

Adirondack Video Astronomy



StellaCam II PC Control

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Introduction

The PC Control system for your StellaCam II camera allows for full control from a personal computer. The control can be made from the included application software, Visual Basic or JavaScript scripts, or custom software using the included automation interface.

The system consists of a small control unit and cables. One cable is connected to the PC serial port (or USB to serial adapter) and the other from the control unit to the camera. Power is derived from the camera so no power cable is required. A connector on the side of the control unit allows for an external Freeze button to be used in addition to the on-screen Freeze button.

Software is provided which allows for all the same camera control to be made from the personal computer that can be made with the handset provided with the StellaCam II camera. In addition to on-screen sliders and on-screen buttons, a set of user configurable "preset" buttons are provided on a fly-out panel in the software.

Installation

Install the software included with the PC Control system by inserting the CD in the CD-ROM drive and using the Add/Remove Software feature of any version of Windows from Windows 98SE and on. Alternatively, insert the CD in the drive and click Start | Run and enter D:\setup.exe where D is the drive letter of your CD-ROM drive.

Hardware installation consists of connecting the two cables supplied with the system, one from the computer to the control unit and the other from the control unit to the camera. A USB to serial adapter may be used if your computer doesn't have a built in COM port.

Using the StellaCam Control Software

There are three sections of the control software.

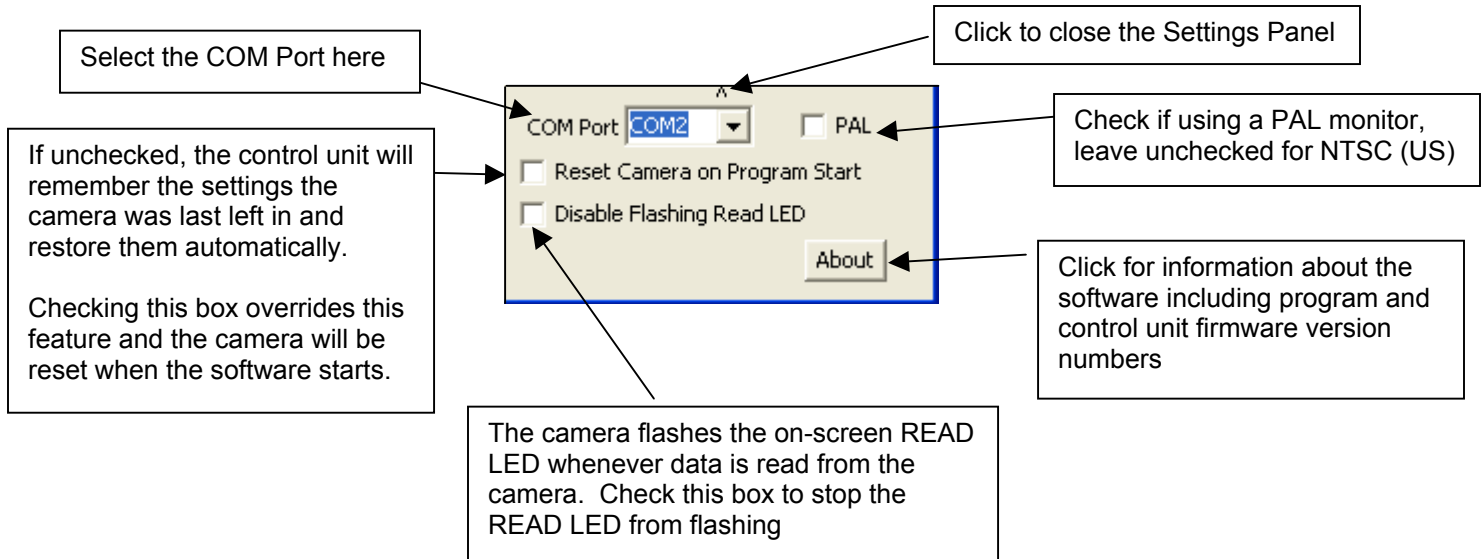
1. Main Screen
2. Settings Panel
3. Presets Panel

The software is started by clicking on the program icon in the Start | Programs menu. All settings and camera adjustments are automatically saved between uses of the software.

Changing Settings:

From the Main Screen you can click the small down arrow at the bottom of the main screen to open the Settings Panel. The first time the program runs it should open the Settings Panel automatically to allow you to choose the COM port you will use. Simply click the down arrow on the COM Port selection box and pick the COM port you wish.

The options on the Settings Panel are shown below.



The image shows a screenshot of the Settings Panel with several callout boxes providing instructions:

- Select the COM Port here:** Points to the COM Port dropdown menu, which is currently set to COM2.
- Click to close the Settings Panel:** Points to the small down arrow at the top center of the panel.
- Check if using a PAL monitor, leave unchecked for NTSC (US):** Points to the PAL checkbox, which is currently unchecked.
- Click for information about the software including program and control unit firmware version numbers:** Points to the About button.
- If unchecked, the control unit will remember the settings the camera was last left in and restore them automatically. Checking this box overrides this feature and the camera will be reset when the software starts.** Points to the Reset Camera on Program Start checkbox, which is currently unchecked.
- The camera flashes the on-screen READ LED whenever data is read from the camera. Check this box to stop the READ LED from flashing:** Points to the Disable Flashing Read LED checkbox, which is currently unchecked.

Main Screen:

The Main Screen of the software looks like this:



As you can, see all of the controls on the StellaCam II handset are available on-screen and under personal computer control.

The "LEDs" at the bottom of the screen show the state of the system. The FRZ LED will illuminate red if either the on-screen Freeze button is depressed or the external button is operated (see below about configuring the external button). The READ LED flashes whenever the camera is providing image data. You may disable this flashing LED from the Settings panel. The COMM LED is an important indicator of the health of the communications between the control units and the computer. This LED should always be green and if it turns red there is a problem that must be rectified for the system to operate correctly.

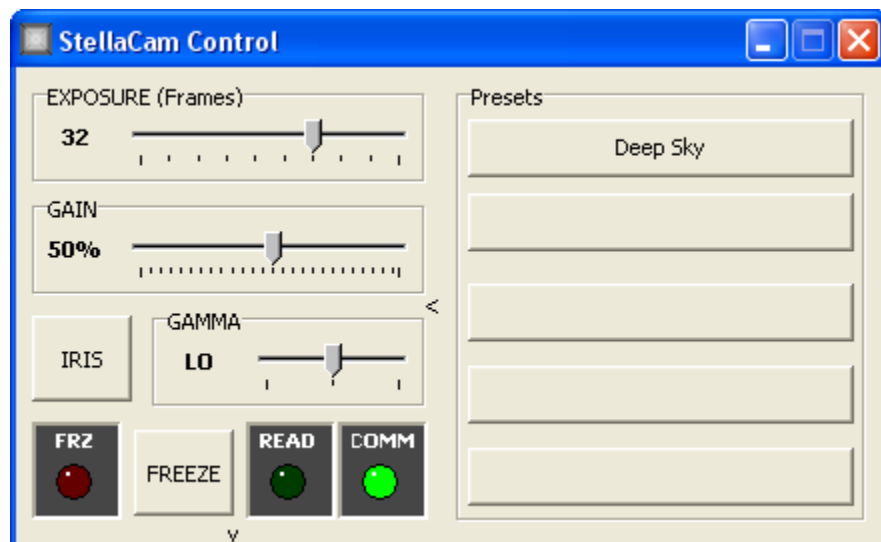
There is a corresponding status LED on the control unit. This LED will be green when the communications link with the PC software is established and red if not. This LED will alternatively flash orange and green indicating the control unit is sending the Freeze command to the camera. When power is applied to the control unit from the camera the control unit LED will alternatively flash red and green indicating the hardware and firmware are operational.

The on-screen controls can be operated in three ways. You can use the mouse to click and slide controls or to depress buttons. The Exposure, Gain, and Gamma sliders can be moved using the left and right arrow keys on the keyboard if the slider has "focus". A slider has focus when it is showing a dotted line around the slider portion of the control. The focus can be selected with the mouse or the Tab key. The third way to move sliders or press buttons is with "hot keys" as follows:

Function	Hot Key
Exposure	E
Gain	G
Iris	I
Gamma	L
Freeze	Space Bar

Presets:

On the right side of the Main Screen is an arrow that, when clicked, will cause the preset panel to appear. Double-clicking anywhere on the background to the main screen will also cause the Presets to appear.



You may configure all 5 of the preset buttons to memorize a group of camera settings including all functions except the Freeze function. Whenever any configured preset button is clicked, the sliders and buttons return to the state they were at when the preset was created and presets can therefore "remember" settings for future use. You may activate any button by clicking it or pressing the 1,2,3,4, or 5 key to select the appropriate button

Setting and Clearing preset buttons is done by right clicking on the preset button of interest and choosing the desired option in the pop-up menu that appears. To set a preset button make all the camera settings you wish to "program", right click on the preset button of your choice, and click Set. A window will open showing you the settings you are about to program and a box for you to type the caption you wish to appear on the button. Click Set to complete the preset programming or Cancel to leave the button as it was. Clearing a button will erase the button caption and all settings associated with the button. There is no undo function in any of the button programming operations so all actions you perform are permanent. If you make a mistake or wish to change something simply reprogram the button.

Note that you cannot include the Freeze state in any preset settings. An alternative is provided in the form of a connector on the side of the control unit that can be connected to a simple button or switch that, when closed, will put the camera into the Freeze state. The connector on the control unit is a standard 3.5mm mono audio connector and any normally open switch can be used. The freeze state is entered when the terminals of the audio connector are shorted together.

StellaCam PC Control Automation Interface

When The StellaCam Control program was installed it was also registered with the operating system such that it can be used in scripts and custom application software as an automation object.

The interface is straightforward and consists of a set of properties that can be read and/or written or methods that can be called to operate the control program from a script, application program, or even a remote computer over the Internet or a local area network.

The set of properties and methods for the StellaCam2 object follow:

Preset

Syntax

StellaCam2.Preset (Number)

Parameters

Number - Short integer denoting which preset button to operate

Returns

Nothing

Remarks

Calling the Preset method is equivalent to the user clicking the preset button with the same number. There is no way to program a preset button through the automation interface.

Link

Property

StellaCam2.Link (read/write Boolean)

Syntax

StellaCam2.Link

Remarks

Returns or sets the Link status of the communication between the PC and the control unit. The script or application program should check the status of this property before proceeding.

Exposure

Property

StellaCam2.Exposure (read/write Short)

Syntax

StellaCam2.Exposure

Remarks

Sets the exposure value of the camera or reads to current exposure setting. Property value to exposure mode are as follows:

Mode	Exposure Value	Comment
None	0	not used
(1/2000)	1	future use
1/1000	2	future use
1/500	3	future use
1/250	4	future use
1/120	5	future use
1	6	
OFF	7	
256	8	
128	9	
64	10	
32	11	
16	12	
8	13	
4	14	
2	15	

Gain

Property

StellaCam2.Gain (read/write Short)

Syntax

StellaCam2.Gain

Remarks

Sets the gain of the camera or reads the current gain setting. Property value to gain setting is the range from 0 to 255 representing 0 to 100% of gain.

Iris

Property

StellaCam2.Iris (read/write Boolean)

Syntax

StellaCam2.Iris

Remarks

Sets or reads the Iris control setting. 0 = Iris control off, 1 = Iris control active.

Gamma

Property

StellaCam2.Gamma (read/write Short)

Syntax

StellaCam2.Gamma

Remarks

Sets or reads the Gamma setting as 0 = Off, 1 = Lo, 2 = Hi

Freeze

Property

StellaCam2.Freeze (read/write Boolean)

Syntax

StellaCam2.Freeze

Remarks

Sets or reads the Freeze state. 0 = Normal, 1 = Freeze.

ExternalFreezeState

Property

StellaCam2.ExternalFreeze (read-only Boolean)

Syntax

StellaCam2.ExternalFreezeState

Remarks

Reports the status of the external freeze button. 0 = Normal, 1 = External freeze button is depressed.

WindowState

Property

StellaCam2.WindowState (read/write Boolean)

Syntax

StellaCam2.WindowState

Remarks

Controls or reads how the SC2Ctrl program window behaves during scripting or use from another application program. During scripting or if the object is instantiated from another program, the SC2Ctrl program operates as an automation server. The state of the Server window is controlled by this property as 0 = Visible, 1 = Minimized, 2 = Hidden completely.

Examples:

The following script can be created in Notepad and saved as test.vbs. Double click on the file icon to run the script that will automatically start the server:

```
Set p = CreateObject("SC2Ctrl.StellaCam2")
p.Link = True
p.Exposure = 12
WScript.Echo("Done")
```

Scripts can be very elaborate and automate long and/or tedious tasks. Another example is:

```
Set p = CreateObject("SC2Ctrl.StellaCam2")
p.Link = True
```

```
If (p.Link) Then
```

```
WScript.Echo("Ready to set Exposure value")
p.Exposure = 12

WScript.Echo("Ready to Freeze")
p.Freeze = true

WScript.Echo("Ready to Click Preset 2")
p.Preset(2)

WScript.Echo("Done")

Else

    WScript.Echo ("Link failed... exiting script")

End If
```