

# DGx High Resolution Digital Recording System

## Quick Start Guide

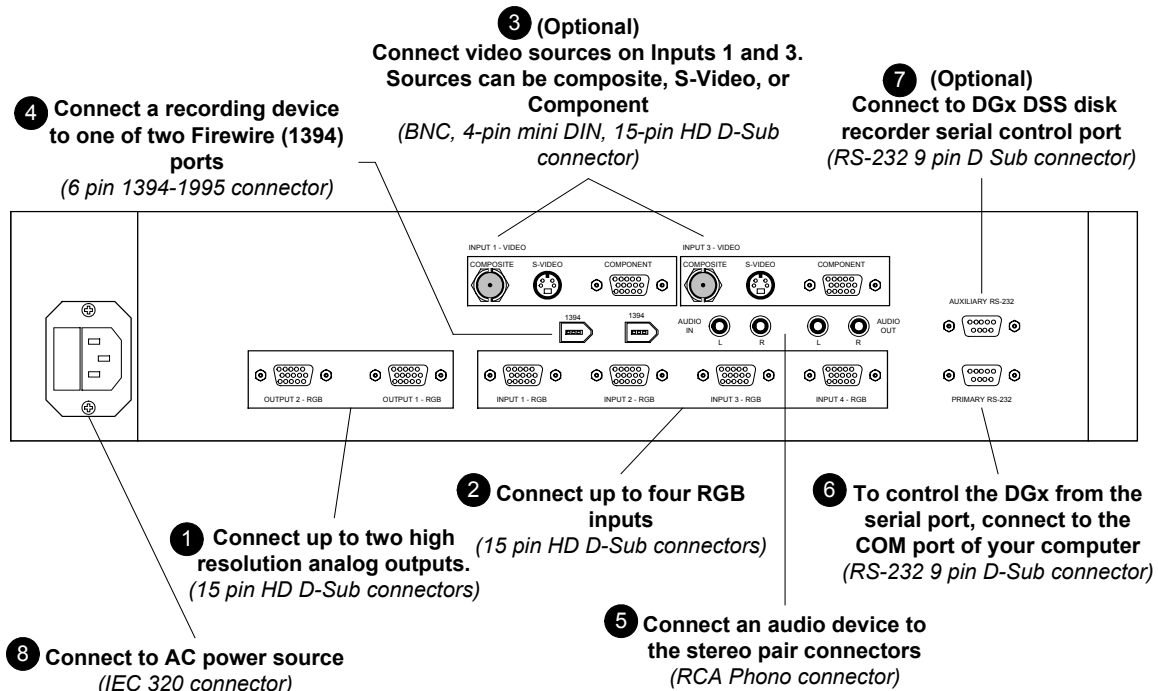
### INTRODUCTION

The DGx is a high resolution digital image recording system for capturing, compressing, storing and replaying images at up to 1600x1200 pixel resolution. The system outputs from 6 to 25 frames per second, depending on the number of inputs and the image resolution. Up to four separate sources (graphics and video) can be recorded simultaneously.

The DGx can be controlled from a terminal, an optional Windows application or optional front panel. Serial commands can be issued as commands from a terminal or from the optional Windows application known as the Virtual Control Panel (VCP). Each of these three methods are described separately in this *Quick Start Guide*.

### 1. INSTALLATION

Use the numbered steps shown in **Figure 1** to connect up your DGx.



**Figure 1. DGx Rear Panel**

**Note:** Before turning on the power make sure that the device is connected to a reliable AC power source with a nominal voltage between 100 and 260 VAC. After making all connections, turn on the power switch located on the DGx front panel.

The DGx is now ready for initial set up. This can be accomplished using the serial port, front panel (optional item) or VCP (optional item). Proceed directly to the section that describes the control method you wish to use.

## 2. OPERATING DGx FROM THE SERIAL PORT

The DGx can be controlled from an RS-232 serial control port of a terminal, terminal emulator or 3<sup>rd</sup> party serial controller. This section describes control of the DGx using a terminal or PC running a terminal emulation program such as HyperTerminal or Procomm.

### COMMUNICATING TO THE DGX

The DGx is pre-configured at the factory to operate at a baud rate of 9600 baud. However the DGx serial port can be operated at baud rates from 4800 baud to 115 kbaud. Changing the DGx baud rate involves issuing a serial command, so it is important to start out by setting your terminal (or terminal emulator) to the default communication parameters.

Ensure that the controlling host computer or ASCII terminal is set for 9600 baud, 8 data bits, 1 start bit, 1 stop bit and no parity and X-ON / X-OFF flow control.

After the terminal is set up appropriately, type the command **HELP** from the terminal. The DGx will respond with a list of available commands. A complete description of the commands will be found in the DGx User Manual.

Operation of DGx from the RS-232 port typically involves issuing commands with some associated parameter. The command names can be typed in full or in an abbreviated form which is shown in the DGx User Manual and **HELP** list. In the following section, the abbreviated form of a command is indicated by capitalization of the characters in the full command. For example, the abbreviated form of the command **INputInteractive** is **INI**.

### ADJUST / SELECT OUTPUT SIGNAL

The *Host* commands control the output of the DGx. To determine the current output mode, type **HOST**.

You may need to make timing adjustments to your signal to better suit your display device. Use the **HostInteractive** command to make your timing adjustments.

After timing adjustments have been completed, you must save the settings to the unit's internal memory. Type **HostSave** and the number (1-10) you would like to save to in the **HostLIST**. The first ten entries of the **HostLIST** are user-defined.

To determine your exact output or "host" timing, type **HostTiming**.

### ADJUST INPUT SIGNAL SETTINGS

When an RGB signal is applied to the DGx for the first time, the unit will automatically lock to the signal and estimate what portion of the signal is active picture. If this estimate is not exact, the window may be missing part of the picture, or display "extra" black along an edge.

As part of the setup for the DGx, you will need to make adjustments for your inputs and then save these settings into the unit's internal memory.

Type **INputInteractive (INI)** and then the number of the input you wish to adjust. Your selected input enters the interactive mode to visually adjust timing parameters (shifting the image). A white box frame and crosshair appear over the full screen input and you can use keyboard controls to adjust the image.

After timing adjustments have been completed, you must save the settings into the unit's internal memory. Type **INputSave <input#> <1..50>**. There are 50 available entries in the **INputList**.

In addition to making timing adjustments it is possible to make *IMAGE* adjustments to each input. For units that are equipped with the optional video board, the input type for the required input channel must first be selected.

Type **INTYPE** <input#> followed by one of the following : **RGB** or **COMPOSITE** or **SVIDEO** or **COMPONENT**.

The following commands can then be used to adjust the image quality.

**BR**ightness <input # | ALL> <-500..500>

**CON**trast <input # | ALL> <0..200>

**SHAR**Pness <input #> <0 | 1 | 2 | 3>

**GAMMA** <input #> <0.5..2>

**NOTE:** The Gamma of each input can be adjusted individually, but when displayed In QUAD output mode, all inputs are displayed with Gamma = 1.0.

*In addition to Brightness and Contrast, for video inputs you may also adjust the following parameters:*

**HUE** <input # | ALL> <-180..180>

**SAT**uration <input #> <0..200>

## SELECT CHANNELS FOR RECORDING

Before you begin recording, you must first select how many channels (up to four) you are going to record and indicate whether you are going to record each at high-resolution (1280x1024 pixels) or standard resolution (720x580 pixels). The frame rate (fps) will be automatically determined by the number of inputs you are recording and the selected output resolution.

To select which channels to record, type **CHannelRECO**rd <1..4> [<1..4> <1..4> <1..4>].

For example to record four channels type **CHREC** 1 2 3 4

To set the resolution at which your inputs will be recorded, type **RECORD**Mode <input#> <High | **STanDard**>. You can select a different resolution for each input.

Type **RECO**rd to begin recording.

## SELECT CHANNELS FOR PLAYBACK

Before you begin playback, you must select which channel(s) you are going to view. You can playback one channel on a single display, all four channels in a quad split on a single display, or two independent channels on two independent displays.

To select which channels to playback, type **CHannelPLA**Y <1..4 | **QUAD**> [<1..4>]. The first argument is the channel that will playback in your primary output. The second argument is the channel that will playback in your secondary output. If **QUAD**, then both outputs will playback a quad display.

For example, to play back all four video channels as a quad type the **CHPLAY** QUAD

Type **PLA**Y to begin playback.

### 3. OPERATING DGx FROM THE FRONT PANEL

The DGx can be operated from the optional front panel. This section provides a brief description of how to set up and operate the DGx by using the front panel.

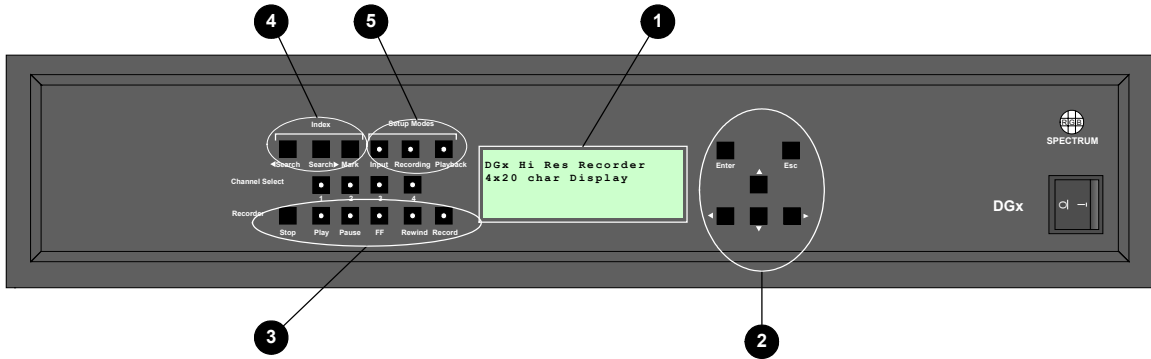


Figure 2. DGx Front Panel

The front panel consists of a four line LCD (**Figure 2 (1)**), menu navigation buttons (**Figure 2 (2)**), and Set up and Operations controls (**Figure 2 (3,4,5)**).

Navigation through all of the menus is accomplished by using the ▲ and ▼ scroll buttons and the Enter and Escape buttons.

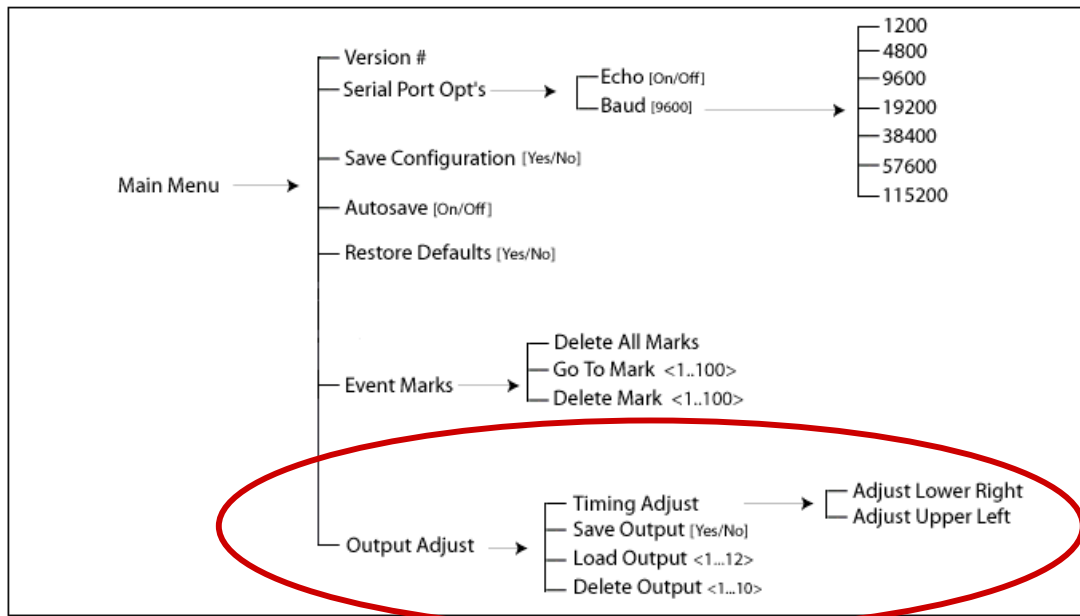


Figure 3. DGx Main Menu

The main DGx menu structure is shown in **Figure 3** above. For complete details on using the front panel refer to the DGx User Guide.

## ADJUST / SELECT OUTPUT SIGNAL

The *Output Adjust* menu items control the output of the DGx and can be accessed from the Main Menu. You may need to make timing adjustments to your signal to better suit your display device.

Navigate to the *Timing Adjust* submenu (see **Figure 3**) and press the Enter button to get to the interactive timing adjustments- *Adjust Lower Right* and *Adjust Upper Left*. Make the necessary adjustments to shift the image to the display position.

After timing adjustments have been completed, you must save the settings to the unit's internal memory. Navigate to the *Save Output* submenu press the Enter button to save the new setting.

Load the new setting to your host list by going to the *Load Output* submenu and saving the setting to entry 1-10. The first ten entries of the host list are user-defined.

## ADJUST INPUT SIGNAL SETTINGS

When an RGB signal is applied to the DGx for the first time, the unit will automatically lock to the signal and estimate what portion of the signal is active picture. If this estimate is not exact, the window may be missing part of the picture, or display "extra" black along an edge.

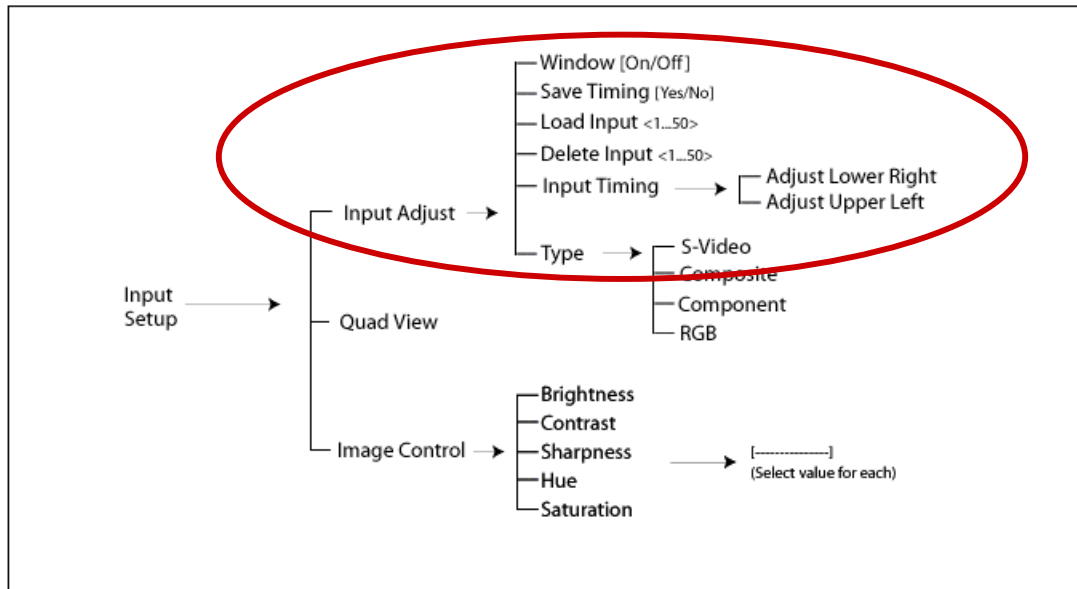
As part of the setup for the DGx, you will need to make adjustments for your inputs and then save these settings into the unit's internal memory.

Press the *Input* setup mode button (**Figure 2 (5)**) and then the channel number (1-4) of the input you want to adjust. The channel you are adjusting will be displayed on the LCD menu and the associated LED will be steady rather than flashing.

Navigate to the *Input Timing* submenu (**Figure 4**) to use the interactive adjustment mode- *Adjust Lower Right* and *Adjust Upper Left*. Your selected input enters the interactive mode to visually adjust timing parameters and shift the image to the desired display position. A white box frame and crosshair appear over the full screen input and you can use the arrow keys to adjust the image.

Press the Enter key to save your adjustments. After all timing adjustments have been completed, save the settings into the unit's internal memory.

Navigate to the *Save Timing* submenu press Enter to save the new setting. You can then load the new setting into your input list by going to the *Load Input* submenu and saving the setting to entry 1-50.



**Figure 4. DGx Input Set Up Menu**

**NOTE:** If you have the optional video board installed on your DGx unit, navigate to the Input Type submenu to select the input type (RGB, SVIDEO, COMPOSITE, or COMPONENT) for input channels which support video.

The *Image Control* submenu allows the user to adjust brightness, contrast, sharpness, hue and saturation. After you have made your timing adjustments, you can then adjust the image controls for each channel:

- BR**ightness (nominal value = 0)
- CON**Trast (nominal value = 100)
- SHAR**Pness (values range from 0 to 3)

*For video channels only, you can also adjust the following parameters:*

- HUE** (nominal value = 0)
- SAT**uration (nominal value =100)

## SELECT CHANNELS FOR RECORDING

Before you begin recording, you must first select how many channels (up to four) you are going to record and indicate whether you are going to record each at high-resolution (1280x1024 pixels) or standard resolution (720x580 pixels). The frame rate (fps) will be automatically determined by the number of inputs you are recording and the selected output resolution.

To select which channels to record, press the *Recording* setup mode button. On the LCD, an asterisk will appear next to the channel that is going to be recorded and the recording mode (HI or STD) will be indicated in parenthesis after each channel.

Use the *Channel Select* buttons to choose additional channels for recording. The LEDs for channels selected for recording will remain on and available channels not selected for recording will be flashing. To change the recording mode for any channel, press the Enter key and use the arrows to select a different mode.

Press *Record* to begin recording.

## SELECT CHANNELS FOR PLAYBACK

Before you begin playback, you must select which channel(s) you are going to view. You can playback one channel on a single display, all four channels in a quad split on a single display, or two independent channels on two independent displays.

To select which channels to playback, press the *Playback* setup mode button. On the LCD, the default playback settings (channel 1) will be displayed for the Primary and Secondary outputs. The LEDs for channels selected for playback will remain on and available channels for playback will be flashing.

To change these settings, use the arrow keys to move the cursor to the line to be changed. Then use the *Channel Select* buttons to change the setting. You can also press Enter and use the arrow keys to change the channel settings. If you use the arrow keys to make your selection, you can also choose Quad as the playback mode. In this mode, all four channels are selected and played back on a split screen.

Press *Play* to begin playback.

## 4. OPERATING DGx FROM THE VIRTUAL CONTROL PANEL (VCP)

### SETTING UP THE VCP APPLICATION

The VCP application must be loaded to the PC that you want to use to control the DGx. Create a folder in the PC's Program directory and copy the .exe and .hlp files to the folder. To make access easier you may also wish to create a shortcut to the .exe file and place it on the Windows desktop or toolbar.

To start the VCP program double click the .exe file or associated shortcut icon. The program is designed as a dialog based application with tabs relating to different VCP functions.

To control the DGx the PC you are using must be electrically connected to the DGx via the computers serial control port (RS-232). After making this connection it is necessary to set up the communication parameters using the VCP program and choose the serial communications port that the DGx is connected to.

Select the VCP "Serial Ports and Resets tab", set the baud rate for 9600 baud and click on the "Connect / Reset" button.

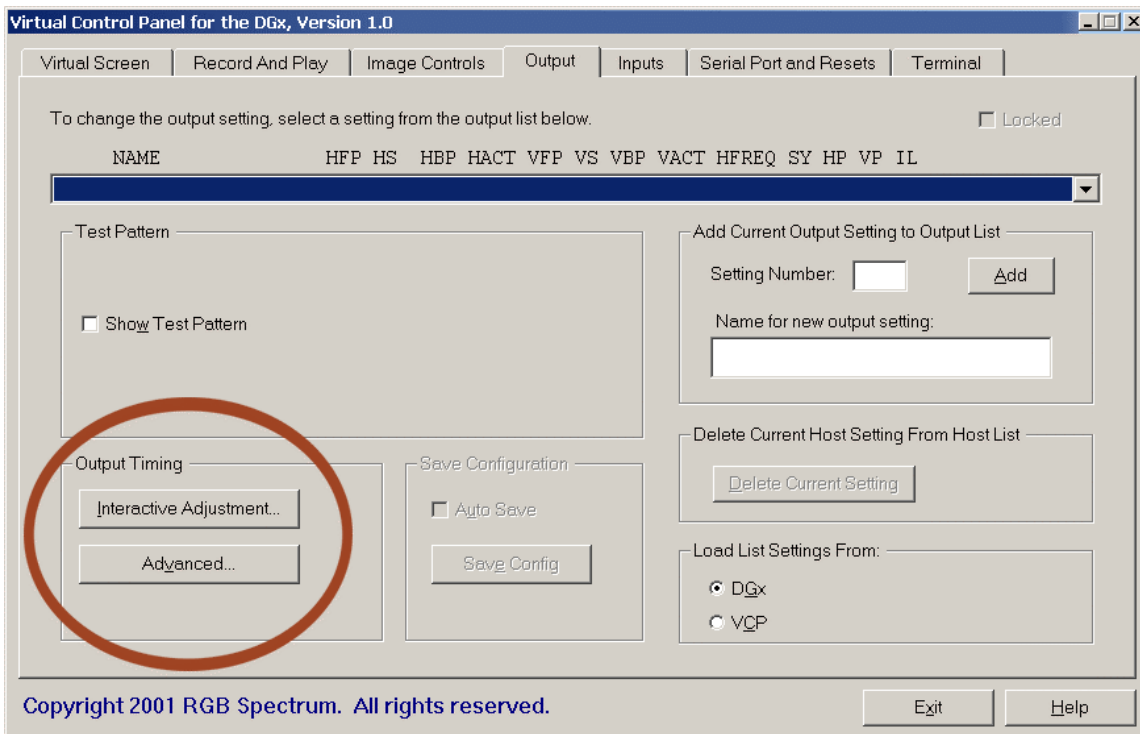
After the connection has been made the Virtual Screen page is displayed.

### ADJUST / SELECT OUTPUT SIGNAL

Select the *Output* tab to view the current output mode of your unit. (see **Figure 4**)

To create a user output setting with the aid of the DGx's output interactive mode, click on the *Interactive Adjustment* button in the *Output Timing* section to perform the interactive adjustment (**Figure 5**).

Click OK when you have completed the adjustment.



**Figure 5. Adjust / Select Output Signal**

To save the current user output setting, enter a number (1- 10) and a name for the new setting in the *Add Current Output Setting To Output List* section.

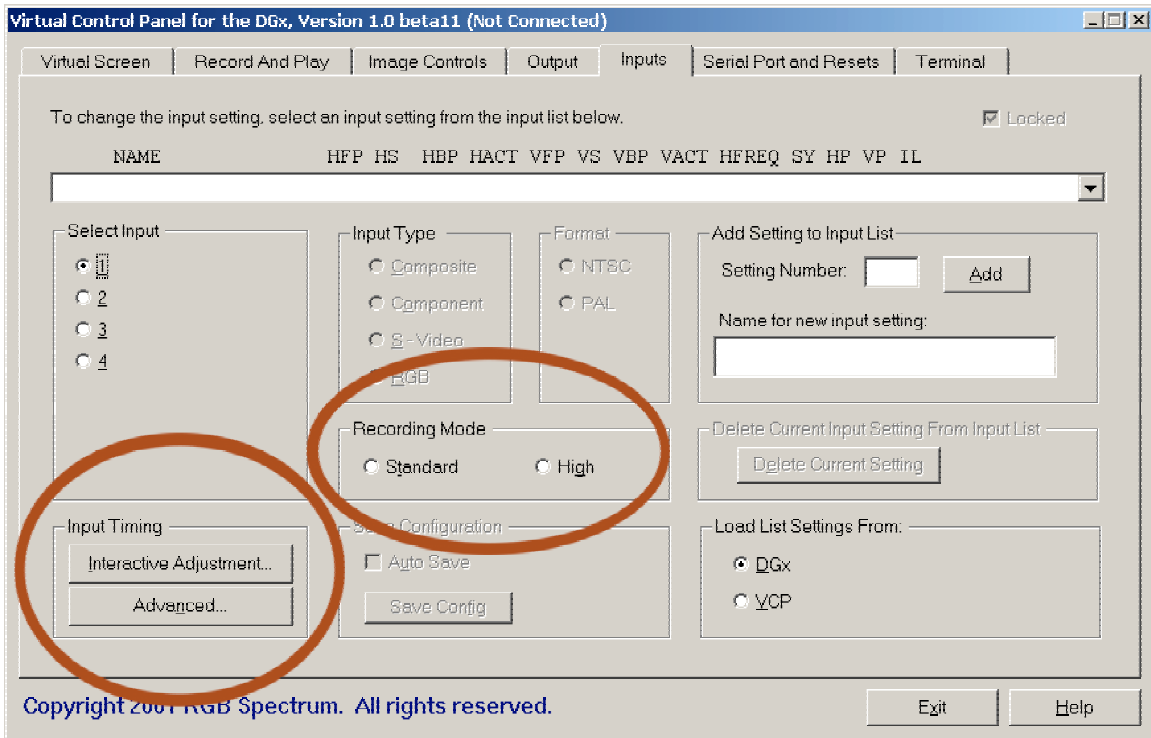
Once you provide a number and name, click the *Add* button. The VCP will instruct the DGx to store the current setting as a new output preset with the name and number that you chose. If an output preset with the same number already exists, the VCP will ask for confirmation that you want to overwrite the existing preset with a new one.

### ADJUST INPUT SIGNAL SETTINGS

The *Inputs* tab allows you to adjust input parameters for all DGx inputs.

The *Select Input* section in the left portion of the page allows you to select a DGx input in order to display or adjust timing parameters.

If you have the optional video board, then for inputs 1 and 3, you can select the *Input Type*. Your choices are S-Video, Composite, Component, and RGB.



**Figure 6. Adjust Input Signals**

When an RGB signal is applied to the DGx for the first time, the unit will automatically lock to the signal and estimate what portion of the signal is active picture. If this estimate is not exact, the window may be missing part of the picture, or display “extra” black along an edge.

As part of the setup for the DGx, you will need to make adjustments for your inputs and then save these settings into the unit’s internal memory. Select a *Recording Mode* for each input as well. The choices are High (1280x1024) or Standard (720x580).

To adjust the picture, click on the *Interactive Adjustment* button in the *Input Timing* section (see **Figure 6**).

Use the arrows to perform the interactive adjustment and click OK when you are done.

To save the current user input setting, enter a number (1-50) and a name for the new setting in the *Add Current Setting To Input List* section. Once you provide a number and name, click the Add button. The VCP will instruct the DGx to store the current setting as a new input preset with the name and number that you chose. If an input preset with the same number already exists, the VCP will ask for confirmation that you want to overwrite the existing preset with a new one.

After you have made your timing adjustments, you can then adjust the image controls for each channel.

Select the *Image Control* tab to adjust brightness, contrast, sharpness, hue and saturation.

|                    |                              |
|--------------------|------------------------------|
| <b>BR</b> ightness | (nominal value = 0)          |
| <b>CON</b> Trast   | (nominal value = 100)        |
| <b>SHAR</b> Pness  | (values range from 0 to 3)   |
| <b>GAMMA</b>       | (values range from 0.5 to 2) |

**NOTE:** The Gamma cannot be adjusted when the DGx is displaying the output in QUAD mode. To select the desired input first select the VCP *Virtual Screen* page and click on the *Selected Input* button to chose the desired input.

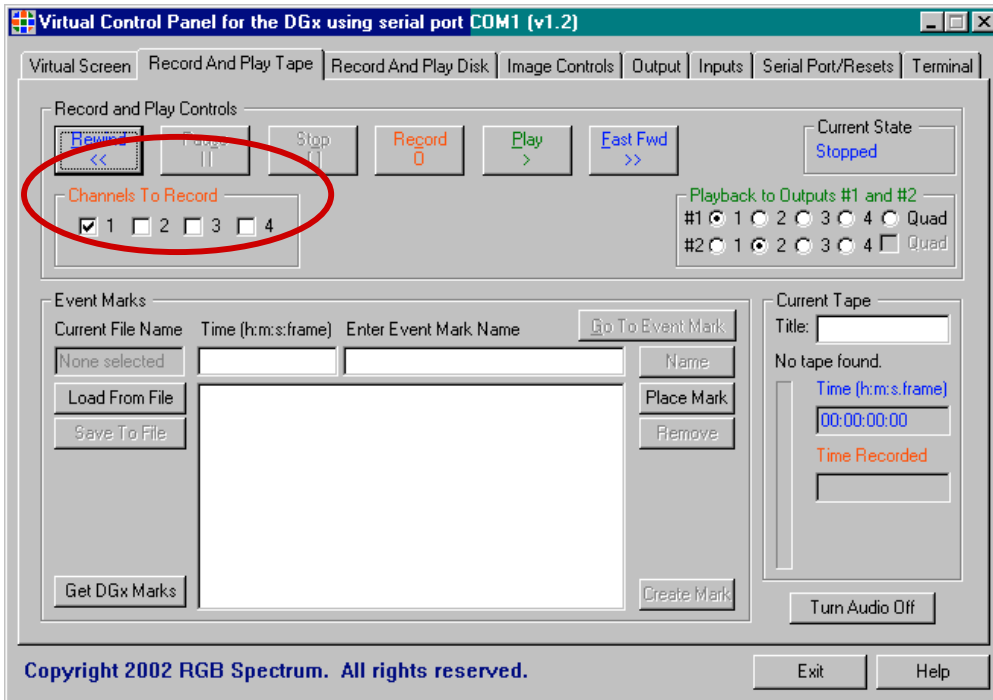
*For video channels only, you can also adjust the following parameters:*

|                    |                      |
|--------------------|----------------------|
| <b>HUE</b>         | (nominal value = 0)  |
| <b>SAT</b> uration | (nominal value =100) |

## SELECT CHANNELS FOR RECORDING

Before you begin recording, you must first select how many channels (up to four) you are going to record and indicate whether you are going to record each at high-resolution (1280x1024 pixels) or standard resolution (720x580 pixels). The frame rate (fps) will be automatically determined by the number of inputs you are recording and the selected output resolution.

Select which channels to record, go to the *Record and Play* tab (either Disk or Tape). Check the appropriate boxes in the *Channels to Record* section (see **Figure 7**).



**Figure 7. Select Channels for Recording**

The *Input* tab has the information on the recording mode resolution for each channel.

Click the *Record* button to begin recording.

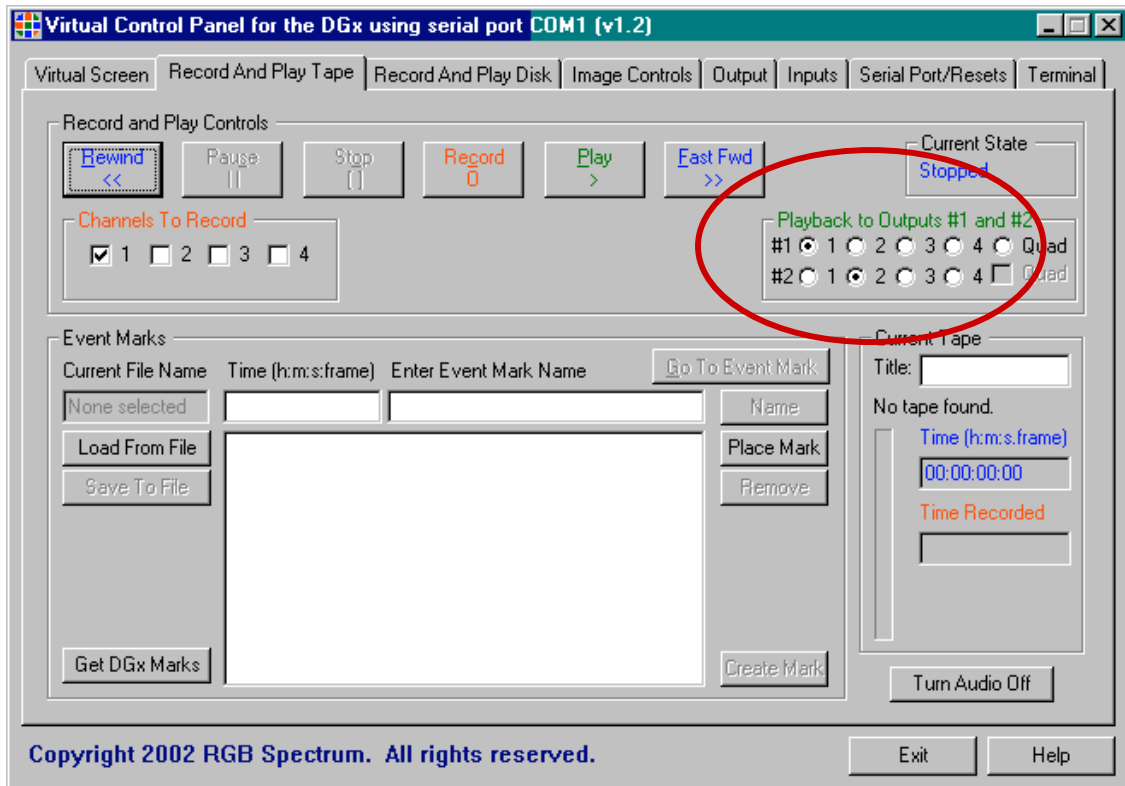
## SELECT CHANNELS FOR PLAYBACK

Before you begin playback, you must select which channel(s) you are going to view. You can playback one channel on a single display, all four channels in a quad split on a single display, or two independent channels on two independent displays.

In the *Record and Playback* tab (either Disk or Tape).

Select which channels to playback in the *Playback to Outputs 1 and 2* section (see **Figure 8**).

Click the *Play* button to begin playback.



**Figure 8. Select Channels for Playback**