

# GENOVATION



## **MacroMaster684 User Guide**

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August 2009

## WARRANTY REPAIR SERVICE AND LICENSE

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### FCC CERTIFICATION

This product has been certified to comply with FCC, EC, TUV and other test standards. See label on the product for confirmation.

### FCC CERTIFICATION REQUIRED STATEMENT WARNING:

This equipment has been certified to comply with the limits for a Class B Computing Device, pursuant to Subpart J of Part 15 of the FCC rules. Only peripherals (computer, computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this device. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

NOTE: This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for Class B computing devices in accordance with the specifications in Subpart J of part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off or on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antennas
- Relocate the computer with respect to the receiver
- Move the computer away from the receiver
- Plug the computer and receiver into different circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. (Stock #004-000-00345-4).

## **TECHNICAL SUPPORT**

If you require technical support or if you wish to make suggestions about the product, don't hesitate to contact us. We can be reached Monday through Friday from 7:30 AM to 11:00 AM and from 11:30 AM to 4:00 PM Pacific Time. If the customer support lines are busy or after hours, leave a message or send a FAX or E-MAIL and a representative will respond typically within 24 hours.

VOICE NUMBER:	(949) 833-3355 ext. 112
FAX NUMBER:	(949) 833-0322
EMAIL:	support@genovation.com
WEB:	<a href="http://www.genovation.com">http://www.genovation.com</a>
FORUM:	<a href="http://www.genovation.com/forum">http://www.genovation.com/forum</a>

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# 1: Installation and Quick Start Guide

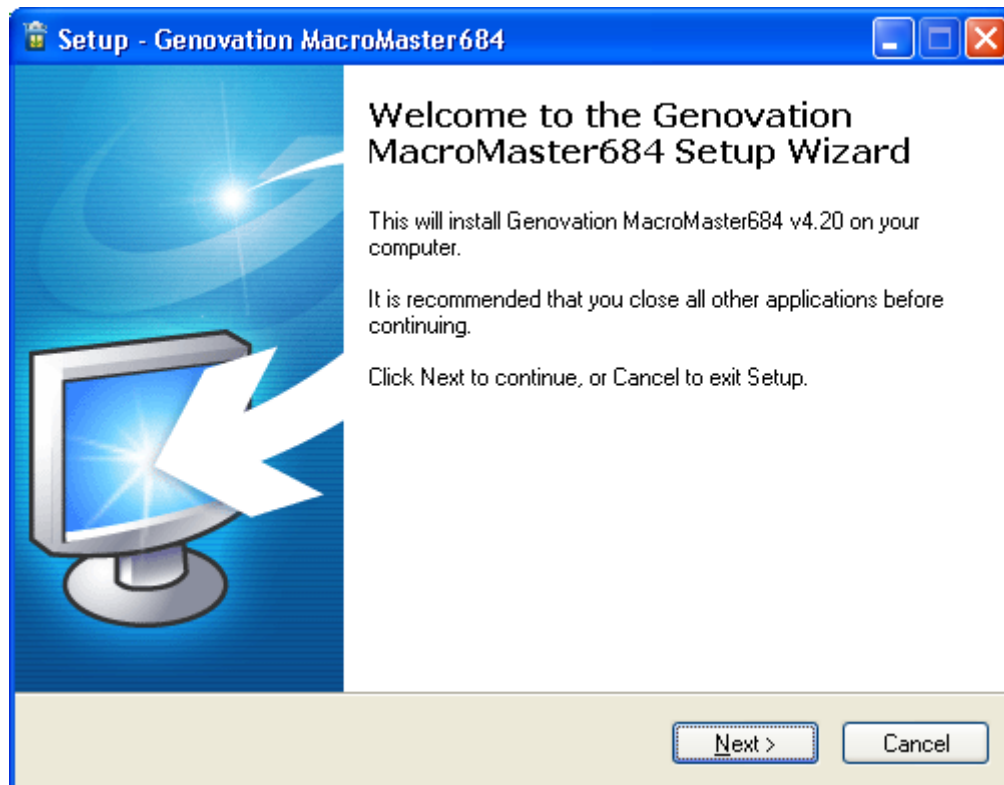
Your 684 ControlPad or Bump Bar package should include the following items:

- Quick Start Guide
- Product CD
- Genovation 684 keypad with attached RS-232 cable (and optionally a 5v DC adapter). The standard cable has a DB-9 connector. Other connectors are available.

The MacroMaster684 configuration software is designed to work with computers running Microsoft Windows 2000/XP/Vista operating systems (32-bit). The 684 keypad itself will work with any OS.

## Install Software

Insert the CD into the target computer's CD drive. If the Installation program does not start immediately, navigate to the CD using Explorer and run Setup.exe. You should see the following screen:



Click on **Next** as required and choose the path you would like to use for storing the PC applications.

## Install Hardware



You may plug in new hardware at any time. If you have not already plugged in your 684 device, do so now. If supplied, plug the 5v DC power adapter as well. It is recommend to configure (program) the keypads with only one plugged in at time.

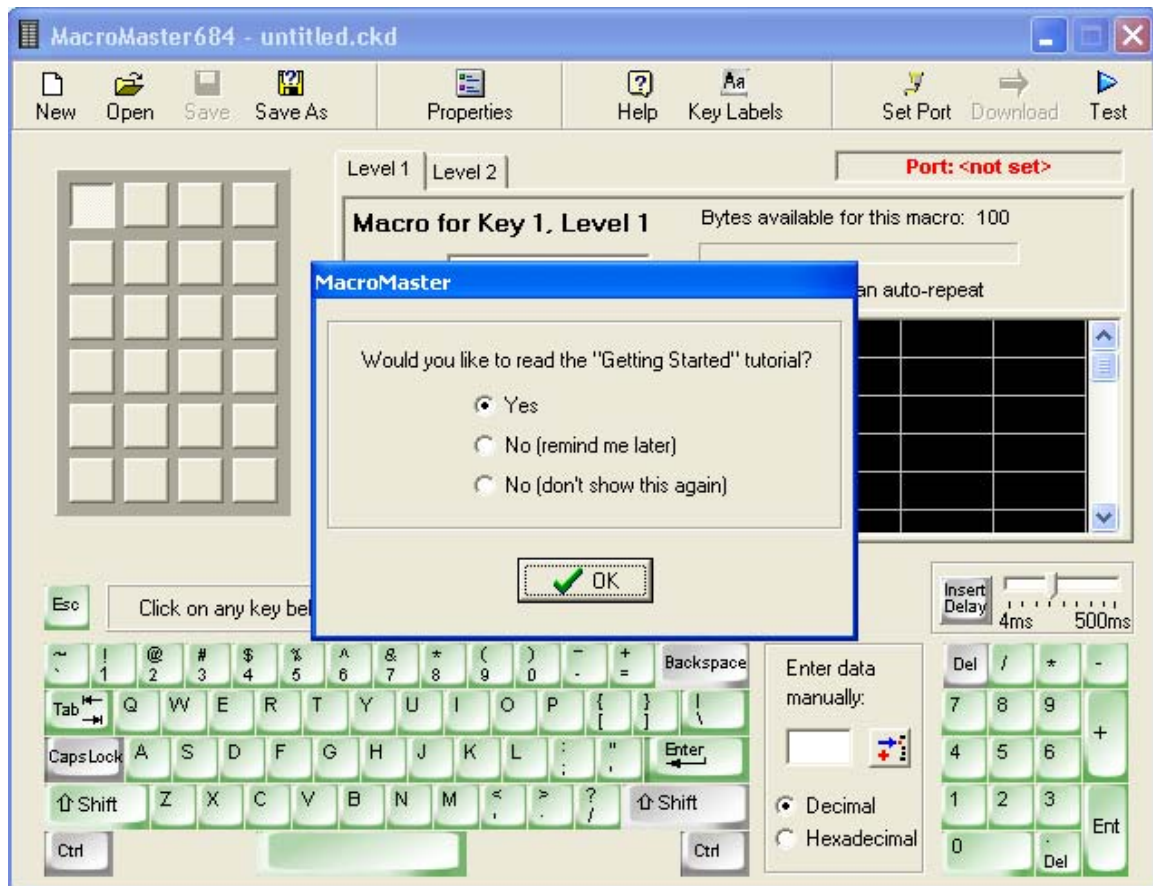
## Set the COM Port

You will need to set the COM port so that the Windows PC can communicate with the 684. This will allow the PC to communicate with the keypad in order to configure it the way you want.

Run the MacroMaster684 application. Normally it is installed in the following path:

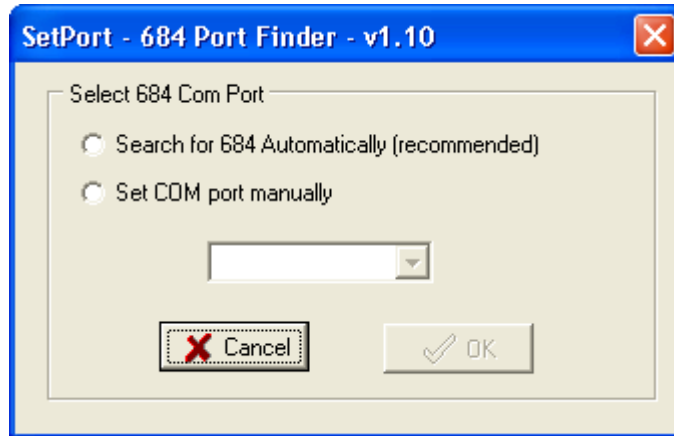
**Start >> Programs >> Genovation >> MacroMaster684**

You should see the following:

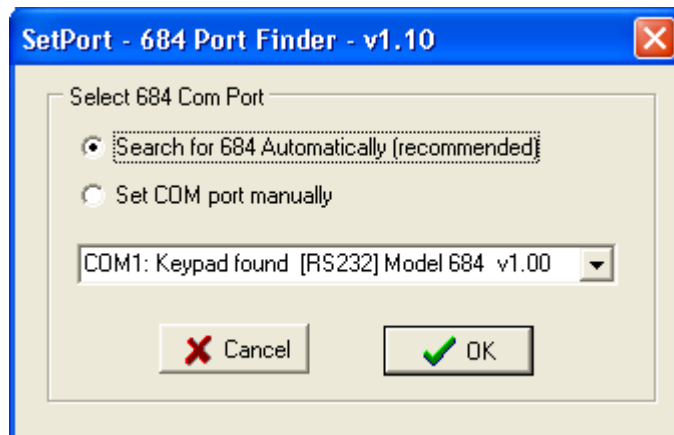


Select one of the **No** options followed by **OK** to dismiss the tutorial and then click on **Set Port**.

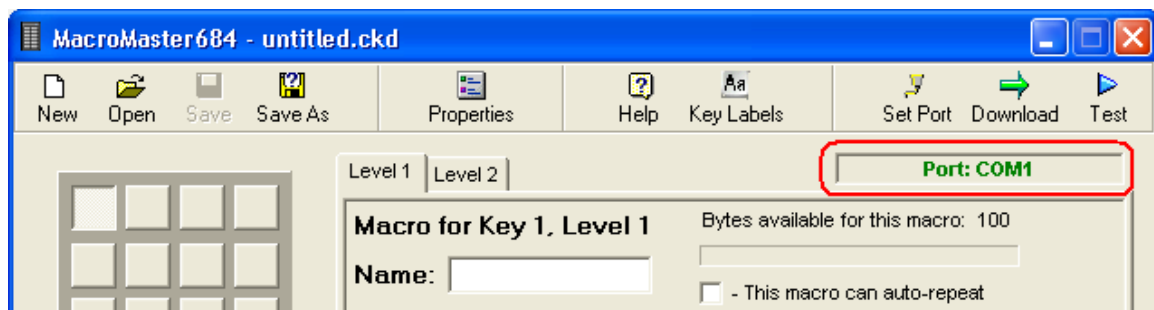
Click on the “automatic” option (the top one) in SetPort and then **OK**.



SetPort will now start scanning your system COM ports for the 684. Once it completes, your 684 COM port should be automatically selected. Click **OK**.

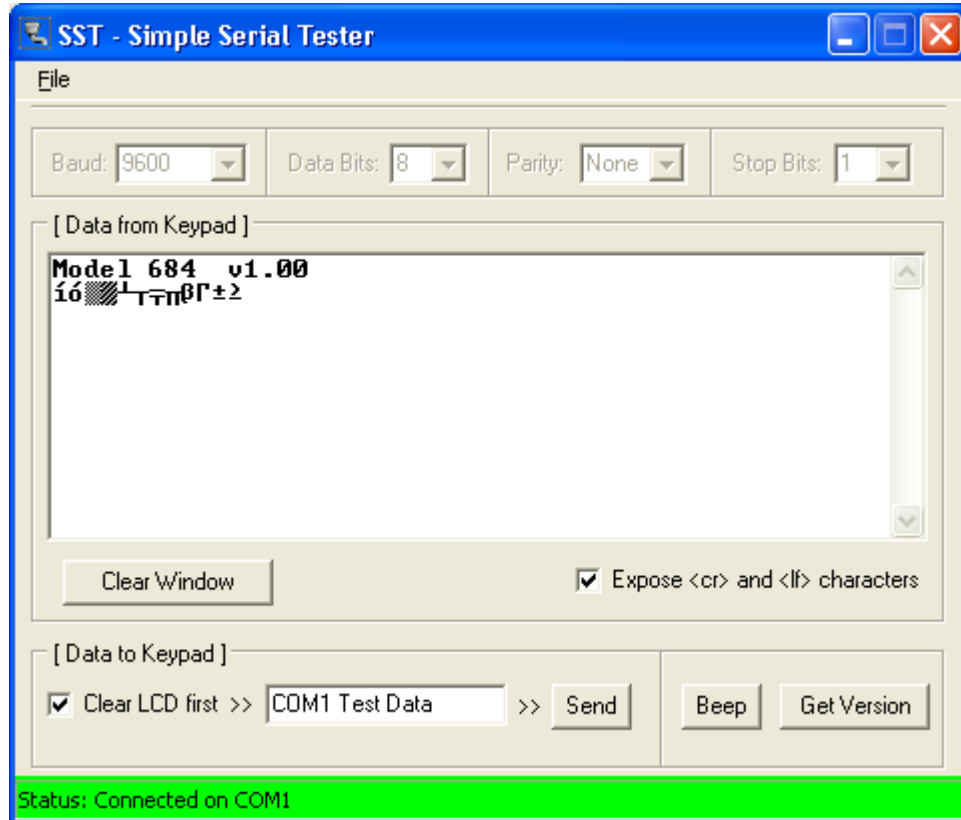


The COM Port number should appear at the top right of MacroMaster.



## Test Keypad Connection

At the top right of MacroMaster684, click on **Test**. This will launch the key test program.



If you click on **Get Version**, the 684 will respond with its version string. You may also press the keys on the 684. You should see some characters appear in the [Data from Keypad] area. Depending on what key codes have been programmed, this information may appear as nonsense. Also if the baud rate does not match between the keypad and the test program, you might see only gibberish.



## Restoring Factory Defaults

At any time your keypad can be returned to factory defaults. In order to wipe out the user configuration, **press and hold two key switches down while plugging the keypad power in**. Continue to hold them down until the keypad is completely plugged in and then release the two keys. **Note: If you have double-width key caps, only hold one down.**

Default684.ckd key table:

0xA1		0xA2	
0xB1		0xB2	
0xC1		0xC2	
0xD1		0xD2	
0xE1		0xE2	
0xF1		0xF2	

The Bump Bar version has 24 key switches under 12 double-wide key caps. Only one of each pair of keys is programmed by default. You can choose the codes you want on whatever keys you want. You may also move the key caps around (E.g. make them vertical instead of horizontal).

## Un-Installing and Re-Installing

It's a quick and simple matter to remove, re-install or upgrade MacroMaster. To un-install MacroMaster, click on:

**Start >> Programs >> Genovation >> MacroMaster684 >> Uninstall MacroMaster684**

The un-installer will NOT remove any macro files you have created. If you are not installing a newer version, you may delete the macro files and directories manually.

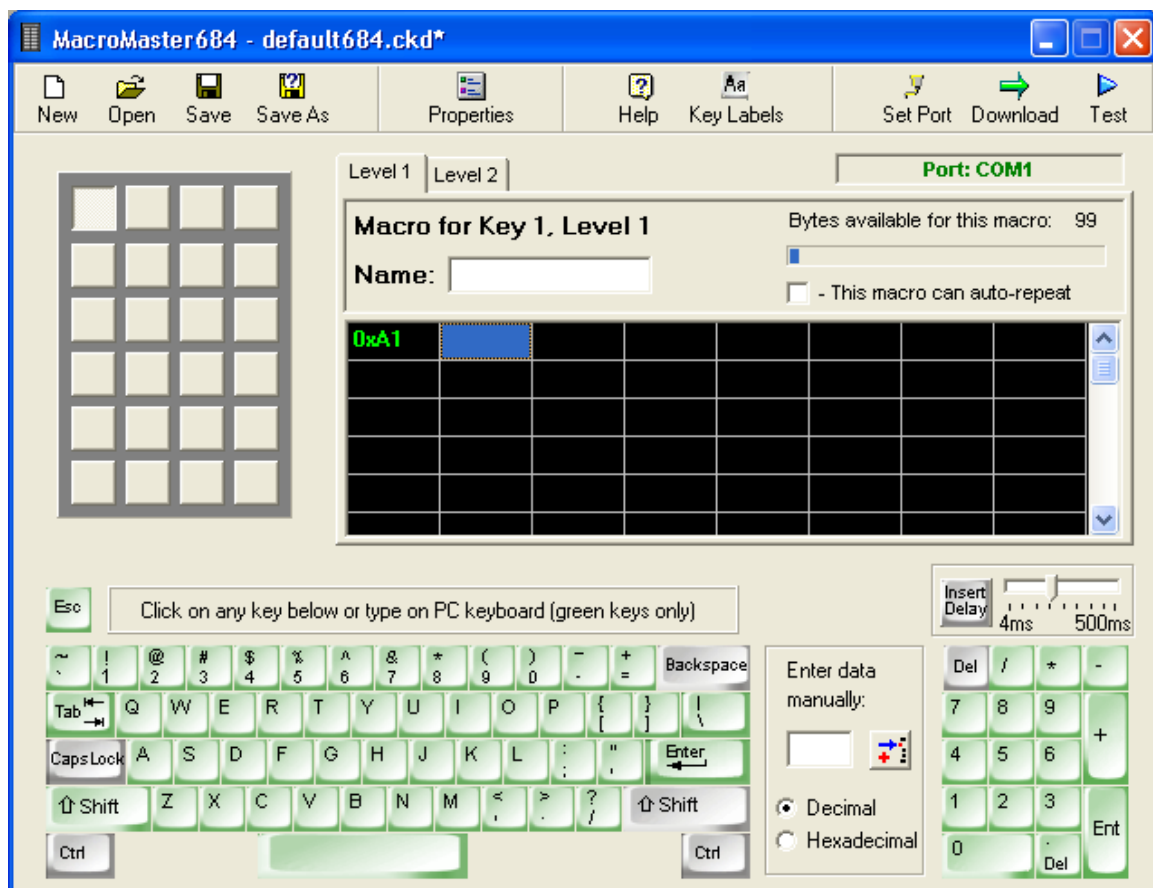
If you are installing a newer version (upgrading), your macro files will be saved automatically for you.

## 2: Using MacroMaster68x

### Running MacroMaster68x

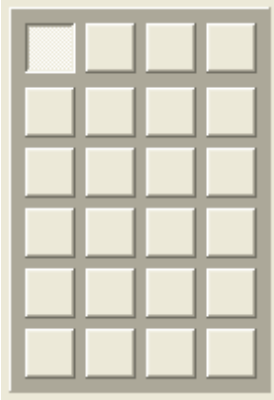
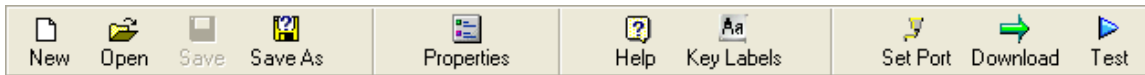
To program the key codes or change the keypad properties such as baud rate, use the MacroMaster application. To begin, click on the following (assumes default installation directory):

**Start >> Programs >> Genovation >> MacroMaster684 >> Genovation MacroMaster684**



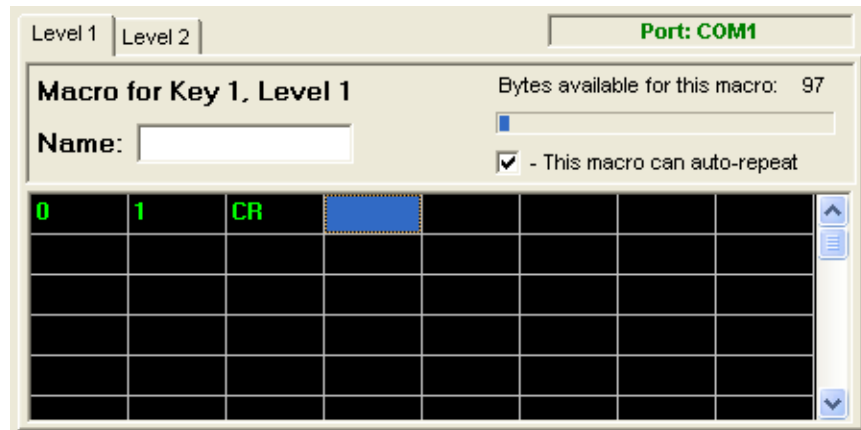
The title bar contains the name of the application and the name of the file that is opened. If the file had been modified but not saved, a \* character follows the filename. The \* will go away once the file is saved or a new file is loaded.

The top row of buttons accesses the major functions of the program.

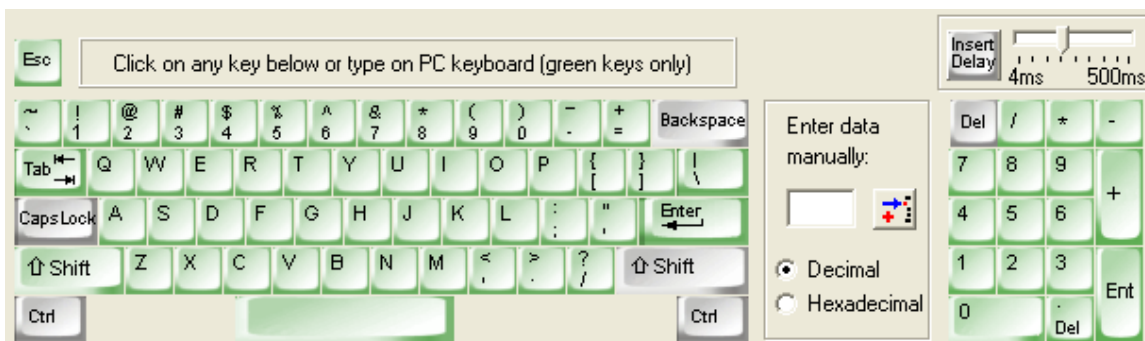


At the center left of the screen is a Virtual Keypad. It is a series of gray squares that represent the keys on the actual keypad hardware.

To the right of this is a black grid of rectangles. This Key Data Editor holds the data associated with each key on the keypad.



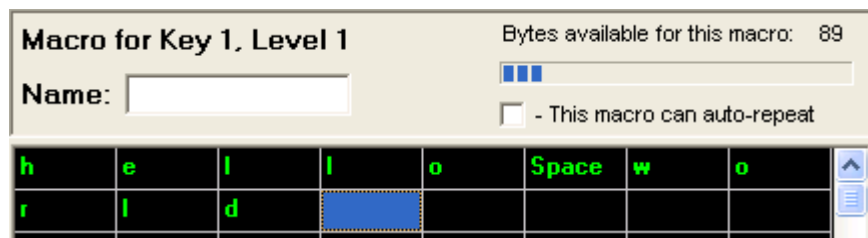
Every time you select a new gray keypad key, a new set of black grid cells is available to fill with keystroke data. The bottom of the screen shows a rendition of a PC keyboard. This Virtual PC Keyboard can be used to place the data into the black boxes. You may also type the data in.



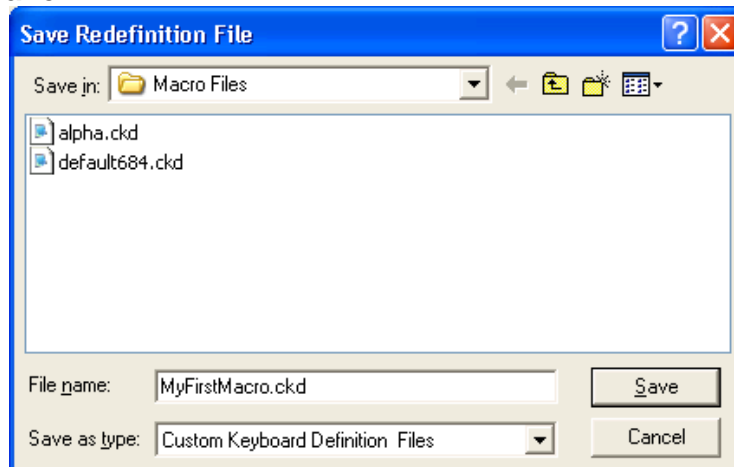
## Creating and Saving your first CKD file

The file type used by MacroMaster is a .CKD file. CKD stands for **C**ustom **K**eypad **D**efinition file. The file is simply a collection of key macros. Its contents are arranged in standard INI file format. To start a new project, click **New** at the top left. This will provide a completely blank template with no keys assigned.

1. Select a key to program. Click on one of the keys on the virtual keypad. Note that whenever you select a new key, the Key Data Editor reflects the key number, for example: **Macro for Key 2, Level 1**. Each key on the virtual keypad can contain 100 bytes of macro data (per level). We will discuss levels later, but for now you can assume that you may assign up to approximately 100 characters per key.
2. Enter some key data. Try typing in the phrase “hello world” (without the quotes). You should see something like the following.



3. Provide a description. Although it's optional you should consider typing in a short description for your macro. For example. Description:
4. Select repeat mode. If you want the macro to repeat over and over when you hold the keypad key down, click the repeat checkbox:  This macro can auto-repeat
5. Save the file. Once you are happy with your macro, save the file by clicking on the **Save As** button at the top left. Name the file something appropriate and click **Save**.



Congratulations, you have completed your first macro! It's only one key, but you now understand the basics of macro programming.

## The Green Keys

MacroMaster's **virtual** PC keyboard has keys that are standard gray color and keys that are green. The green keys can be used to enter macro data directly by typing on your real PC keyboard. The gray keys can be used to enter macro data only by clicking the virtual keys with the mouse. The gray keys on your real PC keyboard retain their original function. For instance, the arrow keys on your PC keyboard allow you to navigate the cells in the black grid.

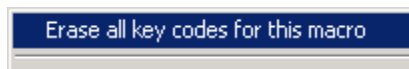
## Correcting Mistakes

If you make a mistake while entering your key macro data, there are several ways to correct it.

- If you want to erase only one cell in the grid, double-click the mouse on that cell. Remember to select the cell at the end of the macro before you begin typing again. The dashed blue box indicates where new data will go.

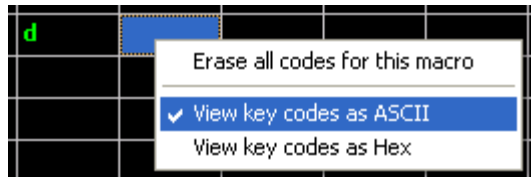


- If you want to erase only one cell in the grid, use the Backspace key on your PC keyboard. Recall that this is a gray key so it does not generate a macro entry.
- For a given macro, if you want to start over, right-click on the grid and select "Erase all key codes for this macro". This operation only affects the current Level.



## Key Codes

The macro you created at the start of this section is very simple. Each square in the black grid contains exactly one byte (one ASCII character). You can reveal the underlying codes at any time by right clicking on the grid and selecting "View key codes as hex".



MacroMaster then displays the hexadecimal equivalents for the ASCII codes.

0x68	0x65	0x6C	0x6C	0x6F	0x20	0x77	0x6F
0x72	0x6C	0x64					

## Control Codes

In ASCII (text) mode, unprintable characters (from 0x01 through 0x1F) are shown as control codes. These are standard values and look like ^C for example. In fact, you can create these characters by clicking the **virtual** Ctrl key and then clicking one of the appropriate values:

Hex control codes:

0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08
0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F	0x10
0x11	0x12	0x13	0x14	0x15	0x16	0x17	0x18
0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F	

ASCII control codes:

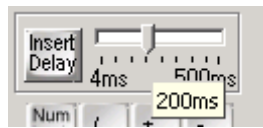
^A 01h	^B 02h	^C 03h	^D 04h	^E 05h	^F 06h	Bel	BS
Tab	LF	^K 0Bh	^L 0Ch	CR	^N 0Eh	^O 0Fh	^P 10h
^Q 11h	^R 12h	^S 13h	^T 14h	^U 15h	^V 16h	^W 17h	^X 18h
^Y 19h	^Z 1Ah	Esc	^\ 1Ch	^] 1Dh	^^ 1Eh	^_ 1Fh	

The value 0x00 (NULL) is reserved for end-of-macro. If you need to transmit this value then you will need to use one of Genovation's MiniTerm products. The MiniTerm has expanded capabilities compared to the 684.

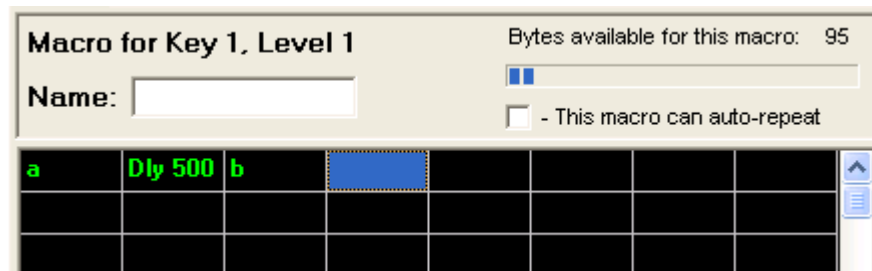
## Inserting Delays

The keypad can rapidly send a long series of keystrokes to the PC or KVS. At times the PC, no matter how fast, will not be able to keep up. To give the PC a breather, you can insert delays between your keystrokes.

To the right of MacroMaster's virtual PC keyboard is a small box with an Insert Delay button. The delay is adjustable over a range of 4ms to 500ms (half a second) using the slider. Hovering your mouse over the slider tells you how long the inserted delay will be. The default is 200ms (one fifth of a second). Click the **Insert Delay** button to pause the keypad for that amount of time. If you need extremely long delays, click it several times in a row.



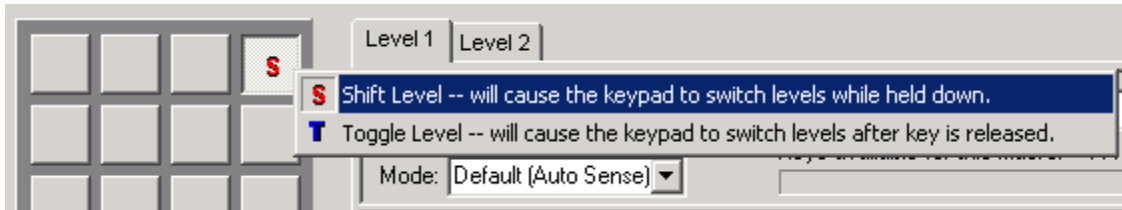
Here is how it appears in the macro:



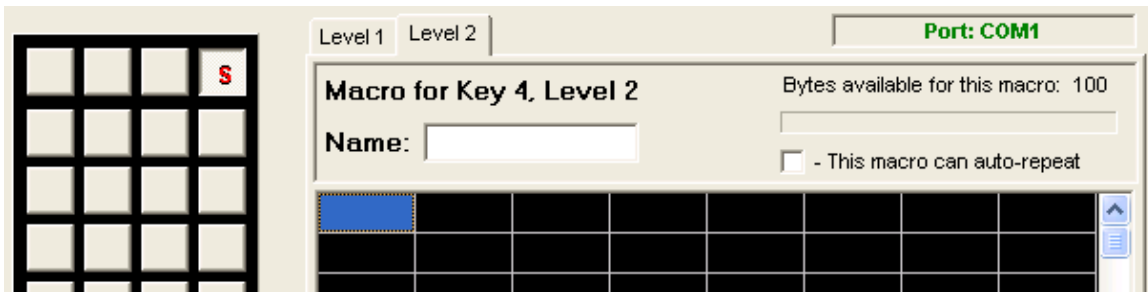
## Two-Level Programming

On your PC, the number keys 1 through 9 are also used for symbols !@#\$%^&\*(). These symbols are accessed using the PC's Shift key. Similarly, your 684 supports two "levels" per key. In order to use the second level on your 684, you must first assign an access key (a level shift and/or level toggle key) and then you must fill in the data for the second level.

1. Assigning the 2<sup>nd</sup> level access key. Choose a key on MacroMaster's virtual keypad and then right-click that key. Select whether you want the level access to be Shift (requires that you hold the 2<sup>nd</sup> level access key down) or Toggle (the level switches back and forth every time you press the 2<sup>nd</sup> level access key).



- Fill in the 2<sup>nd</sup> level data. Click on the **Level 2** tab that is located right above the words **Macro for Key 1, Level 1**. The words should change to **Macro for Key 1, Level 2** and the virtual keypad background should change to black. You now have access to a new grid of 100 bytes for your 2<sup>nd</sup> level macro.



You may have up to two level shifts and two toggles. The keys that perform the level shift/toggle function may also contain macros, but it's not very common.

The next section describes how to assign an LED indicator so that you can see which level is active.

**NOTE:** To use a level shift key, a minimum of 2-key rollover must be programmed via the Keypad Properties panel since the shift level key must be pressed and held along with another key to access that key's second level macro. See the next section for information regarding Key Rollover.

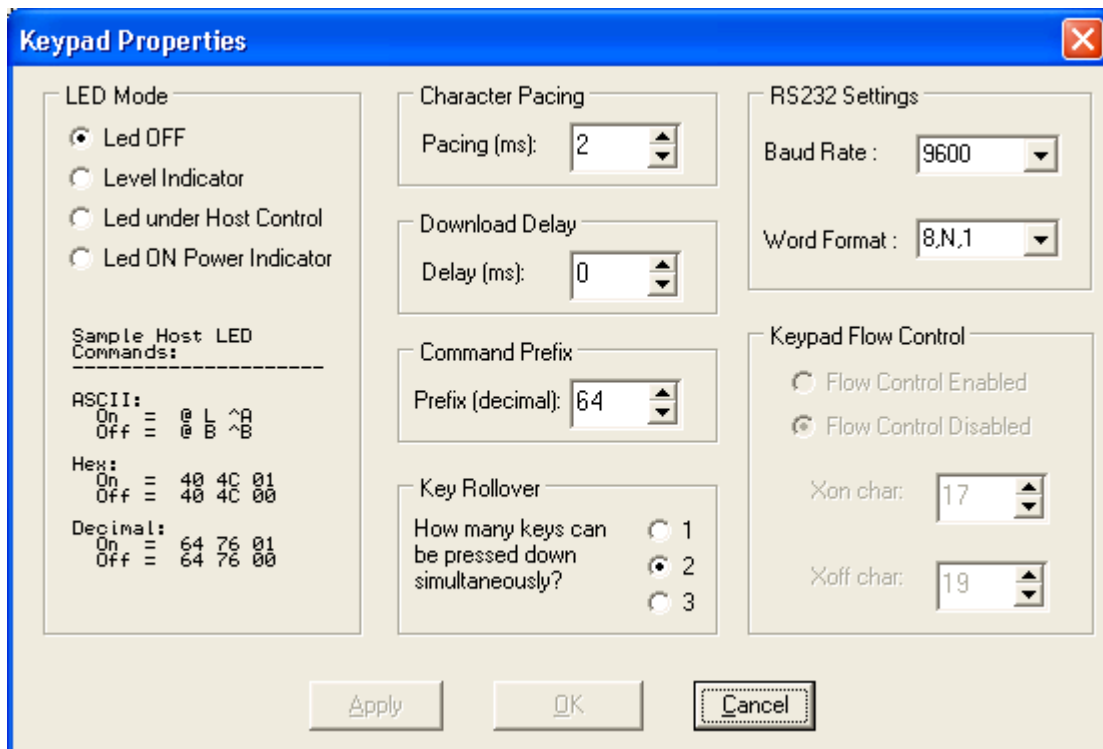
**NOTE:** When programming **double size** keys it is recommended to program only one of the two keys that are combined into the double size key. In addition, you should select a key rollover of 2 on the Keypad Properties page.

## Keypad Properties

There are several global keypad settings that can be modified to suit your application. Click on the **Properties** button. This will open up the Properties panel:





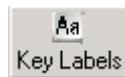


1. Key Rollover. This parameter controls how many keys may be pressed at the same time and be accepted by the keypad. Because the Bump Bar version uses double wide key caps, 2-key rollover is recommended.
  - 1 Key: When one key is held down, the keypad will recognize no other key(s).
  - 2 Key: Two keys pressed and held at the same time will be recognized by the keypad. Additional keys will be ignored. Two key rollover is required when using a shift level access key or double size keys.
2. Inter-character Pacing. This parameter inserts a short pause between all bytes sent to the PC. The range for this parameter is 2ms to 20ms. It has the effect of slowing down the typing slightly in case you are working with a slow PC.
3. LED Function. You may select one of 4 modes for the LED on your keypad. The default is for the LED to perform no function (Off/Not Used). You may assign the LED to illuminate when the keypad's 2<sup>nd</sup> level is active (Level Indicator). You may control the LED from the Host PC. You may set the LED to be a power indicator/keypress indicator. In this final mode, the LED is always on except when a key is down.
4. Download Delay. You may include short pauses in the download process to give the host PC and keypad time to synchronize during the download

operation. Normally you should not have to adjust this unless you are having trouble performing downloads to your keypad.

5. RS232 Settings. These will need to be set to match your target system. Please note that the downloader uses 9600, 8N1 so you must restore factory defaults before re-programming the unit if you have changed these setting to something else. You may also order the product with specific settings pre-programmed into the device.

## Keycap Labels



Click on the **Key Labels** button. The standard 684 keys have clear lenses which allow for labels may be inserted under the lens to indicate the key function. Several templates are provided for Wordpad or Word or MS Paint in the "Keycap Files" folder. Text, images or icons may be inserted in the template. The resulting file can be printed and saved. The labels can then be cut with scissors and placed under the lens caps.

You may also order custom key caps, custom labels or select from our stock of industry specific key caps.

## Customization Is Standard

The 684 product line has been designed with customization in mind. Contact our sales or technical support staff for full-custom or semi-custom variations of our products.

### 3: Technical Specifications

<b>Number of keys</b>	24
<b>Key Type / Life</b>	Full-Travel, Cherry, Gold Contact (50,000,000+ operations)
<b>Interface Port</b>	Standard RS232C Compatible (Half-Duplex)
<b>Power</b>	5vdc Regulated Wall AC Adaptor (Optional)
<b>Temperature</b>	0-60C (32-140F)
<b>Programmability</b>	24 keys, two levels.
<b>Program Method</b>	100 bytes per key per level. Easy to use Windows based graphical interface to modify the serial port communication settings, and key codes. Once programmed, the 684 will retain its definitions in its internal memory. It will then function on any standard RS232C compatible serial port.
<b>Memory</b>	No computer memory or TSR's required. The 684 indefinitely retains macro definitions even when power is removed. (> 100 years)
<b>Keycap Labels</b>	Pre-made templates can be edited using any Windows Wordpad application or Microsoft Word 6.0 and above.
<b>Equipment Provided</b>	<ul style="list-style-type: none"><li>• 6-foot RS232C Compatible Cable</li><li>• DB-9 Female Connector (Serial)</li><li>• 5vdc Regulated AC Wall Adaptor (Optional)</li><li>• Quick Installation Guide</li><li>• CD-ROM Installation Software</li></ul>

The Controlpad 681 is designed to connect to a standard RS232C compatible serial port via a standard DB-9 female plug. A 5Vdc regulated AC wall adaptor is included to provide power.

