

Sightech Vision Systems, Inc.

PC-Eyebot

Control – Serial Port Commands

PC-Eyebot may be interfaced and controlled via its RS-232 DB-9 Serial Port. A powerful command structure allows your PLC to easily control and automate the visual inspection process.

This document describes the steps for testing PC Eyebot serial port interface. The serial port interface is available from V2.48 on. This document also describes the installation steps for PC Eyebot V2.48.

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Sightech Vision Systems, Inc.
6580 Via del Oro
San Jose, CA 95126
Tel: 408.282.3770 Fax: 408.413-2600
Email: sales@Sightech.com
Web: www.Sightech.com

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Setting up for operation of PC Eyebot serial port interface

Installing PC Eyebot V2.48:

1. Unzip 'PC_Eyebot_SetUp_04_05_25_V2.48.zip'. This will create 2 folders – DLLs and SamplePCDFiles
2. Execute '\DLLs\register.exe'. This will register 6 DLLs as follows –
 - a. VideoManager - Mandatory
 - b. VideoCapture - Mandatory
 - c. SQCServerDLL - Mandatory
 - d. IV_FG_LIB – for Matrox Cronos card video input
 - e. IV_VC_LIB – for Matrox Cronos card and IP camera
 - f. IV_VC_COM – for Matrox Cronos card and IP cameraDlls d, e, f may not get registered depending on the video capture card related DLLs availability.
3. Create shortcut for PCEyebot.EXE on desktop.

Select one of several memory modes: Small, Medium, and Large.

Testing Serial Port interface:

1. Connect the 2 machines using NULL modem cable.
2. Execute PC_Eyebot.exe on one of the machines
3. Open hyperterminal on the other machine, with following settings -
 - a. bits per second – 4800
 - b. data bits – 8
 - c. parity – none
 - d. stop bits – 1
 - e. flow control – none
4. On hyper terminal, click on File->Properties menu. This will pop up properties tab dialog.
5. Click on 'Settings' tab.
6. Click on 'ASCII set up'
7. In 'ASCII sending' enable the checkbox 'send line ends with line feeds'
8. In 'ASCII sending' enable the checkbox 'eco typed characters locally'
9. Click ok.
10. On PC Eyebot, Click on Output->Serial port communication menu. This will pop up serial port connection dialog box.
11. Select the port and baud rate 4800.
12. If connection is not successful, user will get the alert message.
13. Now commands can be sent to PC Eyebot from hyper terminal and results can be seen.

Serial Commands

Summary of commands supported:

Command	Syntax	Use
Open Video Clip	<open><arg1><arg2><EE>	Open new file arg1: filepath arg2: pcd file path
Open Digital camera	<digital camera><arg1><arg2><EE>	Open digital camera arg1: name of the camera to be opened (as displayed in VideoTest.exe) arg2: pcd file path
Close Video clip	<close><EE>	Close existing file
Select Area	<select><arg1><EE>	Select Area where arg1 is the area name
View	<view><EE>	Change mode to View for the selected area
Learn	<learn><EE>	Change mode to Learn for the selected area
Erase	<erase><EE>	Change mode to Erase for the selected area
Inspect	<inspect><EE>	Change mode to Inspect for the selected area
Forget	<forget><EE>	Change mode to Forget for the selected area
Idle	<idle><EE>	Change mode to Idle for the selected area
Start Process	<start><EE>	Start Process – This will start the continuous inspection cycle if atleast one area is inspecting, else return ‘NAK’
End Process	<end><EE>	End Process – This will stop the continuous inspection cycle if ‘start’ (inspection) is on, else return ‘NAK’
Result	<result><EE>	Result – This will return the result for last continuous inspection cycle for currently selected area. ‘1’ indicates ‘Pass’ and ‘0’ indicates ‘Fail’. It will also return ‘score’. Result and score will be separated by comma (,)
Save Data	<savedata><EE>	Save Data – This will save area data for all areas. (Not supported from PC Eyebot V2.93)
Unload Data	<unloaddata><EE>	Unload Data – This will unload area data for all areas. (Not supported from PC Eyebot V2.93)
Suspend	<suspend><EE>	Suspends the processing for currently selected area.
Resume	<resumed><EE>	Resumes the processing for currently selected area.
Efficiency	<efficiency><arg1><EE>	Efficiency - Set SLT_OPERATION_EFFICIENCY_MODE

		variable (inside SLT_AREA_OPERATION_DATA variable) of currently selected area to the arg1 value coming from command line. arg1 : value of SLT_OPERATION_EFFICIENCY_MODE
IdleAll	<idleall><EE>	Make all areas execution mode Idle in current view.
Recognize	<recognize><EE>	Change mode to Recognize for the selected area
Save All Area Data	<saveallareadata><EE>	Save data for all areas
Unload All Area Data	<unloadallareadata><EE>	Unload data for all areas
Change part family	<changePartFamily><arg1><EE>	Change the part family. 'arg1' is the product ID for the new part family to be loaded.
Configure Camera	<configurecamera><EE>	For internal use only. Used for setting up parameters of custom camera.
Refresh Video	<refreshvideo><EE>	Refresh video stream
Exit	<exit><EE>	Close PC Eyebot application

PC-Eyebot serial port response:

PC Eyebot application sends back the response for every command it receives. Response is one of the following-

- a. <ACK> - Acknowledged. This indicates that the last command received by the application is a valid command and application has processed the command.
- b. <NAK> - Not acknowledged. This means that the last command received by the application is not valid. Either command is not supported or syntax is not correct. Application is unable to process the command.

Continuous Inspection Cycle:

For few parts, inspection happens for multiple number of frames. External device controls the start and stop for the inspection. We call this as inspection cycle. Inspection is done area-wise. At the start of inspection cycle, all the variables are reset. During inspection, the maximum number of failures for consecutive frames is detected. If this is greater than the user specified threshold, overall inspection result is set to 'false' for that area, other wise it is set to 'true'.

The threshold can be set using 'Edit->Inspection..' menu on PC Eyebot.

Trouble shooting:

1. <EE> is the delimiter which we use. It is case sensitive. In case of a problem send <EE><EE> to PC Eyebot and serial port input will get reset.
2. In hyper-terminal, we do not have backspace. Characters are sent as we type them. So for any typing mistake, please send <EE>.
3. It is better to set the area using <select> before querying for result by sending <result><EE>
4. For <open>, correct path on the machine where PC Eyebot is running has to be specified both for video file as well as PCD file. <Open> is not available for digital cameras in the current version.

Document History:

1. Created (25/05/04)
2. Updated (14/06/04 – Added topic ‘Response’)
3. Updated (18/06/04 – Updated ‘Response’ string to NAK, Added command for open digital camera)
4. Updated (19/07/04 – Updated ‘Results’ command)
5. Updated (30/07/04 – Updated ‘Save Data’ & ‘Unload Data’ command)
6. Updated (10/08/04 – Updated ‘Suspend’ & ‘Efficiency’ command)
7. Updated (30/08/04 – Updated ‘Start’ & ‘Stop’ command)
8. Updated (04/09/04 – Updated ‘idleall’ command)
9. Updated (17/09/04 – added ‘recognize’ command)
10. Updated (25/10/04 – ‘savedata’ and ‘unloaddata’ commands now work only for all areas irrespective of the currently selected area, changed the description for these commands accordingly)
11. Updated (02/11/04 – deleted ‘savedata’ and ‘unloaddata’ commands, added ‘savealldata’ and ‘unloadalldata’)
12. Updated (14-Dec-04 – updated ‘Troubleshooting’ section - updated the string for resetting serial port communication)
13. Updated (25-Aug-05 – added ‘change part family’, ‘configure camera’, ‘refresh video’ and ‘exit’ commands to the list)