GENOVATION

**GenCalc623
User Guide**

Revision A
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Contents

# 1: GenCalc623 Installation and Quick Start Guide

Your GenCalc623 package should include the following items:

- o This Quick Start Guide
- o Product CD
- o GenCalc623 keypad

This product is designed to work with computers running Microsoft Windows 2000/XP/Vista operating systems (32-bit).

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:
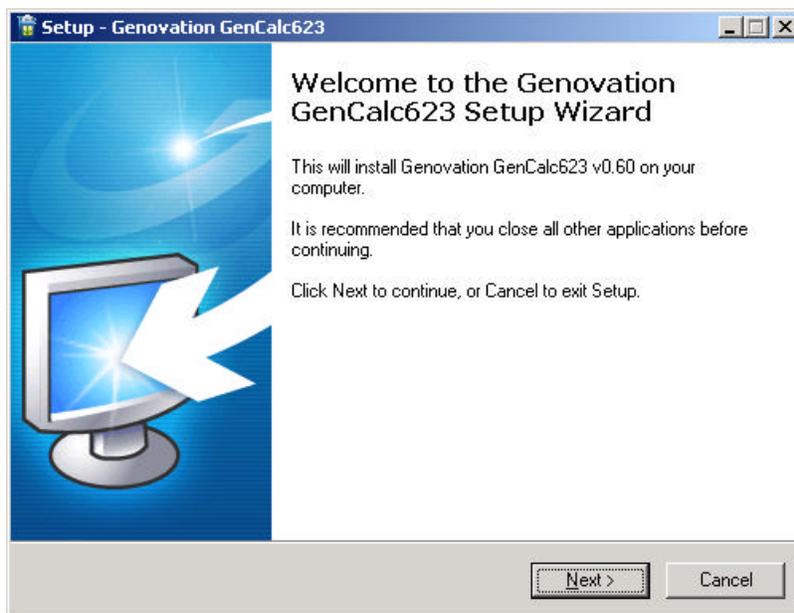
Test the Numeric Keypad

If you have not already plugged in your keypad, do so now. If the GenCalc623 application is visible, hide it by pressing on the **show/hide** (NumLock) key on the keypad. The LED should turn on[1], the GenCalc623 application should disappear and you can use the keypad as a number entry pad in the PC application of your choice. **The LED indicates number mode (like NumLock).**

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[1] You may have to press NumLock one or two times when you start the GenCalc623 application in order to synchronize the program and the keypad LED.

2: Using GenCalc623

Running GenCalc623

If GenCalc623 is already running, you should see the icon in the system tray.
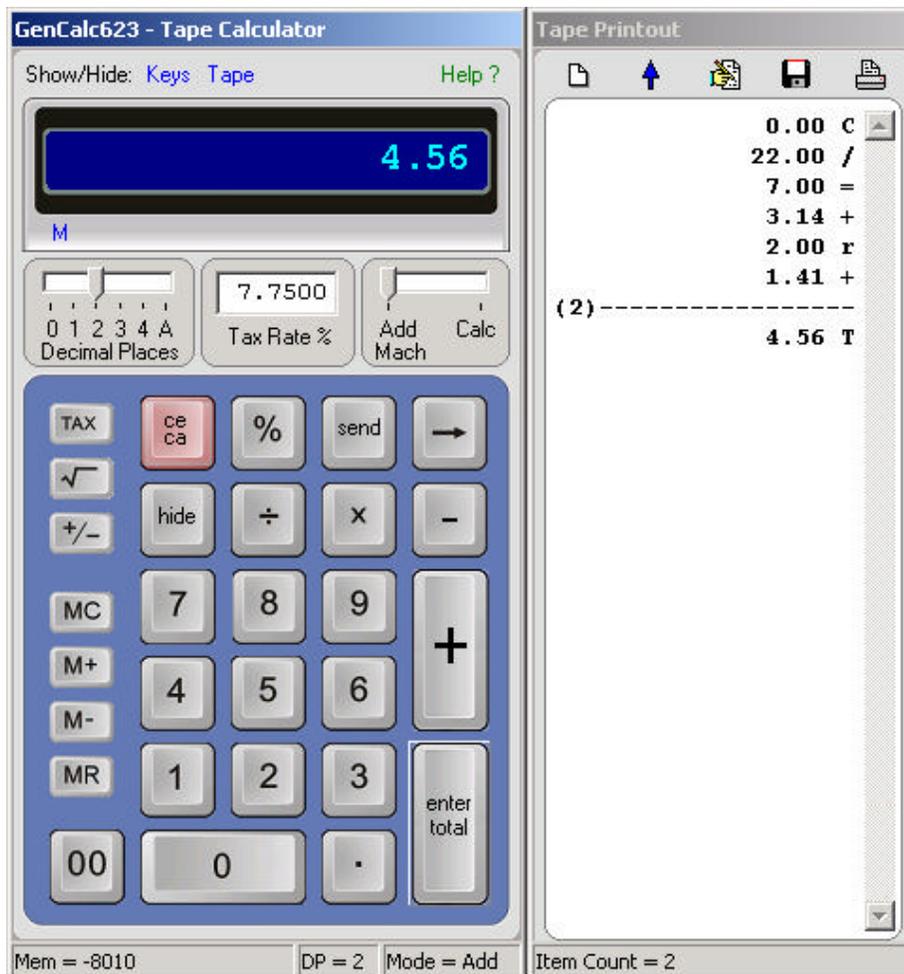
You can show the main window by right clicking on Show GenCalc.

Or, if GenCalc623 is not already running, launch the program manually by clicking on:

Start >> Programs >> Genovation >> GenCalc623 >> GenCalc623

Select COM Port

Set the COM Port for the program to match the physical COM port you have plugged the 623 keypad into:
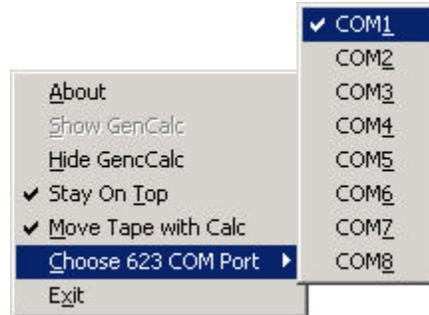
Modes of Operation

GenCalc623 has **three modes of operation**.

The first mode is simply a **numeric keypad** – one that isn't affected by the NumLock state on your PC, so it's *a NumLock Proof keypad* – it always works as a number pad.

The second mode, called "**Adding Machine**" mode, is used for *adding or subtracting values from a running total*. This mode can also be described as a Tape Calculator, Printing Calculator, Accountants Calculator or even a Cash Register.

The third mode of operation is a more traditional "**Four Function" (standard) calculator**. This mode uses the standard *number/operation/number/equals* format we all learned in school.

Onscreen Keypad Layout
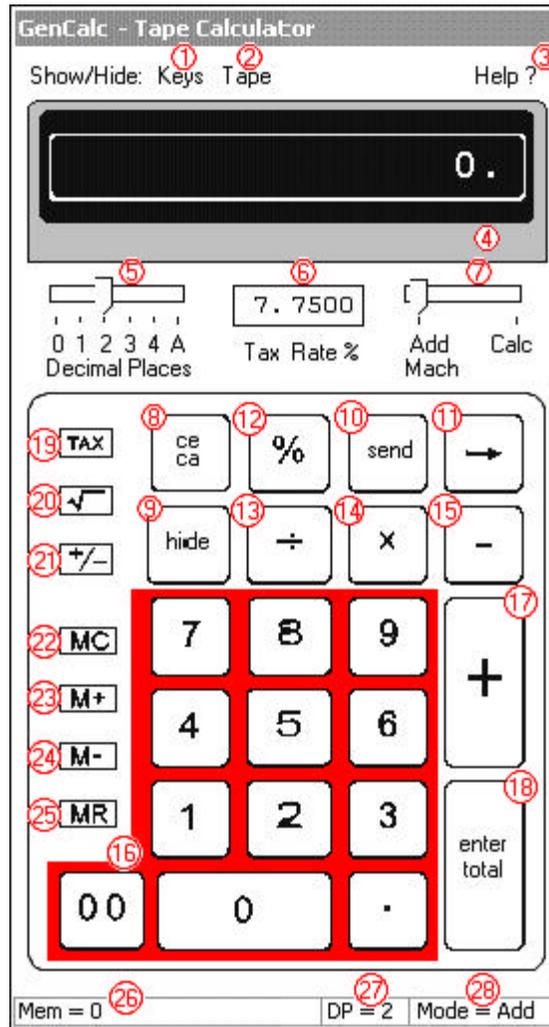
	Adding Machine / Calculator (GenCalc623 window is visible)	PC Num Pad Function (GenCalc623 window is hidden)
1, Show/hide onscreen keys	Hide the keys leaving only the calculator display visible.	
2. Show/hide onscreen tape	Hide the tape.	
3. Opens help file	Launches the help file PDF.	
4. Virtual calculator display	Main LCD.	
5. Decimal point selection	Choose 0, 1, 2, 3, 4 or Auto.	
6. Tax Rate setting	Enter your tax rate.	
7. Choose calculator type	Adding machine or standard "four function" calculator.	
8. Clear Entry/Clear All key	Press once to erase last entry, twice to clear everything.	Escape
9. Show/Hide GenCalc623	Hide GenCalc	Show GenCalc
10. Send and Close	Copies display value to previous PC application.	\
11. Backspace	Erase one display character.	Backspace
12. Percentage	Percentage calculation.	Tab

13. Divide	Division operation.	/
14. Multiply	Multiplication operation.	*
15. Subtract	Subtraction operation (-=).	-
16. Number entry	0 through 9, 00 and decimal pt.	0 through 9, 00 and decimal pt.
17. Add	Addition operation (+=).	+
18. Total/Equals/Enter	Total (adding machine) or equals (calculator).	Enter
19. Calculate Tax	Add tax amount according to Tax Rate.	
20. Square root	Square root operation.	
21. Change sign	Change sign of display value.	
22. Mem clear	Zeroes memory register	
23. Mem plus	Add value to memory.	
24. Mem minus	Subtract value from memory.	
25. Mem recall	Use value in memory register.	
26. Memory disply	Shows memory register content.	
27. Decimal places display.	Shows current DP setting.	
28. Calculator mode	Shows current calculator type.	

Number Entry and Editing

The keys 0 through 9, 00, decimal point and +/- allow you to enter numbers onto the main display.

You can correct your entry using the backspace (right arrow) key to erase the last digit and also by pressing the clear key once for "clear-entry" (ce) which clears the whole display value back to 0.

Pressing the clear key twice (ca) performs "clear-all" which resets all of the calculator registers to 0 (except the memory).

GenCalc623 uses an internal format of 12 digits plus 4 decimal places. Values are rounded up at half (0.5).

Numeric Keypad Keys

When the keypad is operating in number pad mode (LED is illuminated) the hardware keys operate as shown in the figure to the right.
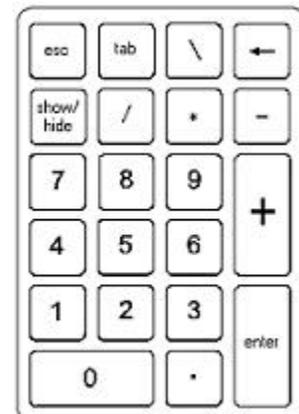
How the Calculator Modes Compare

1. Adding Machine Mode

    Unless you have experience with this type of calculator, its behavior might seem a little odd. For example, to add 2 plus 3 you would perform the following steps: 2 + 3 + Total. Which would result in 5.

    Here is what happens inside. Initially the running total is zero. Your first command is to take 2 and add it to the running total, your second command is to take 3 and add it to the running total. The final command, hitting the total key, returns the result. As you may have realized, total is roughly the equivalent of equals.

    Everything about this mode comes down to adding-to or subtracting-from the running total. Later in this manual we will describe how operations such as multiplication and percentage apply to this mode. It may be helpful to think of a cash register or balancing your checkbook as you learn about this mode.

2. "Four-Function" (Standard) Calculator Mode

    In this mode adding 2 and 3 would be done as follows:
    2 + 3 =. Which would again result in 5.

    What happens inside is that you are taking your first number (called operand 1) and saving it. Then you are taking an operator (addition) and saving that too. You then enter the second number (operand 2) and finally the equals key. Equals ties it all together so that the operator can be applied to operand 1 and operand 2 giving you the result.

Adding Machine: Addition and Subtraction

After you start up GenCalc623, or following a Clear-All (ca) operation, the running total is zero (0). To add/subtract values to/from the running total, enter the numeric value followed by the plus (+) or minus (-) key.

The running total is NOT cleared when you press enter/total so that you can continue to modify your result as if it were a sub-total. Clear-All zeroes the total.

Adding Machine Example 1: You have opened a new bank account and are entering in your first few transactions. You deposited two checks ($100.00 and $13.56) and you later made a $20 withdrawal from an ATM.

Key Presses	Tape
100	0.00 C
+	
13.56	100.00 +
+	13.56 +
20	20.00 -
-	(3)----------------
enter/total	93.56 T

Although the calculator display shows the running total after every operation, you need to press "enter/total" to copy it to the tape. The number three in brackets (3) indicates the number of items added-to and subtracted-from the running total.

You can also take advantage of repeated addition or subtraction. If you have several of the same entries to make (say, multiple $20 ATM withdrawals), GenCalc623 remembers the last value you entered, so you can repeat a transaction. So if you were to enter 20 - - - (press minus three times) then you would subtract 20 each time you pressed minus, which is 60 total.

Adding Machine: Multiplication and Division

Rather than perform repeated addition or subtraction you can use multiplication.

Multiplication and division do not affect the running total. They help you to create intermediate results that then need to be added-to or subtracted-from the running total.

Adding Machine Example 2: Same as Ex 1, except you make three $20 withdrawals using the multiplication feature. Press clear twice to reset the running total before you begin.

Key Presses	Tape
C	
C	0.00 C
100	
+	**100.00 +**
13.56	**13.56 +**
+	20.00 x
20	3.00 =
x	**60.00 -**
3	(3)----------------
-	53.56 T
enter/total	

So you can see on the tape that 20 x 3 is 60, and then it was subtracted from the running total. You don't perform an "equals" at any point; using the + or – key following the multiplication completes the intermediate result and automatically modifies the running total. The **bolded** items above indicate those lines that affected the running total (three items, two additions and one subtraction). If you had subtracted 20 manually three times using repeated subtraction then there would have been 5 items (two additions and three subtractions).

Adding Machine Example 3: You are at lunch with some friends and you want to divide the bill. Your contribution (ignoring tax and tip for the moment … see later in this document for more) is $15 for your entrée, $3 for your drink and one third of an $8 dessert.

Key Presses	Tape
15	
+	**15.00 +**
3	**3.00 +**
+	8.00 /
8	3.00 =
/	**2.67 +**
3	(3)-----------------
+	20.67 T
enter/total	

Adding Machine: Percentage and Tax

In order to add or subtract the percentage of a value to/from the running total multiply the value by the percentage then add or subtract the result from the running total.

Adding Machine Example 4: You are shopping for an item that costs $39.95. You want to know how much it will cost at checkout if the tax rate applied is 5%. First you should add 39.95 to the running total then add 5% more of it to the running total.

Key Presses	Tape
39.95	**39.95 +**
+	39.95 x
*	5.00 %
5	**2.00 +**
%	(2)-----------------
+	41.95 T
enter/total	

Percentage allows you to add or subtract a percentage amount. Using the built-in Tax Rate only allows for addition to the running total, but is somewhat faster to use. First you need to establish a Tax Rate by entering a value into the box. When you apply the Tax Rate by using the Tax function, the total is calculated automatically for you.

Adding Machine Example 5: What is the total cost of three items $10, $9.95 and $20 at a 5 % tax rate.

Key Presses	Tape
10	`10.00 +`
+	`9.95 +`
9.95	`20.00 +`
+	`Tax @ 5.0000% =`
20	`2.00 +`
+	`(3)----------------`
tax	`41.95 T`

Note that the item count only includes the number of items purchased (3), not the tax applied. If you prefer to see the total prior to the tax then press enter/total before pressing tax.

Key Presses	Tape
10	`10.00 +`
+	`9.95 +`
9.95	`20.00 +`
+	`(3)----------------`
20	`39.95 T`
+	`Tax @ 5.0000% =`
enter/total	`2.00 +`
tax	`(0)----------------`
	`41.95 T`

Decimal Places

Decimal places can be selected from 0 to 4 or auto (A). In Auto mode, the decimal is automatically placed to the left of the second-last digit. This purpose of this is to allow you to enter monetary values quickly without using the decimal place key. For instance it you wanted to enter $1.23 while in auto mode, just use the number keys 1, 2 and 3. The decimal place will automatically appear between the 1 and the 2. You can override the auto decimal place by entering the decimal manually.

Auto mode also allows for quantity purchases (unit/price calculations) using the multiply key.

Example 6: Determine the cost of 5 apples at $0.15 each using auto decimal mode.

Key Presses	Tape
5	5.00 x
x	0.15 =
15	0.75 +
+	

Notice that the five (5) was not modified with respect to the decimal point, but that the fifteen (15) became 0.15.

Tape Commands

The top row of buttons on the tape window provides several handy functions regarding the tape.   Starting from the left these are:

- o clear tape
- o tape feed
- o enter comment on tape
- o save tape to file
- o print tape

The tape itself is read-only, which ensures the integrity of the tape (it cannot be doctored on the tape form itself).   If you need to archive the tape, it is recommended to print to a PDF format file.

All of the above functions are obvious except for comment. The comment button allows you to enter either the time and date on the tape, or to include a short description of your choice.
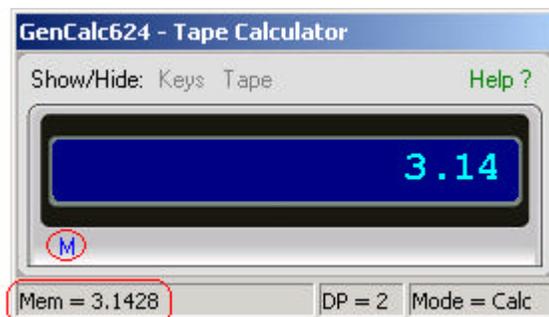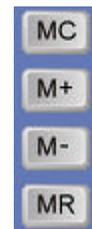
Finally, right clicking on the tape allows the tape content to be placed on the system clipboard.
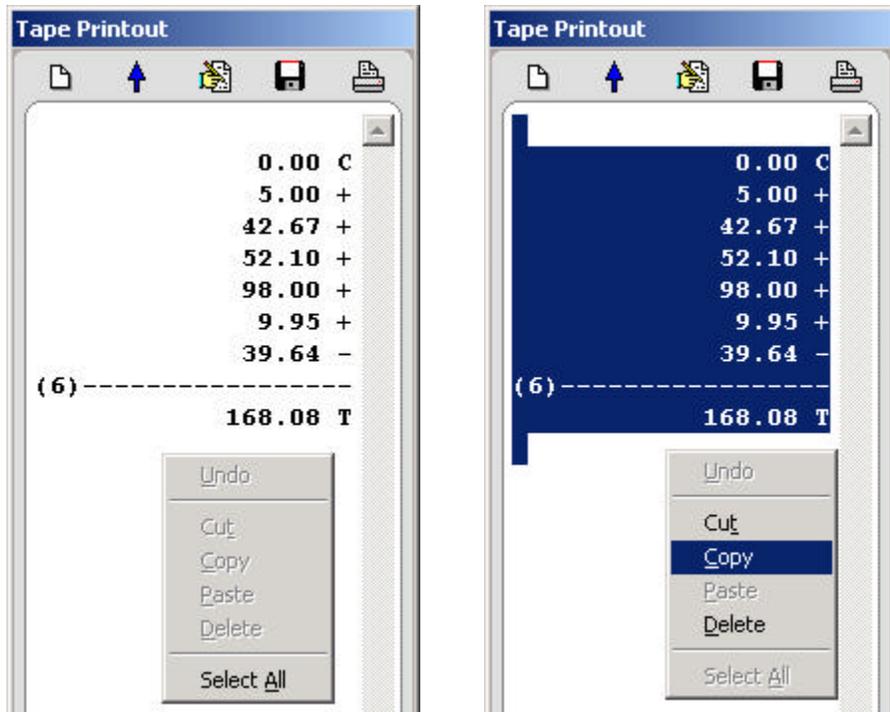
Memory

There are four buttons for manipulating the memory register, memory clear, add to memory, subtract from memory and memory recall.

The contents of the memory register are saved to disk between program invocations.

"Four Function" (Standard) Calculator Operation

The second calculator mode is similar to the built-in Windows calculator in operation, except this one has a set of dedicated hardware keys.

The binary operations (those that work on two numbers) such as addition, subtraction, multiplication and division, work in the same manner as a pocket calculator, albeit with a virtual paper tape.

Example 7: Example standard calculator operation. 2x4 plus 18/7 using the memory to store the intermediate calculation. Select calculator mode, press clear twice to clear the registers and press MC memory clear to clear out the memory.

Key Presses	Tape
C	
C	0.0 C
MC	
2	2.00 x
x	4.00 =
4	-------------------
=	8.00 T
M+	
18	18.00 /
/	7.00 =
7	-------------------
=	2.57 T
+	
MR	2.57 +
=	8.00 =

	10.57 T

Example 8: Perform the calculation $1.23 + $4.56 -$7.89 in standard four function calculator mode using auto decimal points.

Key Presses	Tape
C	
C	0.00 C
	1.23 +
123	4.56 =
+	-------------------
456	5.79 T
=	
-	5.79 –
789	7.89 =
=	-------------------
	– 2.10 T

"Four Function" (Standard) Calculator: Percentage

Percentage works differently from the Adding Machine mode. In standard calculator mode you choose whether to add, subtract, multiply or divide the percentage value.

> Example 9: Calculate 7.75% of 25 and then add it to 25. Note that you apply the add operator first. You can substitute it with - / or *.

Key Presses	Tape
25	0.00 C
+	25.00 +
7.75	7.75 %
%	1.94 =
=	--------------------
	26.94 T

"Four Function" (Standard) Calculator: Tax

Tax is simply a shortcut for calculating the percentage and adding it to the result.

> Example 10: Add two items of $10 and $15, then add tax at a rate of 7.75%. Make sure your Tax Rate value is filled in correctly before you try this example.

Key Presses	Tape
10	
+	0.00 C
15	10.00 +
+	15.00 +
Tax	Tax @ 7.7500% =
	1.94 +

	26.94 T

Square Root

The **square root** key performs the standard square root operation on the value currently on the display.

Send and Close

This useful for transferring your total amount from the GenCalc623 application to another application, like Excel, without having to copy and paste from the tape. Simply **press the send key** (\ )and the GenCalc623 window will close (hide) and the display value will be sent to the previous application as if you had typed it on the PC keyboard.

PC Keyboard Shortcuts

If you are in a situation where your keypad is not available you can still use the GenCalc623 application either by clicking on the onscreen keys or using the PC keyboard shorcuts in the following table:

PC Key	Operation
0 through 9	0 through 9
Letter capital O	00
.	.
~	+/-
Backspace	backspace
+	+
-	-
*	x
/	divide
Enter	enter/total
=	enter/total
r	square root
%	percentage
t	tax
m	MC
n	M+
o	M-
p	MR
c	ce/ca
h	Hide

Send must be performed on the hardware keypad or by clicking on the send key of the on-screen keypad.

Uninstallation

To remove the GenCalc623 application click on:

Start >> Programs >> Genovation >> GenCalc623 >> Uninstall GenCalc623