



ViewControl Application Software User's Manual

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1 Introduction

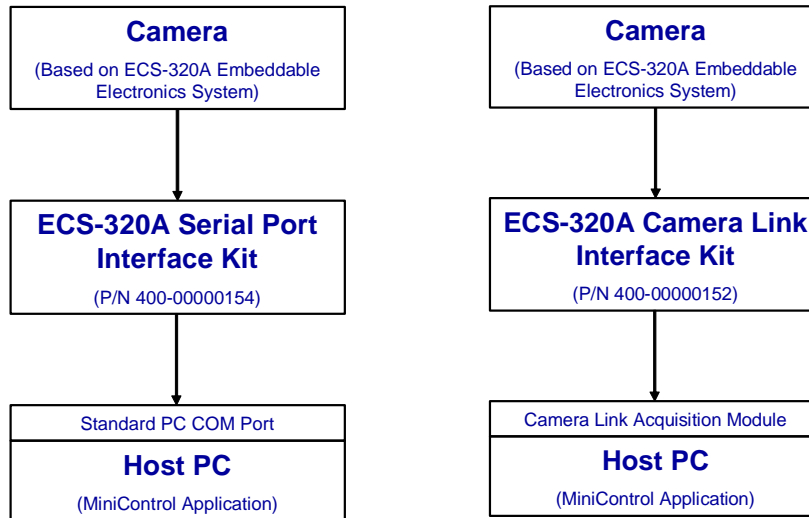
The information in this guide is provided to help the user become acquainted with the ViewControl serial interface and imaging application and a small portion of the camera control functionality that is available.

The current release of the ViewControl software is v2.01.

2 General Requirements

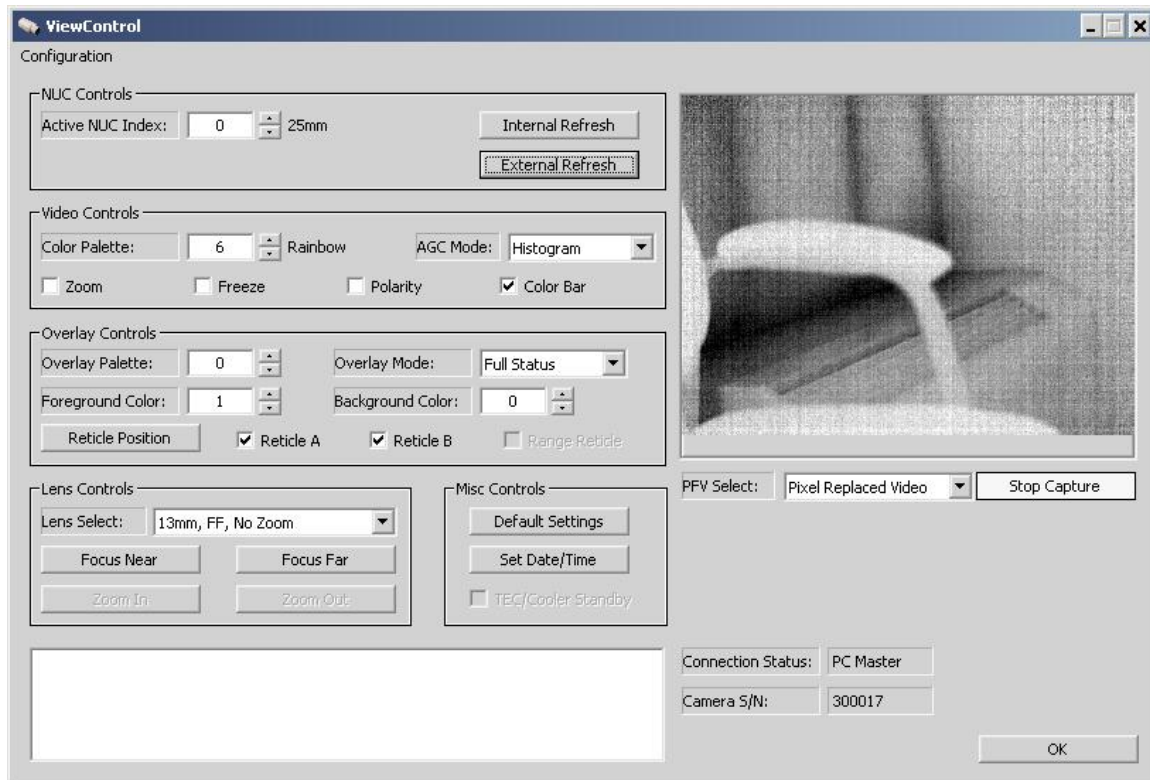
The ViewControl application can communicate with an ECS-320A based camera in one of two ways: either through a standard PC COM port or via a Camera Link acquisition module.

The diagrams below show the appropriate hardware kit that is needed for each interface. Note: if using a third party Camera Link module the third party must provide a communications library that meets the version 1.1 specification (callable via clserall.dll).



3 Application Interface

The figure below shows the main interface window for the application.



3.1 Configuration - COM

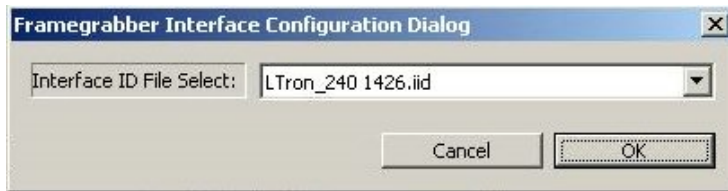
Selecting the *Configuration->Com Port...* menu item activates a dialog (see below) that allows the user to change the selected port and baud rate. There will be a maximum of two standard PC COM port choices and a maximum of four Camera Link module serial ports listed as available. Select the desired connection port via the pull down control. Next select the baud rate that matches the camera, typically this will be the default of 115200 baud.



Click the 'OK' button and the new settings will be applied as well as saved to registry for subsequent sessions. Click the 'Cancel' button to restore existing settings.

3.2 Configuration - FrameGrabber

Selecting the *Configuration->Framegrabber...* menu item activates a dialog (see below) that allows the user to change the National Instruments camera interface file. This in turn will configure the acquisition card with the proper settings for acquiring data from the camera. Select the desired configuration file via the pull down



control.

Click the 'OK' button and the new settings will be applied as well as saved to registry for subsequent sessions. Click the 'Cancel' button to restore existing settings.

3.3 Boot Message

If the MiniControl application is running before power is applied to the camera a boot message will be displayed in the message box. The message will typically appear as follows:

Lumitron Bootloader v0003 for 49MHz Configuration.

© 2000-2001 Motorola Inc. S-Record loader. Version 1.3

Pause for transfer!

Application Started

4 Application Controls

The following paragraphs will describe the function of each of the controls presented by the application.

4.1 NUC Controls

Within the operational mode may be a range of non-uniformity correction (NUC) tables stored in the camera. Using the spinner control the user can select the active NUC table. The base index is set to 0 for the configured operational mode. The spinner is disabled if there is only a single NUC table configured. The name of the NUC table which is stored in flash is displayed to the right of the index.

Clicking on the 'Internal Refresh' button performs a refresh calibration using an internal calibration flag.

Clicking on the 'External Refresh' button performs a refresh calibration using a user supplied reference placed in the camera's FOV.

4.2 Video Controls

The camera has room to store up to 16 video palettes. The first two are reserved for monochrome palettes. The palettes are user defined and stored in an YCrCb format with an additional Y' component for gamma boost (not accessible with this application). Most of the settings in this group are stored in nonvolatile RAM and will be restored on boot. Those that are not are noted below.

The user can select the desired automatic gain/leveling control for the display video using the AGC Mode selection control. The automatic AGC choices are 'Linear' and 'Histogram'; selecting either 'Off' or 'Manual' will stop the automatic gain/level process for the video output.

Using the spinner control, the user can select the desired video palette. The palette mnemonic is displayed to the right of the index.

Selecting the 'Zoom' check box places the camera in a digital zoom mode. This mode takes the center 160 x 120(128) FPA pixels and duplicates them to create a 320 x 240(256) image for simulated zoom. Clearing the check box disables this feature. This setting is not saved in nonvolatile RAM.

Selecting the 'Color Bar' check box enables the on-screen display of a color bar that displays each color in the palette. The color bar is located near the top of the display screen. Clearing the check box disables this feature.

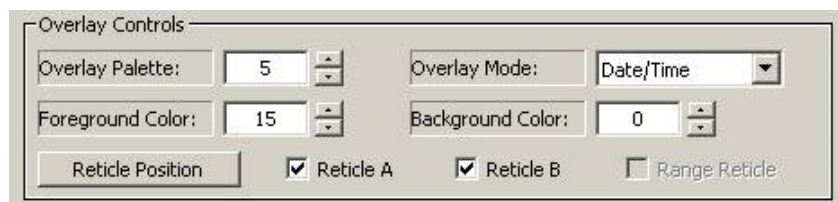
Selecting the 'Freeze' check box will freeze the current image on the display screen. The image will remain frozen until the check box is deselected. This setting is not saved in nonvolatile RAM.

Selecting the 'Polarity' check box will invert the mapping of the video palette. Under normal operation color number 0 is mapped to the low end count values and color 255 is mapped to the high end count values. Clearing the check box disables this feature.

4.3 Overlay Controls

Most of the settings in this group are stored in nonvolatile RAM and will be restored on boot. Those that are not are noted below.

Clicking on the 'Reticle Position' button will bring up a dialog that will allow the user to set parameters associated with the reticles. See the figure



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and description below for further information.

Selecting either 'Reticle A' or 'Reticle B' will enable the overlay reticle(s) on the screen. The reticle will be enabled in the location that is currently stored in nonvolatile memory. The location of the reticle can be modified with the controls on the Radiometrics Form View window. Clearing the check box disables the reticle.

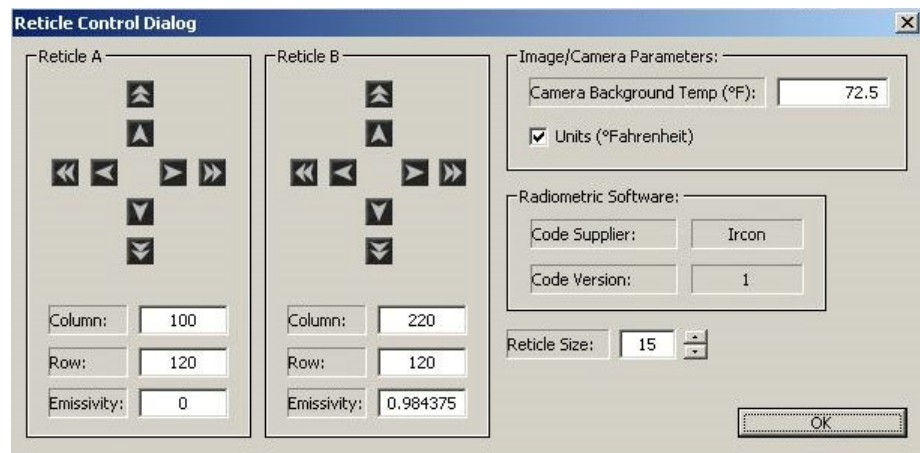
Selecting the 'Range Reticle' checkbox will enable a ranging reticle on the overlay if the user lens setting matches a 100mm lens. The reticle has yet to be verified against requirements and is listed here only for information.

Selecting the 'Active' check box enables the overlay symbology. This feature is automatically enabled if the camera video format is either NTSC or PAL. Clearing the check box will disable the overlay symbology. This setting is not saved in nonvolatile RAM.

Using the 'Overlay Palette' spinner control, the user can select the desired overlay palette. There can be up to eight overlay palettes stored in the camera. These palettes are made up of 15 colors plus one for transparent (index zero). Color index 14 and 15 can be used for text colors but have been computed specifically for reticle overlay. The reticles are painted on the screen using the colors at these indexes.

Using the 'Foreground Color' and 'Background Color' spinner controls, the user can select the desired overlay color scheme for objects. Note that index 0 is reserved for transparent. Also if only blocks appear on the screen where text is expected - verify the foreground and background colors are not set to the same value.

The reticle controls below are used to adjust the position of each cursor as well as the display values. If the camera has been configured for radiometry then additional values can be entered such as the background temperature, display units, and reticle emissivity.



4.4 Lens Controls

The lens controls may or may not be active depending upon the camera's configuration. The lens selection control will show the lens type(s) that are available for selection. Changing the lens selection will automatically change the operational mode and active NUC table so that it matches the lens type.



Clicking on the focus near button will send a command to the camera to pulse the motor for the preset duration in the near direction.

Clicking on the focus far button will send a command to the camera to pulse the motor for the preset duration in the far direction.

4.5 Miscellaneous Controls

Click on the “Default Settings” will bring up a dialog that will allow user to restore camera settings to a generic baseline or saved baseline. The applied settings will over-write existing NVM values and are read back at the next power cycle.

Selecting the “Generic Defaults” radio button will over-write the existing NVM settings with values hard coded in the application.

Selecting the “Factory Stored Defaults” radio button will retrieve the factory stored custom defaults from SPI flash and over-write the existing NVM settings.

Care should be taken when (re)storing the default values since the current settings will be lost.

Clicking on the “Set Date/Time” button will set the camera’s real time clock to the current computer system time.



4.6 Status Controls

The list window will display any errors detected as well as show the camera boot message.

The 'Connection Status' field displays the connection mode – either terminal or PC Master.

The 'Camera S/N' field displays the serial number read from the camera on initial connection. This can be used to by the user to verify that the proper camera is connected.

4.7 Acquisition Controls

There are two controls for viewing image data from the camera. The first is the processed video port format – which allows the user to select between uncorrected, NUC corrected, NUC corrected pixel replaced, and intensity transform digital data.

Click on the “Start Capture’ button to begin data acquisition. Click on it again to stop the process.