



# User Manual

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## **Acknowledgements**

Keystroke is based on the RamBox PC Controller, originally developed by the students of Colorado State University, Ft. Collins, CO.

The RAMbox design and development team was a collaborative learning project teaming undergraduate engineering and theatre students charged to develop new technologies expanding entertainment production control.

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## What is Keystroke

Keystroke is a combination of a hardware interface and a software application that allows any DMX based lighting controller to trigger keyboard commands on a Windows XP based personal computer.

Because most applications on your PC can accept keyboard commands or shortcuts, Keystroke allows you remotely control these applications from your lighting console. The most popular use of Keystroke is to trigger PowerPoint slides in time with your lighting cues; however, Keystroke can also activate sound cues, and other PC applications you are using for controlling special effects.

The Keystroke hardware "listens" to the DMX signal generated by a lighting console for the DMX channel (1-512) you assign in the Keystroke software. You will also define the commands the slave pc executes when Keystroke receives a predefined value at its DMX channel address. For example, if you were controlling a PowerPoint slide show with Keystroke, you could assign the value of 100% (255) to send the slave PC a SPACE bar command to advance to the next slide. Although complex multi-stroke sequences may be programmed and assigned to specific value ranges, each lighting cue only sends a single event to the slave PC. In other words, Keystroke will not "hold down the space bar" and advance multiple slides.

## System Requirements

**Operating System:** Windows XP

**Memory Requirements:** 128 megabytes (MB) of RAM or greater

**Disk Requirements:** 8 megabytes

**Processor Speed:** Intel Pentium 300-MHz or faster processor (Pentium III recommended)

**Interface:** One Powered USB Port

Lighting console capable of transmitting DMX 512 (1990). A memory based console is recommended.

*Note: Do not attach the Keystroke hardware to computer that is currently connected to the Horizon USB Package (available from Rosco). Performance of either software will be affected.*

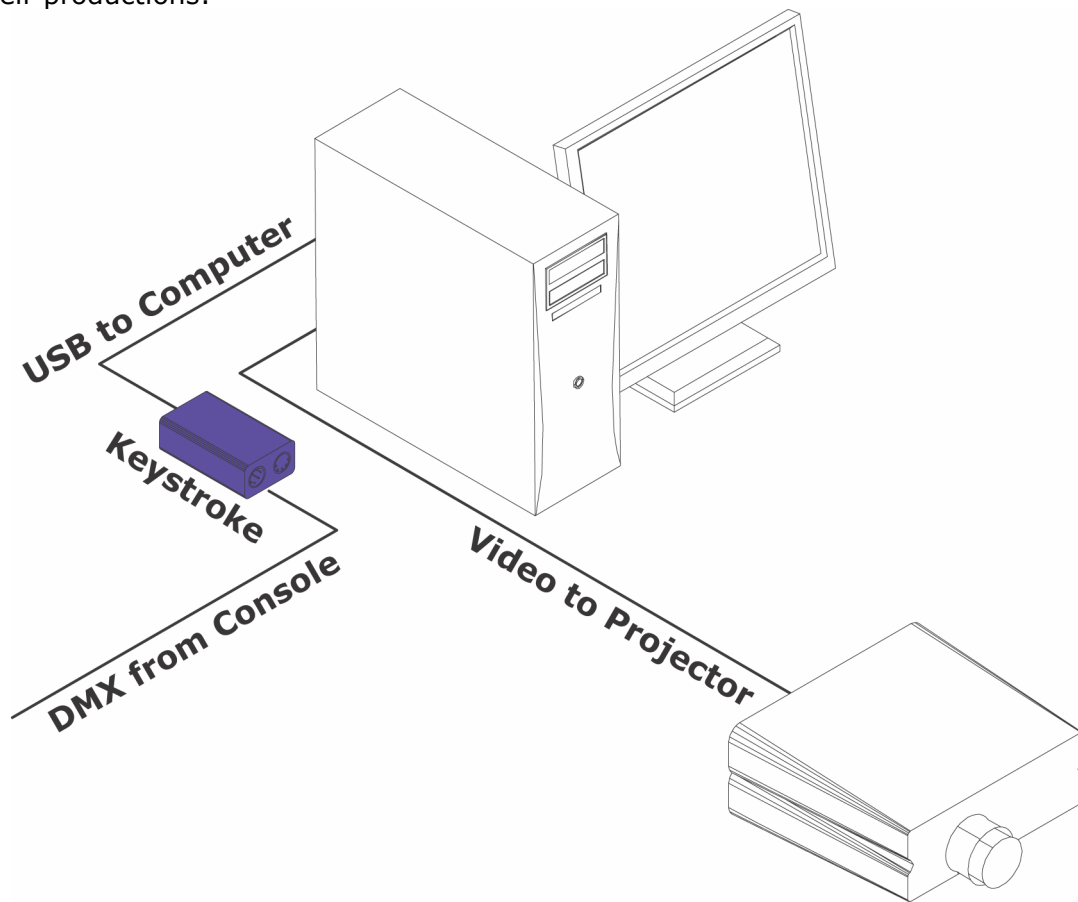


## Attaching Hardware

The Keystroke hardware interface connects to your computer with a USB A/B cable. The smaller square end of the cable connects to your Keystroke interface, while the rectangular end connects to your PC. If the Keystroke software has not been started then none of the LEDs on your interface will be lit.

The Keystroke interface has two 5 pin XLR ports. The male port is used to receive DMX, while the female XLR port is a DMX pass through. Please follow recommended wiring practices for DMX equipment. If your Keystroke is the last item in your DMX chain you should terminate the DMX signal. Termination can be achieved by attaching a DMX terminator available from most lighting equipment vendors. You may also set the Keystroke interface to terminate by moving the termination jumper, found inside the interface. Only qualified personnel should open the Keystroke interface.

Many user will connect their PCs video output to a projector and use the imagery in their productions:

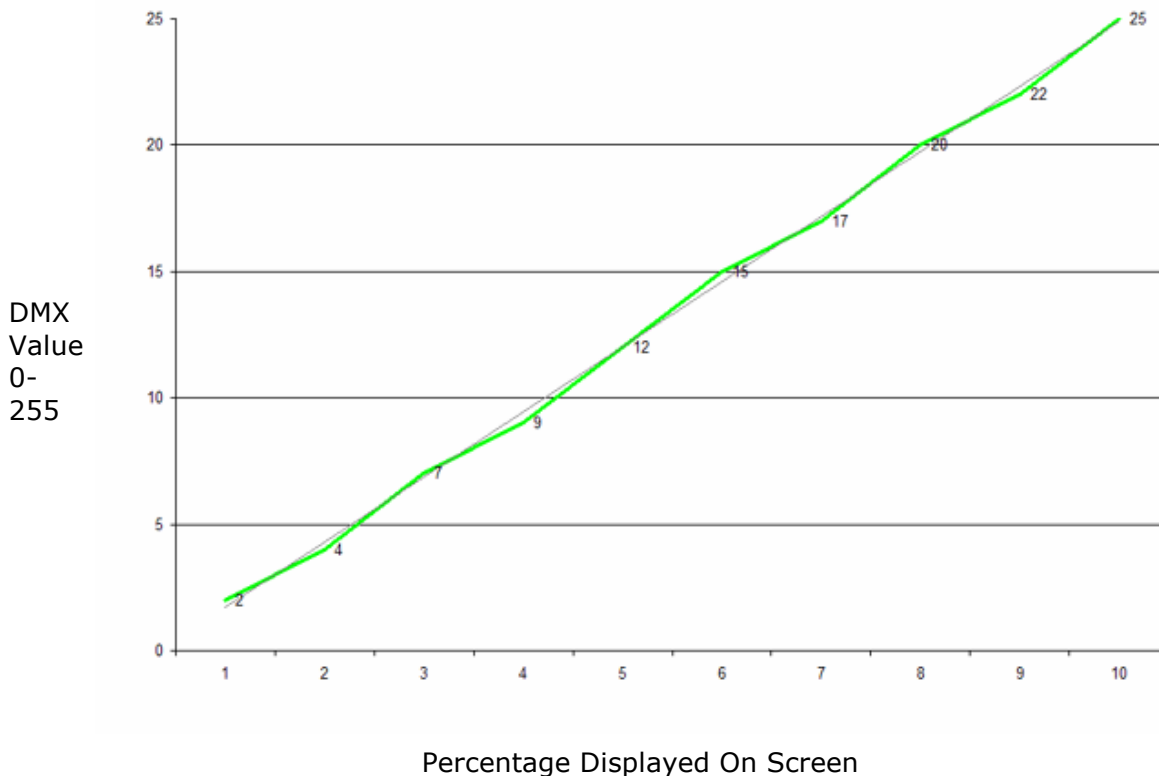




## Notes on DMX

A DMX universe consists of 512 sets of information (channels), and each channel has 256 steps (0-255 Decimal Value) of control. Most lighting consoles are configured so that channels are controlled by percentage values (0-100%) to facilitate data entry for programmers.

The problem is that DMX does not allow for half steps. For example, the percentage value of 10% does not have a decimal value of 25.5 (255/10). Instead, the console must either round the value down to 25 or up to 26 based on a set of math rules formulated to create an output curve as close as possible to a straight line. The graph below in Figure 1 charts the first 10% of the output from a popular console. Note that the actual DMX decimal values (in green) cross back and forth across the mathematical trend line.



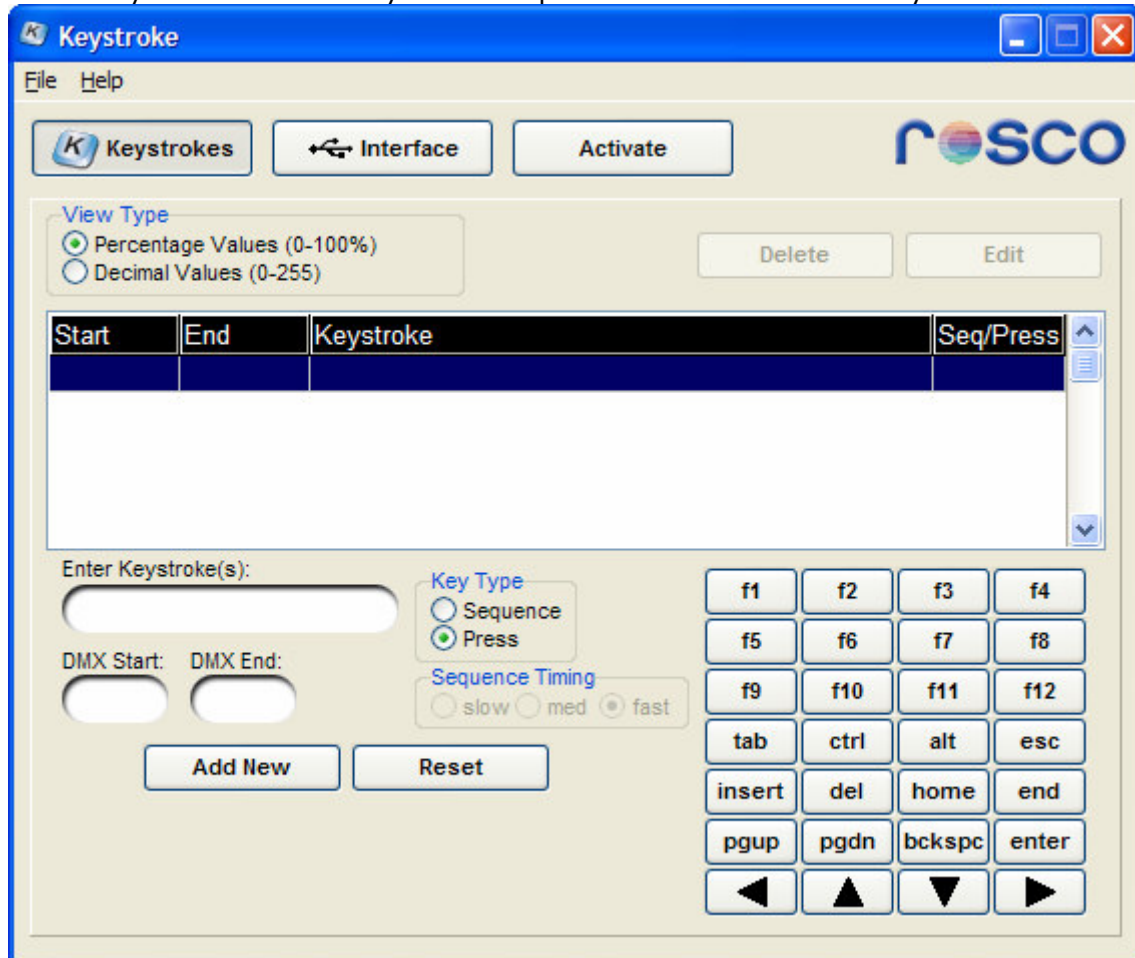
Understanding this process is important, because Keystroke responds to 0-255 Decimal values. To account for any variations between different consoles, we have included the ability for you to define value ranges when programming your Keystroke rather than fixed values. For example, instead of programming Keystroke to send the DOWN ARROW command at a set value of 10%, select the range between 9 - 11% as shown in Figure 2A. Assigning a range of values to your Keystroke commands will insure that the unit will receive the proper range for the console to execute the desired instructions.





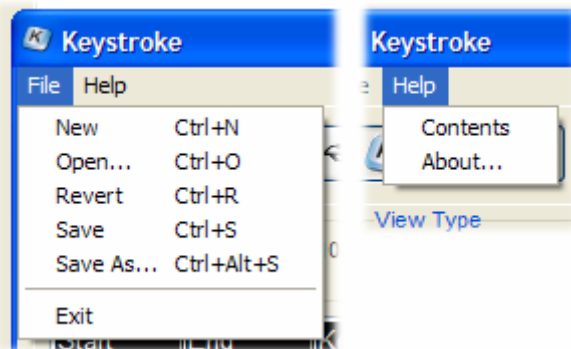
## Main Keystroke Screen

When Keystroke first starts you will be presented with the main Keystrokes screen:



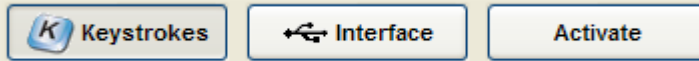
This screen is where most of your time will be spent using Keystroke where you will define the keyboard commands required to trigger your application running on a PC.

Keystroke has two drop down menus: File and Help. The File menu contains functions to save your work, open an existing Keystroke file, and exit the program. The Help menu contains the help system.





Across the top of this screen, and every Keystroke screen, are these three buttons:



These buttons allow you to navigate all of Keystroke's functions and activate the software.

Just below the navigation buttons is the View Type radio button group for switching the view between percentage and DMX values. Depending on which button is selected, you will enter your Keystroke information formatted 0-100% or 0-255. The values displayed in the Keystrokes Table change reflecting your choice of entry format.

The Keystrokes Table is the main scrolling table in the center of the screen. The table displays the four key components of the commands Keystroke sends to the PC for controlling the active application.

Start	End	Keystroke	Seq/Press
1	50	<space>	Press
51	100	p	Press

The Start and End fields define the range for the channel to execute a specific command and will display your choice of either percentage or DMX values. The largest field displays the keyboard commands Keystroke will send to the PC when so instructed by the console. The final Seq/Press (Sequence or Press) field displays how you choose the commands to be sent to the PC. Press, the default mode, sends all of the keystrokes at once while the Sequence mode sends them one at a time.

You can change the Keystroke settings by selecting a row in the table and then clicking on the Edit or Delete buttons located above the table.

Below and to the left of the main table is the Keystroke(s) Entry Area:

Begin by typing what the keyboard commands will be sent to the PC in the Enter Keystroke(s) field. Next, define how Keystroke will send the commands in the Key Type radio group immediately to the right of the Keystroke(s) field. Press is the default setting and sends all of the keystrokes in a group at once to the PC. Although Press is normally used to send only one key, it is also able to send multiple key commands, such as, Alt f for accessing menu commands.



If you need to send a sequence of characters one at a time, such as typing "Hello World!" into a word processor, then select the Sequence button under Key Type.

Enter Keystroke(s):  
hello world

DMX Start: 49 DMX End: 51

Key Type  
 Sequence  
 Press

Sequence Timing  
 slow  med  fast

Add New Reset

*Note that the Sequence Timing group is now active for selecting how fast Keystroke will send the multiple key sequence to the PC.*

Below the Keystroke(s) entry field are the DMX Start and DMX End fields for defining the DMX level the at which the lighting console instructs Keystroke to send the proper commands to the PC triggering the next event. These fields only accept numeric values in either percentage or DMX as selected by the View Type radio button at the top of the main screen. To ensure that Keystroke receives a valid channel value from the lighting console for each set of commands, we suggest that you use a range of values, starting at 5 and ending at 10, instead of a entering the same value in each field.

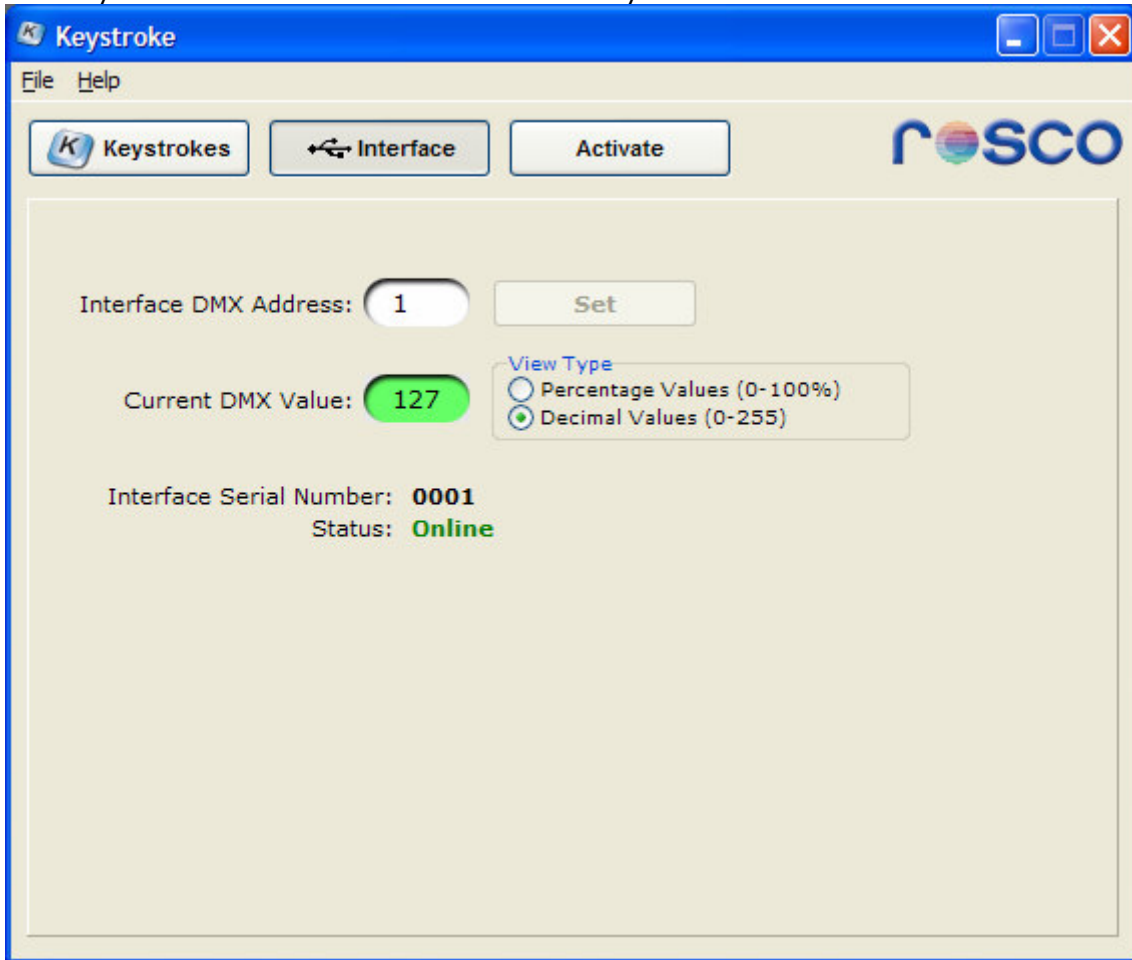
To the right of the Enter Keystroke(s) entry area is a keypad for special characters that are difficult to type. Clicking on one of these buttons enters special code into the Keystrokes field.



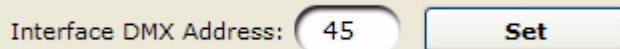


## Interface Screen

The Interface screen contains information about your hardware interface, and it also where you can set the DMX address to cue Keystroke.

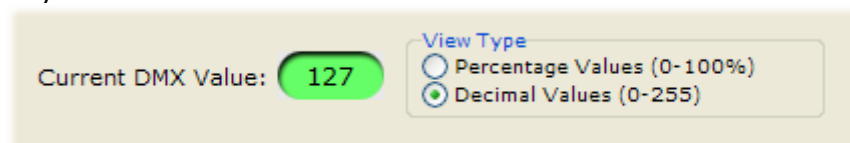


Enter the DMX address to which Keystroke will respond in the Interface DMX address field. Click the Set button to apply the selection.



*Note: The set button is normally disabled until you change the value in the field. This value is saved with the software, not your Keystrokes settings file.*

The Current DMX Value area monitors the DMX value your console is sending to Keystroke.



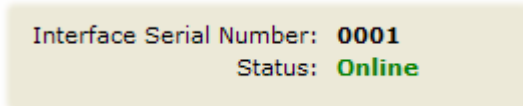


If the interface is not present this area will look like this:

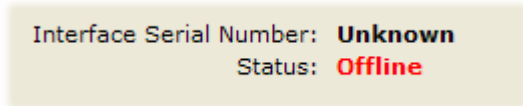


You can toggle between viewing percentage values or decimal values by using the radio buttons to the right of the field. By specifying a DMX Start and DMX End range back in the Keystrokes menu, rather than a single numeric value, your console should be sending Keystroke a valid value for triggering the application running on the PC.

The interface screen also includes information that will be useful in the event you are having difficulty making Keystroke work. Your view should be similar to this when the Interface is attached and working properly:



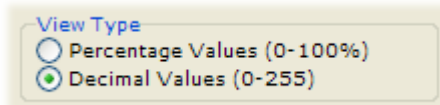
If the interface is not connected or is not responding the view will look like this:





## Percentage / Decimal Views

The Keystroke software responds to DMX values (0-255). Most consoles represent these values in the more familiar percentage format (0-100%). The radio buttons in the View Type tool allow you to choose how the DMX values are entered and displayed in Keystroke.



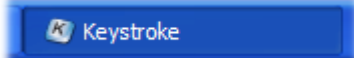
It is important to remember that the choice of percentage or decimal values determines how DMX levels are entered and displayed. If the View Type is set to percentage, then you cannot enter a value above 100 in either the DMX Start or DMX End field. If View Type is set to decimal and you enter 100, then the resulting percentage value is 39%.

Regardless of the settings, Keystroke saves the values in decimal form (0-255).

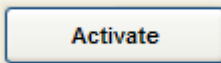


## Activating Keystroke

When the Keystroke application is running, a button Keystroke button is added to the Task Bar of your PC.



If this button is visible, then the Keystroke software is running in Setup mode. Although you can see the DMX value sent by the console via the interface screen, Keystroke cannot send keyboard commands to the PC. Activate Keystroke by clicking the Activate button at the top of the screen.



Keystroke is minimized to the System Tray, and it will begin to respond to DMX.



Keystroke will also minimize using any of the standard Windows methods.

Simply click on the Keystroke icon in the System Tray to return to the Setup mode.

To get back to the Keystroke Setup mode just double click on the icon in the system tray, or right click on the icon and select setup.



## Triggering Keystroke with Your Console

We recommend using Keystroke with a memory style lighting console. While it is possible to use Keystroke with any console supporting DMX, most memory desks will provide the programmed repeatability needed to use Keystroke most effectively in a production environment.

Keystroke responds to a change in the DMX value only once; it does not repeatedly send keyboard commands while the DMX level stays constant. Keystroke waits for changes in the DMX signal. If you defined a Keystroke command within a range of DMX values, Keystroke sends that command only once, even if the signal is moving to multiple locations within that range. For example; if you set the space bar to press when the channel is at any level between 1-50 and time the fade for 5 seconds, Keystroke sends only one space command. If, however, you fade past 50 and subsequently fade the channel below 50, then Keystroke sends the space command again.

Typically a Keystroke trigger is programmed on a bump or zero count cue. Bump timing is important, because it possible to program many commands across a channel with Keystroke. During a fade from 0-100% Keystroke might trigger ten different commands instead of the single required event.

To insure Keystroke commands trigger in time with a lighting cue, we recommend the following steps:

1. Set the Keystroke's channel to a level in the center of the selected DMX range and save that value with a time of 0 as Cue 1.
2. Auto-follow Cue 1 with a 0 count (or very short) wait time and save as Cue 2. (The Keystroke channel value tracks from cue 1.)
3. Auto-follow Cue 2 with a wait time equal or greater than Cue 2's fade time. Set the Keystroke channel to 0 and save as Cue 3. Keystroke is now reset and ready for its next command to trigger an action on the PC.

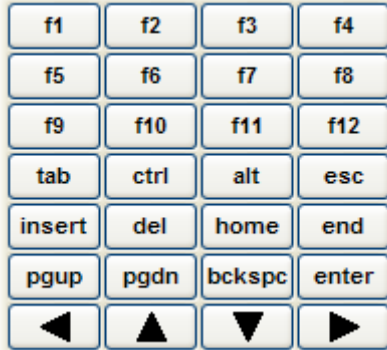
Note: Steps for programming auto-follow cues depend on your console, and some refer to this function as linking cues. Please refer to your console's manual if you need additional information on how to program auto-follow cues or macros.





## Special Characters

A variety of commands needed to control an application on a PC are impossible or awkward to type. Keystroke solves this problem with a grid of 28 special characters to the right of the Keystroke(s) entry field.



Clicking on any of these buttons enters a special Keystroke code into Keystroke(s) entry field. Using these special keys, as well as standard keyboard commands, you can program Keystroke to trigger a wide variety of commands on a PC, including:

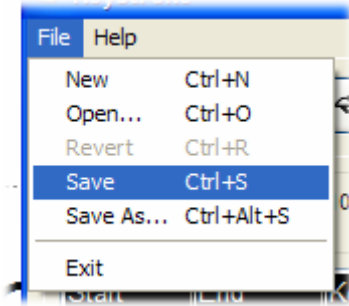
- Start a PowerPoint slide show with the F5 command.
- Advance PowerPoint slides with the space, enter, or down keys.
- Play the next track in a Winamp audio play list by sending the CONTROL-ALT-PAGEDOWN keys.

Windows XP has certain restrictions on which keyboard commands are allowed to be sent to the PC. Most notable is that you cannot send Control-ALT-Delete



## Saving Your Settings

Once Keystroke is programmed to trigger an application, store the settings using the Save feature under the File menu to a folder of your choice. Although multiple Keystroke setup files may be stored on a computer, only one can be active at any given time.



Keystroke loads the last saved file each time it opens.

## Modifying Your Settings

Modifying an existing Keystroke setting starts by clicking on the command to change in the Keystrokes table. The Edit and Delete buttons above the table become active. Click on the Edit button, and the Keystroke setting will load into the Enter Keystroke(s) field. Make any changes and click the Modify button to save them. To restore the original values, click on Reset instead of Modify.



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