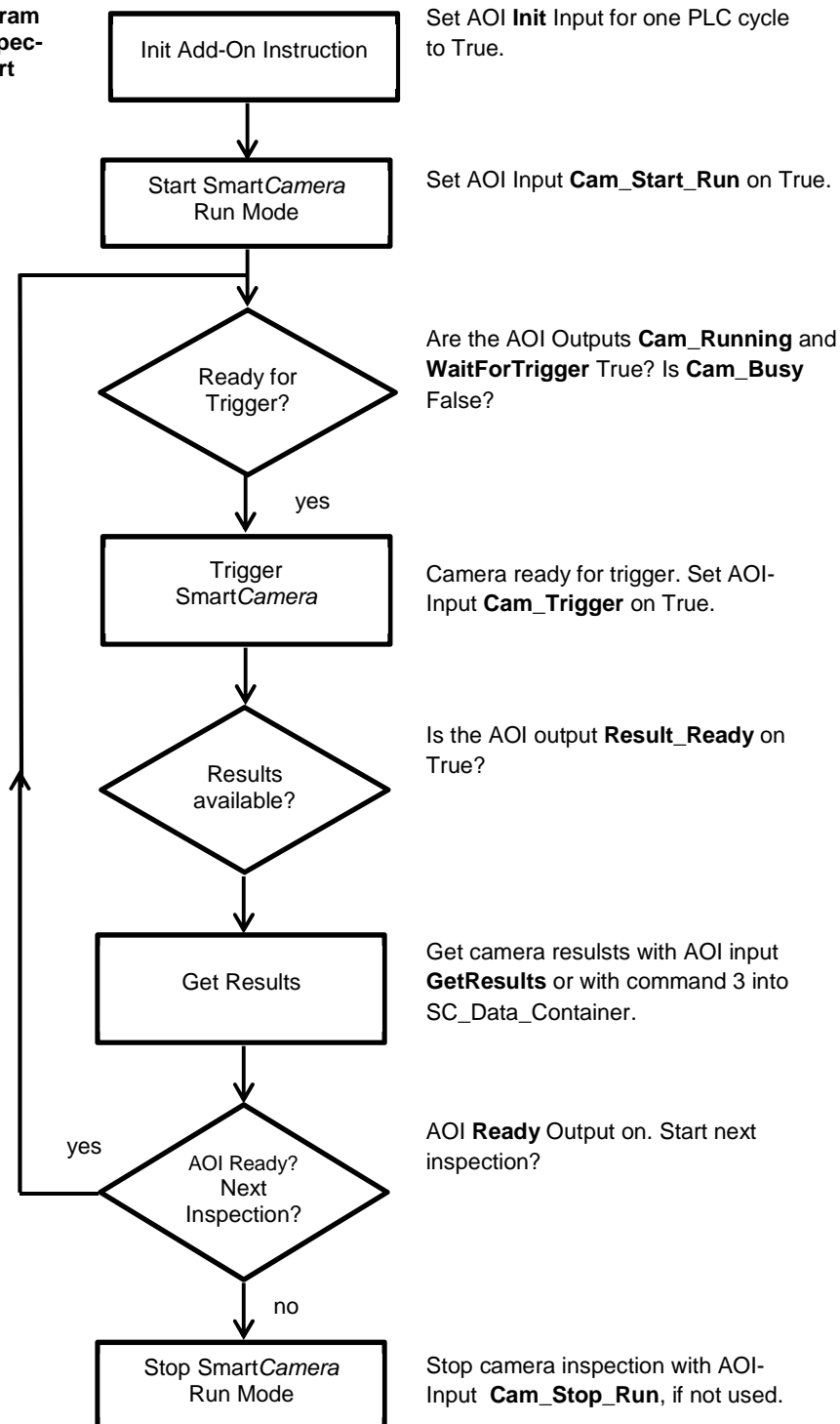


(Figure LogixDesigner, MainRoutine)

Sample Program description for SMART CAMERA

1 BVS-SC SAMPLE PROGRAM

1.7.2 Sequence diagram of sample inspection with Smart Camera AOI



AOI= SmartCamera Add-On Instruction

1 BVS-SC SAMPLE PROGRAM

1.8 Disclaimer of Liability sample program

This demo program is free of charge and is a universal application example. This demo program shall help program and configure PLC applications and shall provide possible solutions.

The user is not entitled to claim for warranty, error correction and updates. In particular there is excluded any claims against Balluff GmbH for damages that might result from the use of this demo program. Excluded from this limitation of liability shall be (a) those damages that are based on injury to life, limb or health, (b) a liability according to the Produkthaftungsgesetz (German Product Liability Law) and (c) cases of willful intent.

Please check if the demo program is intended for your application before adapting it in plants and machineries.

By using the sample program, made available free of charge you accept the limitation of warranty and liability!

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