

CustomCalc

v 2.0

Owner's Manual



visacsoft

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Introduction

CustomCalc is the **most customizable calculator for the Palm OS®**. It allows you to place the function buttons that you use most, right where you prefer them to be, so you can execute them **in just one tap**, or click.

CustomCalc is a general-purpose calculator that allows you to enter numbers using parenthesis (algebraic) or RPN (as commonly used in HP calculators), in fixed-point, scientific, engineering, or floating-point notation formats.

It offers the following features:

- [Define you own keyboard layout](#), in other words, define your own calculator, assigning the functions that you use most to where you prefer, so you can get them in just one tap.
- [Math and Trigonometric Functions](#) (in degrees, radians, or gradients),
- an advance set of [Financial Functions](#) (TVM, Cash Flow, IRR, etc) with powerful worksheets,
- [Business Functions](#) for easy and faster all days calculations, tax, cost, currency, etc.
- [Statistical Functions](#) for the analysis of data series for up to two variables, and performs Linear Regression,
- [Date and Time Calculations](#), let you add or subtract days, calculate difference between days, multiply, add, subtract hours and convert to decimal notation,
- [Profiles](#): Give you the possibility to define multiple profiles, so you may have as many as you want customized calculators.

- [130 Unit Conversion Functions](#): in 10 groups: Length, Area, Volume, Energy and Work, Mass, Force, Power, Pressure, Speed, and Temperature conversion functions.
- **Number formatted** display: you will see on the screen the number in its own format, that is, a date like a date, a percent like a percent, a dimensional number with the unit appended (e.g. "35in", "10ft", "25.60cm"), etc.
- and a very simple but powerful [18-Memory Visual Management](#).

What's new in CustomCalc 2.0

- **COLOR**: if you have a color PDA, CustomCalc will display in color taking a little bit more of memory. You may customize any button foreground and background colors.
- **Palm OS5 compatible**: tested and running on PDAs with Palm OS5.
- **Two line display**: The two line display will show you at any time the contents of the *x* and *y* numbers, so you can easily view the numbers you are working with.
- **Three new business functions added**: Tax%, Tax+, and Tax-. For easy every day calculations.
- **Icons in the shortcut bar**, so you may easy access to the more common features like *Define Button*, *Profile*, *Copy*, and *Paste*. This will let you change your Profile in just three taps.
- **35 New unit conversions** in three groups: Speed, Energy & Work, and Power; plus a *Dimensionless* function to easy clear the dimension of the number displayed.

- Addition or subtraction between same units, the display will show you the unit (e.g. "in", "ft", "cm") appended to the number after the arithmetic.
- Sticky Shift preference: If selected, CustomCalc won't return to the Main Keyboard layout every time you select a button on any of the two Shift keyboard layout.
- New Floating Point display format, in addition to previous Fixed, Scientific, and Engineering number format.
- Fixed the percent (%) results, as a centesimal. Like, given a 25%, is now in the stack 0.25, so you may directly work with it.
- Improved [Percent](#) function in Algebraic or Sequential input mode, so it's easy adding, or subtracting the result from the original number.
- Fixed some bugs, and number rounding for display, as a stronger and improved Algebraic input mode.

We will appreciate your feedback and suggestions for improvements, at info@visacsoft.com.

1.- Installation

To install CustomCalc, use the installer application that comes with your Palm HotSync software, see you Palm User Manual if you need more help on this. You will need to install the CustomCalc.prc file, and, if you don't have it installed already, the MathLib.prc file.

The minimum requirements are Palm OS 2.0 or higher, 155K of free memory for the CustomCalc application (214K if you have a color PDA), and 50K of free memory for the MathLib.

MathLib is a free shared library that can be used by any Palm OS 2.0+ program that needs IEEE 754 double precision math functions. It is distributed under the terms of the GNU General Public License, and is freely available with full source code and documentation at the [MathLib Information web page](#). It is not a part of the CustomCalc program, and you do not have to pay for its use; a copy is simply included in this archive for your convenience.

2.- First Time Use

When you first run CustomCalc, you will be required to enter the registration code. You can get your personalized code registering the software by any of the various alternatives listed at www.visacsoft.com: OnLine, Phone, Fax, EMail or Standard Mail.

If you would like to evaluate this application you can tap, or click, at the "Evaluate" button. You will obtain a 30-day evaluating period license, after that, you will be asked to register to continue using CustomCalc.

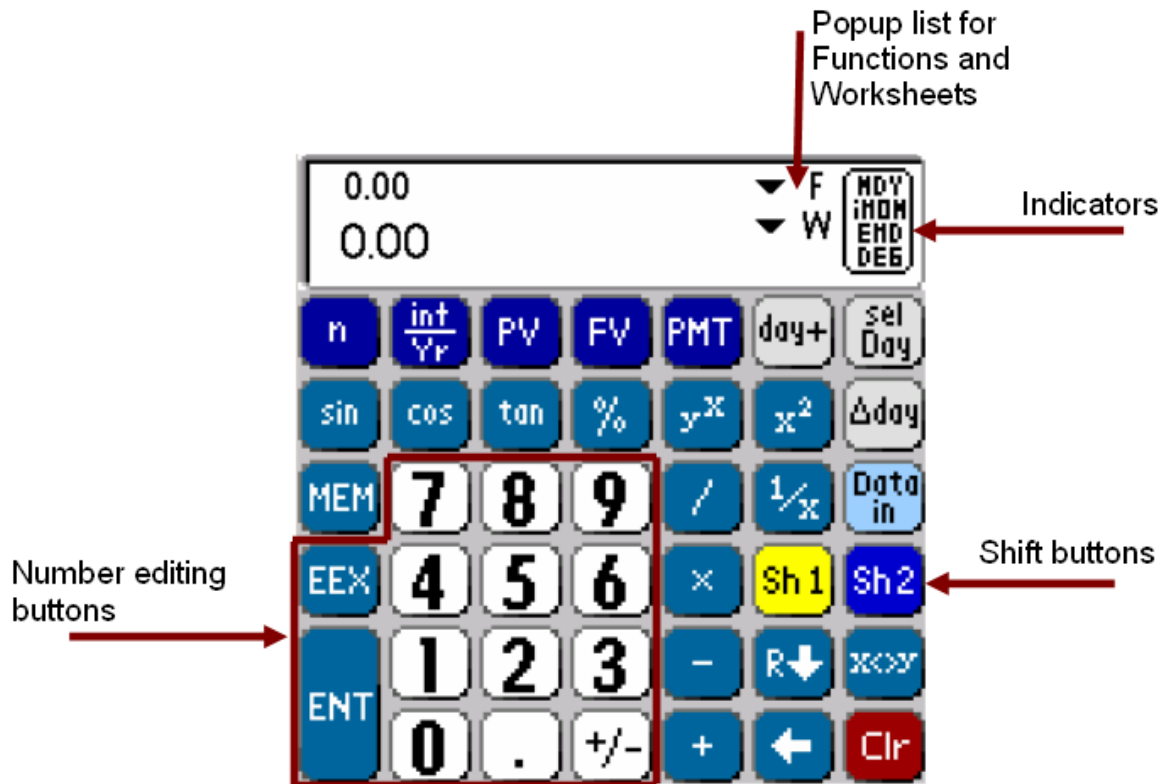
Once you enter your Registration code or press the Evaluate button, a screen will appear asking you to define, if you prefer CustomCalc to be automatically assigned to the calc button (or Star button), near the Graffiti input area. You can answer Yes or No, whatever you choose, you can change it later through the Palm OS Preferences, or through the [CustomCalc Preference Settings](#) screen.

Next, you will have to define your preferred input mode, from RPN, Algebraic or Sequential Algebraic. This option can be changed later, as described in the [CustomCalc Preference Settings](#) later in this manual.

After that, the CustomCalc calculator will appear showing the default keyboard layout. The [Setting Preferences](#) section of this manual will tell you how to customize your CustomCalc keyboards layouts at your convenience.

3.- Quick Look

A first look at the application will show the default keyboard layout, as shown:



Remember that any function can be reassigned to any button (including the numbers), so this keyboard layout can be changed later at your convenience.

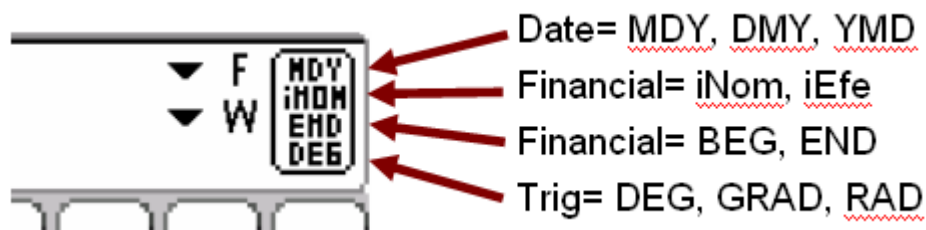
Popup List for Functions and Worksheets: This popup will show the list of grouped Functions (▼F) (Math, Trig, Business, Stat, Financial, Time, Conversions and Other) that let you select a specific Function (i.e. F→ Stat→ Random Number) or display the list for a Worksheet (▼W) (TVM, Cash Flow, Bond, Breakeven, Interest Converter, Statistics, and Edit Data Items).

Visual Memory Management (MEM): This feature can be reassigned to any button. It will bring up the Visual Memory Management screen that allows you to control the 18 numeric registers, in a very simple but powerful way. See [Visual Memory Management](#) for more information.

Number Editing Buttons: These are the standard number buttons for inputting numbers. There is also the $\boxed{EE^X}$ (“enter exponent”) button for entering large numbers like 1E9 or 1,000,000,000.00 or very small numbers like 1E-9 or 0.000000001. The number buttons may be reassigned to any button across CustomCalc.

Shift Keys: The Shift keys will shift between the Shift-1 or Shift-2 keyboard layouts. Each “physical” button can have up to three functions assigned, and you can reach anyone of them by tapping the Shift-1 or Shift-2 button first. Remember that CustomCalc is designed to help you reach the functions that you need most in just one or two taps.

Display Indicators: The Display Indicators will show your actual preferences:



CustomCalc Indicators

- Date format: It will display MDY, DMY, and YMD according to the Palm OS Preferences settings. See the Palm owner's manual for more details.
- Annual interest rate type: You may choose from Nominal annual interest rate, as used in the USA, or Effective annual interest rate as used in Europe, and Latin America. See the [CustomCalc preferences](#).



- Payments at the End or Beginning of a period: The indicator will show your selection for the payment mode in TVM calculations. See the [CustomCalc preferences](#).
- Degrees Mode: It will show the user preferences of the angle mode selected: Rad (radians), Deg (degrees) and Grad (gradients) to be used in trigonometric calculations. See the [CustomCalc preferences](#).

4.- Basic CustomCalc Operations

4.1.- CustomCalc Display

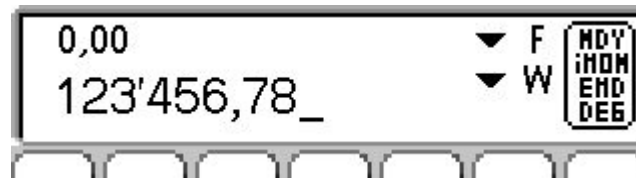


Number formatting with comma and decimal point



Note that the underscore (“_”) will mark that you are in Number Editing mode, when you press the “Enter” button  (if you are in RNP input mode), or a function button (like  if you are in the Algebraic input mode); the Number Editing mode will end. See [Number Editing Modes](#) for more details.

Also note that the automatic thousand separators will appear as soon as you type a number equal or greater than one thousand.




The CustomCalc number formatting can be customized. The user preferences settings in the Palm OS Preferences will affect the CustomCalc display. For example, if you have selected to display the comma as your decimal separator and an apostrophe as your thousand separators in the Palm OS Preferences, the CustomCalc display will show something like this:











Number formatting with apostrophe and decimal comma

You will also note, that the Decimal Point button , will change to the Decimal Comma button  automatically.

4.2.- Number Editing Mode

When you type in a number, an underscore “_” will appear at the end of your typing, indicating that you are in Edit Mode. Up to 11 digits can be entered to CustomCalc, after that, you can type the  (“enter exponent”) button for the exponent. In order to enter a negative exponent you will have to type the  button after the  button. For example:

- 1,000,000,000.00 will be typed: 1  9 or directly:  9
- 0.000000001 will be typed: 1   9 or directly   9.

There is also a backspace button , which allows you to correct the last number entered. If you type Backspace () when you are not in Number Editing Mode, that button will perform a “Clear x” function.

If you prefer, you may type the numbers from a keyboard accessory, or draw the numbers in the Graffiti area, instead of tapping the buttons, so these buttons can be used for other functions.

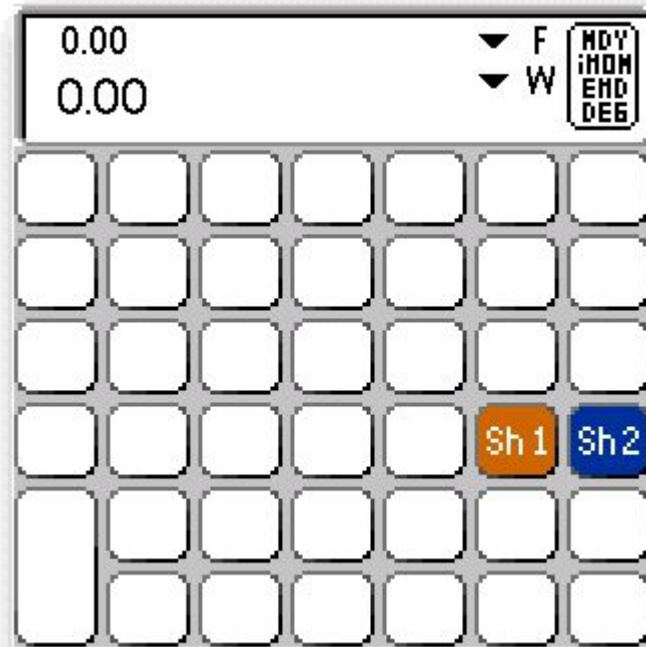
4.3.- CustomCalc Button Customization

The **concept** behind CustomCalc is:

get to your most used functions in just one tap,

or click; therefore you may define the keyboard layout as you prefer. The name CustomCalc comes from *Customizable Calculator*, and it is customizable to the limit.

The “real” CustomCalc keyboard layout is a **white page**; all the buttons are available for your definition.




The “real” CustomCalc Keyboard Layout

The only two buttons that cannot be reassigned are the Shift-1 and Shift-2 buttons.

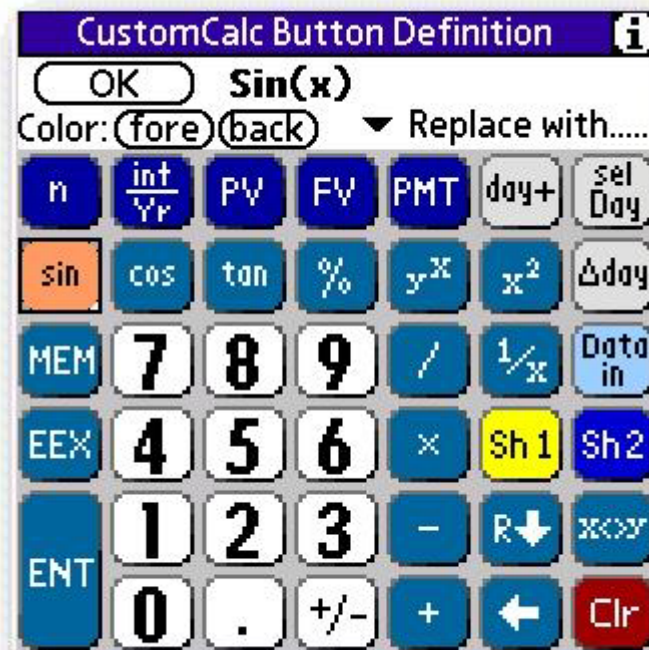
Also note, that this is the “Main” layout, you have another 39 buttons in the Shift-1 layout, and another 39 buttons in the Shift-2 layout to be re-defined; so there are a total of 117 buttons available, to define **your personal calculator**.

You can even wipe off the number and basic arithmetic buttons, and draw them in the Graffiti area. CustomCalc will recognize from 0 to the 9, “.”, “,”,

+, -, *, /, (,), =, e, E, "Enter" or CR, and Backspace characters, or type them from a keyboard accessory.

To assign a function to any button, just select *Define Buttons* from the *Options* menu and select the *Define Buttons* option; or use the Shortcut /B; or tap the  icon in the ShortcutBar (see [Shortcut Tool Bar](#) later on this manual).

This will bring you the Button Definition screen. There you may choose any button (you may tap on the Shift-1 or Shift-2 buttons to change to the shift layouts).



CustomCalc Button Definition screen with the *sin* button selected

Once you have selected a button, CustomCalc will display the actual assignment, and will display two buttons to change the foreground and background color (if you have a color PDA) and a popup list with all the functions grouped as explained before.


Just select one of the functions from Math, Trig, Business, Stat, Financial, Time, Conversions, or Other. When you are finished just press the OK button, and CustomCalc will return to the normal operating mode with your new function assigned to the button you just defined.

That's all, is that easy to define your own calculator layout based on your own needs.

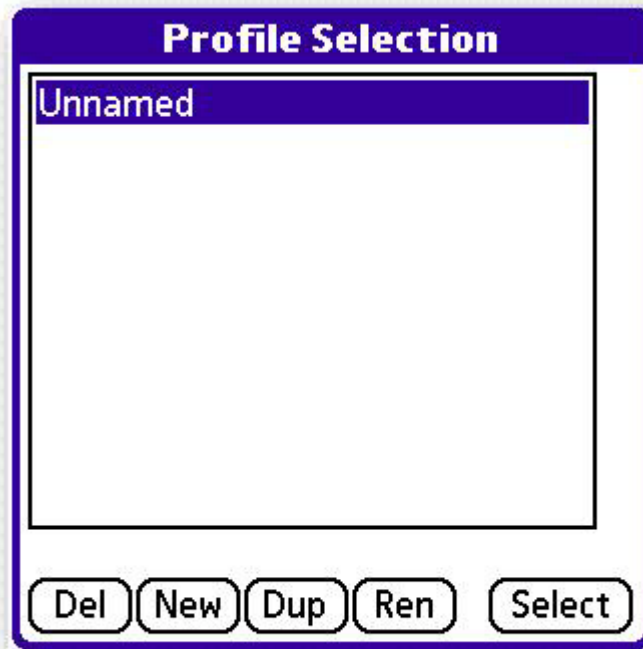
4.4.- Profiles: Define more than one Layout

As you have just read on the previous chapter, you may define your own keyboard layout on CustomCalc, now this feature will allow you to create as many layouts as you want.

For example, you may define one button layout and store it as "Finance" profile, another could be a "Conversion" profile,

To create a new Keyboard Layout just go to the *Options* menu and select the *Profiles* option; or use the Shortcut /F, or tap the  icon in the ShortcutBar (see [Shortcut Tool Bar](#) later on this manual).

This will bring you the Profile Selection screen. There you may choose any of the options: Del, New, Dup, Ren, Select.

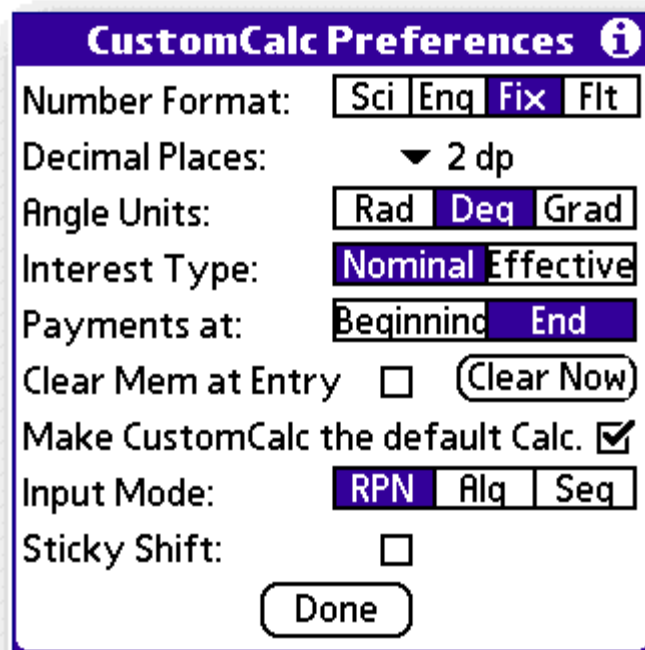


CustomCalc Profile Selection screen

- Del:** will delete the profile selected; be careful it won't ask for confirmation.
- New:** will create a new profile with the standard button layout. The new profile will be named *New Profile 1* and so on.
- Dup:** will duplicate the selected profile, the new profile will be named with the same name with a *Copy* appended to the end of the name.
- Ren:** will allow you to rename the selected profile, you may put any name to the profile, with a maximum of 22 characters.
- Select:** will select the highlighted profile and will return to the main screen with the Button Layout selected ready for use.

4.5.- Setting Preferences

To get to the CustomCalc preferences you can go through the Menu→ Options→ Preferences; or tap the Indicator button in the CustomCalc display. The preferences screen will show up.



CustomCalc Preferences

Number Format: You can select the number format from Sci (scientific), Eng (engineering), Fix (fixed), and Flt (Floating Point) format. For example the number 123,456.789:

- Sci format (2 decimals): will show: 1.23E05
- Eng format (2 decimals) will show: 123.46E03
- Fix format (2 decimals) will show: 123,456.79
- Float format will show: 123,456.789

Note that when you select Fixed or Floating format and the number has more than 12 digits, it will be shown in Sci format.

Also note that CustomCalc by default will round the number to the decimal places selected for display, all the calculations are done internally in 16 digits precision.

Decimal Places: With this option you can select the number of digits that CustomCalc will show after the decimal point, with a maximum of 12 digits.

Angle Units: Select the angle units for the trigonometric functions. The indicator in the display will reflect the unit selected.

Interest Rate Type: *Annual Nominal Interest* rate (commonly used in USA) calculates the monthly interest rate dividing the annual interest rate by 12, the number of months in a year (or by the number stored in $\frac{\text{Pmt}}{\text{Yr}}$).

In other regions, like Europe, and Latin America, the *Annual Effective Interest* rate is more commonly used. It means that you must consider the year as a monthly compounding period (or by the number stored in $\frac{\text{Pmt}}{\text{Yr}}$).

The period interest for the financial calculations will be calculated taking this selection and the number of periods per year introduced by the user in $\frac{\text{Pmt}}{\text{Yr}}$ (by default 12, equivalent to 12 months). See [Financial functions](#) for more information.

Payments at: Here you may select if the payments will be done at the beginning of the period (payments in advance or annuities due), or at the end of the period (payments in arrears, or ordinary annuities). Calculation involving payments in advance, yield different results than calculations involving payments in arrears.

Clear Memory at Entry: there is a Check Box and a button.





If you select the Check Box: the stack, the memory registers, the financial registers, the statistical registers, and the worksheets registers, will be cleared every time you enter CustomCalc.




Note that if you select the Check Box you will **not** be prompted to confirm the action at the entry point of the application.

The Clear Now: button will clear all the memory registers after you confirm the action.

Make CustomCalc the default Calc: Select it, if you want to make CustomCalc the default calculator, assigning the application to the calc button near the Graffiti input area.

Input Mode: CustomCalc has three input modes; you may choose the one that you prefer from RPN, Alg, and Seq Alg.

RPN or Reverse Polish Notation, is the input mode commonly used in the HP calculators. It avoids the use of the parenthesis and the equal sign, using instead the Enter button . It has the advantage that it uses fewer taps than the Algebraic input format. A common operation in RPN would be 3  4  2  that will give a result of 14.

Alg: Algebraic input mode uses the parenthesis and the equal sign. This input mode differs from the Sequential Algebraic (see next paragraph) in that it considers the operator precedence, thus 2  3  4  will give a result of 14. See the [Appendix B](#) for operation precedence.

Seq: or Sequential Algebraic input mode, is like Alg input mode, but it does not consider the operator precedence, thus $2 + 3 \times 4 =$ will give a result of 20.

Take note that in these last two modes you must close all the parenthesis before you end the operation with $=$.

5.- CustomCalc Menu

Tapping on the Menu button, next to the Graffiti input area, will bring up the menu with two choices, <Edit> and <Options>.

The <**Edit**> menu has the following commands:

- **Copy:** the copy command will copy the number displayed to the Clipboard, so you can export numbers to another application. Shortcut /C.
- **Paste:** the paste command will “type” letter by letter the contents of the clipboard, so you can input a number from another application. Shortcut /P.
- **Clear Memory:** this command will ask you to confirm clearing all the memory, including the Financial, Statistical, and Data Items. Shortcut /M.
- **Clear Financial TVM:** this command will clear only the TVM registers. Shortcut /T.
- **Graffiti Help:** this command will present the Graffiti help screen so you can review the drawing for each letter. Shortcut /G.

The **<Options>** menu has the following commands:

- **Profiles:** this command will show the Profiles list, so you may delete, create new, duplicate, rename and select any profile. See [Profiles](#) for more information. Shortcut /F
- **Define Buttons:** this command will bring up the Button Definition screen, where you can reassign any function to any button. See [Button Customization](#) for more information. Shortcut /B.
- **Restore Default Buttons:** this command will ask you to confirm to restore the default buttons assignment. See [Button Customization](#) for more information.
- **Preferences:** this command will bring up the Preferences screen. See the [CustomCalc Preferences](#) for more information. Shortcut /R
- **About CustomCalc:** will bring the credits, the copyright information, and the web page address: www.visacsoft.com. Remember to visit it frequently, so you can get the last updated version, as a registered user, **for free**.


5.1.- Shortcut Toolbar


In addition to the Menu, CustomCalc 2.0 has implemented the display of up to four icons in the Shortcut Toolbar.


The Shortcut Toolbar is displayed at any time drawing a diagonal up in the graffiti area; CustomCalc will display four icons, as shown below:




CustomCalc Shortcut Toolbar

The first icon  is the shortcut to the [Button Customization](#) screen.

The second icon  is the shortcut to the [Profiles](#) list screen.

The third icon  will execute the [Copy](#) command, copying the content of the display to the clipboard memory.

And the fourth icon  will execute the [Paste](#) command, typing the content of the clipboard memory to the calculator. Note that all letters will be ignored, except letter “E” that is assumed as an “exponent”, like 1.23E4

You may as always, draw the shortcut letter for any of these commands, instead of tapping on the icon, as explained in [CustomCalc Menu](#).


6.- Memory Management

CustomCalc offers 18 registers for data storage. Unlike any other calculator, the registers are not reached by register number, but by means of a visual register position. When you are working with numbers, sometimes it is difficult to remember the register in which you put the previous result. CustomCalc facilitates that, with the Memory Management table.

CustomCalc Memory Table			
0		0	
6.28		0	
0		0	
0		0	
0		3.14	
0		0	
0		0	
0		0	
0		0	
0		0	
Sto +	Sto -	Recall	Store
Sto x	Sto /	(ClrMem)	(Cancel)

CustomCalc Memory Management Table

To store a number, you must first select a position, and select a function, or vice versa. The function can be Recall, Store, Store+, Store-, Store \times , or Store/. If you have selected a memory position, and you press the ClrMem button, it will clear that position. If you have not selected any memory, it will ask you to confirm to clear ALL the registers.

It is important to note that there are no Rcl (recall) or Sto (store) buttons, they were replaced by only one button  (memory).

7.- Math and Trigonometric Functions

CustomCalc has all the Math and Trigonometric functions of a scientific calculator.

7.1.- Math Functions:

- Absolute value: 

- Addition: $\boxed{+}$
- Ceil: $\boxed{\text{ceil}}$ Smallest integral value no less than x.
- Division: $\boxed{/}$
- Exponential of x: $\boxed{e^x}$
- Exponential of x – 1: $\boxed{e^{x-1}}$
- Floor: $\boxed{\text{floor}}$ Largest integral value no greater than x.
- Fractional part: $\boxed{\text{Fp}}$
- Integral part: $\boxed{\text{Ip}}$
- Log base 10: $\boxed{\text{Log}}$
- Module remainder: $\boxed{\text{fmod}}$
- Multiplication: $\boxed{\times}$
- Nat Log of x: $\boxed{\text{Ln}}$
- Nat Log (x+1): $\boxed{\text{Ln+1}}$
- Power: $\boxed{10^x}$
- Rectangular to Polar coordinates: $\boxed{\text{Polar}}$. In RPN mode just enter the two numbers and press the $\boxed{\text{Polar}}$ button, the result will be in x and y. In Alg mode the result (two numbers) will be shown in the display. i.e. $3 \boxed{\text{Polar}} 4 \boxed{=}$ will return an angle of 36.87° and a resultant of 5.00.

- Polar to Rectangular coordinates: $\boxed{\text{Rect}}$. In RPN mode just enter the two numbers and press the $\boxed{\text{Rect}}$ button, the result will be in x and y. In Alg mode the result (two numbers) will be shown in the display. i.e. $5 \boxed{\text{Rect}} 36.87 \boxed{=}$ will return two numbers 3.00 and 4.00 in the display.
- x to the power of two: $\boxed{x^2}$
- y to the power of x: $\boxed{y^x}$
- Reciprocate: $\boxed{1/x}$
- Square root of x: $\boxed{\sqrt{x}}$
- Subtraction: $\boxed{-}$

7.2.- Percent functions:

CustomCalc has three functions to work with percents, as explained below:

- **Percent:** $\boxed{\%}$: you may calculate the percent of a number, and CustomCalc will leave the base number in the y register to continue working with it, i.e. if you want to calculate how much is 200 plus 15%:

in RPN when you type: $200 \boxed{\text{ENT}} 15 \boxed{\%}$ CustomCalc will leave 200 on the y register and the result 30 will be on the x register, so you may add or subtract to the original number (200) just pressing the $\boxed{+}$ or $\boxed{-}$ button, in the example, we press the $\boxed{+}$ and you will get the answer 230.



CustomCalc showing the y and the x registers

In Alg input mode, to calculate 200 plus 15%, just type: 200 $\boxed{+}$ 15 $\boxed{\%}$ at this point you will see in the display the original number 200 on top and the partial result 30 in the bottom, so when you type $\boxed{=}$ CustomCalc will add the two values giving you 230.

- **Percent Change:** $\boxed{\Delta\%}$ calculates the change as a part of the total. Use this function to calculate, i.e. What is the difference between 200 and 230,

in RPN just type: 200 \boxed{ENT} 230 $\boxed{\Delta\%}$ and CustomCalc will return 15.00% as a percent in the x register.

In Alg mode just type: 200 $\boxed{\Delta\%}$ 230 $\boxed{=}$ and you will get 15.00% in the display.



CustomCalc showing the result as a percent

Note that in CustomCalc v2.0 in contrast to previous versions; the values displayed as a percent, i.e. 15.00%, has a value of 0.15 in the stack so you can still work with them. CustomCalc will remember that it is a percent and will show it as 15.00%

- **Percent of Total:** $\boxed{\%T}$ calculates the percent as a part of the total. Use this function to calculate, i.e., how much is 170 of 200.

In RPN just type: 200 $\boxed{\text{ENT}}$ 170 $\boxed{\%T}$, CustomCalc will return 85.00% as a result.







In Alg mode just type: 200 $\boxed{\%T}$ 170 $\boxed{=}$ and you will get 85.00%. Just remember that the base number is entered first.

7.3.- Trigonometric Functions:




- Angle (x,y): $\boxed{\Delta}$ will calculate the angle as $\text{atan}(y/x)$

Note: If you are in Degrees mode, and you get an angle as a result, CustomCalc will display the degree symbol next to the number, like 37.00°

- Arc Cos(x): $\boxed{\text{acos}}$
- Arc Sin(x): $\boxed{\text{asin}}$
- Arc Tan(x): $\boxed{\text{atan}}$
- Cos(x): $\boxed{\text{cos}}$
- Hyperbolic Arc Cos(x): $\boxed{\text{hypacos}}$
- Hyperbolic Arc Sin(x): $\boxed{\text{hypasin}}$
- Hyperbolic Arc Tan(x): $\boxed{\text{hypatan}}$
- Hyperbolic Cos(x): $\boxed{\text{hypcos}}$
- Hyperbolic Sin(x): $\boxed{\text{hypsin}}$
- Hyperbolic Tan(x): $\boxed{\text{hypatan}}$

- Pi=3.14159265359: 
- Sin(x): 
- Set Degrees:  will change the trigonometric angle to degrees
- Set Gradients:  will change the trigonometric angle to gradients
- Set Radians:  will change the trigonometric angle to radians
- Tan(x): 

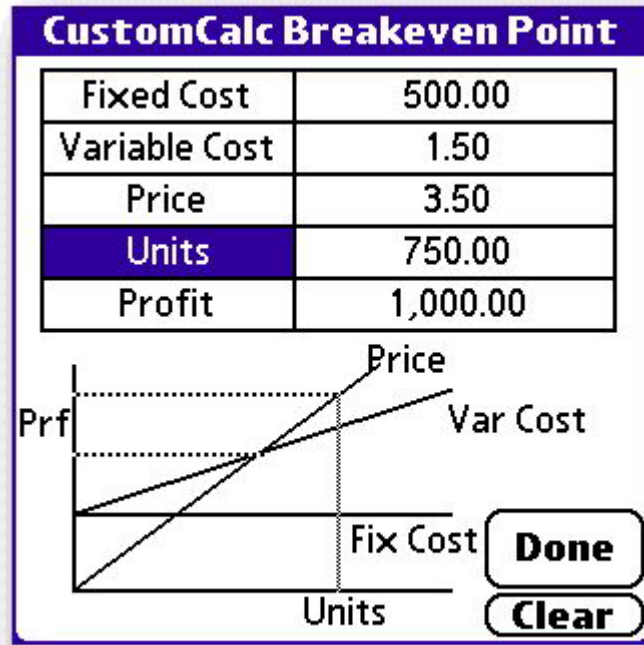
7.4.- Other Functions:

- Show:  will show the number with all the digits to a maximum of 12.
- Stack Roll Down  will roll the stack down
- Stack Roll Up  will roll the stack upward
- x<>y: Exchange stack x with stack y
- x<>z: Exchange stack x with stack z

8.- Business Functions

8.1.- Breakeven Analysis

CustomCalc also provides a Breakeven analysis worksheet, you can enter any variable and CustomCalc will calculate the selected variable based on the information entered.



Breakeven analysis worksheet

As shown in the figure, if you want to calculate how many units you have to sell for a profit of 1000, if your fixed costs are 500, the variable cost is 1.50, and the selling price is 3.50. Enter all the values tapping on the numbers, and tap on the “Units” label so CustomCalc will start calculation and give you the result in the right box.

In the example, if you think that 750 is too little and maybe you could sell 850 units, and want to know how much will be then your profit, just tap on the 750, and enter 850, later tap on the Profit label so CustomCalc will understand that you want that value. The answer 1,200, will display automatically.

8.2.- Cost, Margin and Sell Functions

There are three functions that will help in fixing the price of products.

The three functions *Cost*, *Sell*, and *Margin* are based on the values of the other two *Cost* is based on *Sell* and *Margin*; *Sell* is based on *Cost* and

Margin; and *Margin* is based on *Cost* and *Sell*. So you need to enter at least any two values and execute the third function for a result.

For example: if you want to know what the price should be, if your costs are \$65 and you want a margin of 20%. Type 65 and press the **Cost** button, the screen will display “Cost = 65.00”; then type 20 and press the **Marg** button, the display will show “Mrg = 20.00%”. Now with the two values entered you may calculate the third: just by pressing the **Sell** button, the display will show “Sell = 81.25”.

Remember that if you don't have assigned these functions to any button, you may always execute them through the *Function* popup list (▼F), in the Business group.

8.3.- Tax Functions

New in CustomCalc 2.0, are three functions that will help calculate prices with or without taxes in a very quick way, **in just one tap**; they are **Tax**, **Tax+**, and **Tax-**.

The first one **Tax** or “Tax Rate Storage” will save the tax rate for future use, just type, i.e. 6 **Tax** and CustomCalc will confirm you by displaying “Tax = 6.00%”.

Note that the number will change to a percent so the number displayed is 6.00% and the number in the stack is 0.06 **not** 6.00

The second **Tax+** and third **Tax-** function will add or subtract the stored rate to the number in the display, i.e. How much will be \$18.00 plus 6% tax? Just type 18 **Tax+** and CustomCalc will display 19.08 as a result.

8.4.- Currency Conversion Functions

As with the tax functions, the Currency Conversion Functions are designed so you may get the result **in just one tap**, they are:

- Currency Factor: $\boxed{\text{Curr}}$ Will store the currency factor for future use. i.e. to store the rate 1.27 \$/€ (dollars per euros) just type 1.27 $\boxed{\text{Curr}}$, the display will confirm "Curr = 1.27"
- Convert from Currency: $\boxed{\text{Curr}}$ will multiply the number by the currency factor. i.e. to convert 250€ back to US\$ just type: 250 $\boxed{\text{Curr}}$, CustomCalc will display 317.50 as a result.
- Convert to Currency: $\boxed{\text{Curr}}$ will divide the number by the currency factor. i.e. to convert \$500 to Euros just type 500 $\boxed{\text{Curr}}$, CustomCalc will display 393.70 as a result.

9.- Financial Functions

9.1.- Time Value of Money

CustomCalc offers two ways to reach TVM functions: the keyboard, and the worksheet.

When using the keyboard, just introduce the value and press the appropriate button, for example:

Calculate the payment of a 36-month loan, with a nominal annual interest of 8%, of \$20,000.

- First check the indicator, to see if you are in "END" (payments at the end of the period), and "iNOM" (nominal annual interest rate) are lit. If
-

not you will need to tap the indicators button and change to END and Nominal.

- Then, introduce the periods, typing 36 and pressing the n , the display will show: “n = 36.00”
- Introduce the annual interest, typing 8 and tapping on $\frac{i}{Yr}$, the display will show: “i/Yr Nom = 8.00%”
- The present value, enter 20,000 and tap on PV , the display will show: “PV = 20,000.00”
- The future value, enter 0 and tap on FV , the display will show: “FV = 0.00”
- The number of periods or payments per year enter 12 and tap on $\frac{Pmt}{Yr}$ (it may be in the Shift-1 layout), the display will show: “PMTs/Yr = 12.00”
- To end, tap on PMT , CustomCalc will give the result: -626.73 and the display will show: “PMT = -626.73”, the result will be in the stack.

To see the whole panorama, you can tap on the Worksheets popup list ($\blacktriangledown W$) and select TVM. To calculate the PMT you have to select the “Payment” label, any change you make to the other parameters will automatically change the Payment result.

CustomCalc TVM Worksheet		
Present Val	20,000.00	
Future Val	0	
i/Yr Nom	8.00 %	
num Periods	36.00	
Payment	-626.73	
Periods / Yr	12.00	
Payment at:	Begin	End
Annual Int.	Nominal	Effective
Interest Type	Simple	Compound

Done
Clear




CustomCalc TVM worksheet

If you change the amount of the Payment, this variable will be deselected, and you will have to select the variable which CustomCalc has to calculate automatically. In the example: if you want to pay only 500 monthly, select the payment amount (tap on the -626.73) and put -500, then you will need to select (for example) the "Present Val" variable, that will show: 15,955.90 for the largest loan amount that may be carried.

Feel free to try the many options, selecting a compound interest, periods per year, etc.

9.2.- Cash Flow Analysis

CustomCalc provides functions for the two most widely used methods of cash flow analysis: NPV (net present value) and IRR (internal rate of return). By definition, the Cash Flow analysis is based on a series of data or a list of payments and deposits in determined periods. You can edit that information using the [Edit Data Items](#), or by tapping or clicking the Edit Data button in the Cash Flow worksheet.

From the keyboard you can introduce the data typing the number and the  button. Once you have introduced all the data items you can press NPV (net present value) or IRR (internal rate of return). Please take note that these two values will return a result based on the annual rate already introduced to the CustomCalc  (interest per year), the Nominal or Effective rate, and the  (payments or periods per year). Also some cash flows will not have a unique result and CustomCalc will not get a correct answer.

9.3.- Bond Analysis

CustomCalc also provides a Bond analysis sheet, with all the variables needed, Settlement (purchase) date, Maturity (redemption) date, Coupon Rate (also called face rate), Redemption Value (that can be different than \$100), Yield to Maturity, Price, % of par, the Accrued Interest, and the Total Price.

CustomCalc Bond Calculation	
Settlement :	Oct 24, 2000 Tue
Maturity :	Dec 31, 2015 Thu
Coupon Rate :	6.75 %
Redemption Val :	100.00
Yield to Mat :	8.25 %
Price :	87.13
as % of Par :	87.13 %
Accrued Int :	2.12
Total Price :	89.25
▼ Actual	▼ Semi-Annual
Int. Nom Efec	Clear Done

CustomCalc Bond Analysis

The Bond can be calculated in base of a 30/360 or actual year, and annual, semi-annual, quarterly, and even monthly coupons.

9.4.- Interest Converter worksheet

In the CustomCalc application, there is also an Interest converter worksheet. You can select any annual division, and CustomCalc will calculate all the other annual divisions. You can also select a Nominal or Effective Interest rate, and the days per year.

CustomCalc Interest Converter		
Annual	13.00 %	
Semi-annual	6.50 %	
Quarterly	3.25 %	
Bi-Monthly	2.17 %	
Monthly	1.08 %	
Dayly	0.04 %	
Interest Type	Nominal	Effective
Days / Year	360	365 Actual
<input type="button" value="Done"/>		
<input type="button" value="Clear"/>		

CustomCalc Interest Converter worksheet

9.5.- Miscellaneous Financial Functions

Other Financial functions that are executed directly from the keyboard are:

- Effective Rate per Year: $\boxed{\overrightarrow{iEfe}}$ converts x from nominal annual interest rate to an effective annual interest rate, according to the stored number of periods per year.

- Nom Rate per Year: \boxed{iNom} converts x from nominal annual interest rate to an effective annual interest rate, according to the stored number of periods per year.
- Annual Rate: \boxed{iAnu} converts x from a period rate to annual rate according to the Nominal/Effective setting and the stored number of periods per year.
- Period Rate: \boxed{iPer} converts x from an annual rate to period rate according to the Nominal/Effective setting and the stored number of periods per year.

10.- Statistical Functions

The Statistical Functions can be executed from the keyboard or from the worksheet.

If you prefer to execute them from the keyboard, you may use these buttons:

- $\boxed{\Sigma+n}$ Will return the number of data items entered.
- $\boxed{\bar{x}}$ Will return the Mean of the x variable.
- $\boxed{\Sigma x}$ Will return the sum of the x variable.
- $\boxed{\Sigma x^2}$ Will return the sum of the quadratics of the x variable.
- $\boxed{Var x}$ Will return the Variance for the x variable.
- $\boxed{\sigma x}$ Will return the Standard Deviation for the x variable.
- $\boxed{\bar{x}_w}$ Will return the Weighted Average for the x variable.

- \bar{y} Will return the Mean of the y variable.
- Σy Will return the sum of the y variable.
- Σy^2 Will return the sum of the quadratics of the y variable.
- $\text{Var}y$ Will return the Variance for the y variable.
- σy Will return the Standard Deviation for the y variable.
- \bar{y}_w Will return the Weighted Average for the y variable.
- Σxy Will return the sum of the multiplication of x and y variables.

To see the Statistical Worksheet, you would need to tap, or click, on the Worksheets popup list ($\blacktriangledown W$), and select the Statistics option.

CustomCalc Statistics			
n	:	13.00	
Mean x	:	13.65	
Sum x	:	177.50	
Sum x ²	:	3,130.25	
Weight Mean x	:	19.11	
Std Dev x	:	7.67	
▼ Linear		R	0.92
A	-7.40	B	2.01
X	15.00	Y	22.70
<input type="button" value="Edit Data"/>		<input type="button" value="Done"/>	

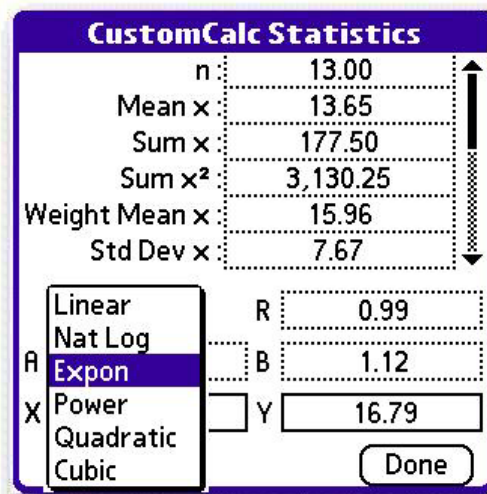
CustomCalc Statistics worksheet

Also in the Statistics worksheet, you will find the Linear Regression analysis. You can select the curve that best suits to your data from:

- Linear: $y = A + B x$
- Natural Log: $y = A + B \text{Ln}(x)$

- Exponential: $y = A B^x$
- Power $y = A x^B$
- Quadratic $y = A + B x^2$
- Cubic. $Y = A + B x^3$

Note: Neither the Quadratic nor the Cubic formula are of the form $Y = A + Bx + Cx^2 (+Dx^3)$



CustomCalc Statistics worksheet LR options

The value of **R** represents the Correlation Factor, as it gets closer to 1 or -1 from 0, the better the fit.




The calculation uses Ln(x) to calculate the Logarithmic and Power curve, and Ln(y) to calculate the Exponential and Power curve, thus those values can't be smaller or equal to 0.

After entering an "x" or "y" value CustomCalc will calculate automatically the corresponding value, using the Linear Regression selected. For example, if you select Quadratic Adjustment, and enter an "x" value, CustomCalc will calculate the "y" value automatically.

10.1.- Data Items List Edit

In this option, CustomCalc also allows you to enter and edit the data items through the keyboard, or through the Edit Data Items worksheet.

Entering and editing the data items through the keyboard is quick and easy using the next buttons.

-  Will take the numbers from the stack (x and y) and append them to the Data list, adding one to the total data items (n)
-  Will remove the last data items appended to the list, reducing the total data items (n) by one.
-  Will call the Edit Data Items worksheet.

CustomCalc Edit Data Items		
0	1.00	3.50
1	4.00	4.01
2	6.00	5.75
3	8.00	8.50
4	11.00	11.20
5	11.00	13.00
6	15.00	16.00
7	15.50	18.00
8	17.00	20.00
9	18.00	25.00
10	21.00	30.00
11	24.00	45.00

CustomCalc Edit Data Items worksheet

To edit any number entered, just tap on the number, CustomCalc will bring it for your editing, to Del(ete), Ins(ert), Dup(licate) any pair of data, just type index the number to the left, and tap on the function you need. "New" will append a blank pair of data at the end, "Clear" will ask if you want to clear all the data entered. Press "Done" when finished.

Note that if you are entering data for a Cash Flow analysis, the “y” value has no significance, that is why, when you call the “Edit Data” from the Cash Flow worksheet you will only see one column.

CustomCalc has a great capacity to hold pairs of data items, with a total of 1000 pairs as a maximum.

10.2.- Additional Statistical functions


- Combinations (x,y): C_y^x will calculate the combinations of x in y.
- Factorial = n!: $n!$ will calculate the factorial of x.
- Permutations (x,y): P_y^x will calculate the permutations of x in y.
- Random number: $Rand$ will generate a random number
- Statistical Worksheet: $Stat$ will present the Statistical worksheet.

11.- Unit Conversions

CustomCalc has seven groups of dimensional conversions; each dimensional unit has a button that you may assign to where you prefer so you may execute it in just one tap (or click).

First you have to define the origin unit and then select the final unit within the same group.

For example: 12 inches to centimeters: type 12 and then press the in button (if you have it assigned) or press the *Functions* Popup list ($\blacktriangledown F$) then the *Conversion* option, then the *Length* group and then the *Inch* option. The display will show “12.00 in”

Once you have defined the origin unit select the destination unit, press the  (if you have it assigned) or press the *Functions* Popup list (▼F) then the *Conversion* option, then the *Length* group and then the *Centimeter* option. The display will show “30.48cm”

11.1.- Length

The Length group has the next units:

- Inches (in)
- Feet (ft)
- Yards (yrd)
- Miles (mi)
- Nautical miles (ntl mi)
- Microns (um)
- Millimeters (mm)
- Centimeters (cm)
- Meters (m)
- Kilometers (Km)

11.2.- Area

The Area group has the next units:

- Square inches (in²)
- Square feet (ft²)

- Square yards (yrd²)
- Square miles (mi²)
- Acres (acre)
- Square nanometers (nm²)
- Square millimeters (mm²)
- Square centimeters (cm²)
- Square meters (m²)
- Hectares (ha)
- Square Kilometers (Km²)

11.3.- Volume

The Volume group has the next units:

- Fluid ounces (fl oz)
- Pints (pint)
- Quarts (quart)
- Gallons (gal)
- Imperial (UK) gallons (gal Imp)
- Cubic centimeters (cc), or milliliters (mL) (cm³)
- Liters (L)
- Cubic meters (m³)

- Cubic inches (in³)
- Cubic feet (ft³)
- Cubic yards (yrd³)
- Teaspoons (teas)
- Tablespoons (tbls)
- Cups (cup)
- Imperial (UK) fluid ounces (floz Imp)
- Imperial (UK) pints (pint Imp)
- Imperial (UK) quarts (qrt Imp)
- Barrel (barrel)
- Acre-feet (acr-ft)

11.4.- Mass

The Mass group has the next units:

- Pounds (lb)
- Ounces (oz)
- Kilograms (Kg)
- Grams (g)
- Milligrams (mg)
- Metric Tons (ton)

- Short Tons (ton shrt)
- Long Tons (ton lng)
- Grains (gr)
- Dram (dram)
- Troy Dram (dram troy)
- Troy ounces (oz troy)
- Troy pounds (lb troy)
- Stones (stone)
- Slugs (slug)
- Metric Carats (carat)
- Electro Volts (eV)
- Kilo Electro Volts (KeV)
- Mega Electro Volts (MeV)

11.5.- Force

The Force group has the next units:

- Ounce force (oz f)
- Pound force (lb f)
- Kips (kip)
- Poundal (pndl)

- Short Ton force (tonf short)
- Dyne (dyne)
- Milli Newton (mN)
- Newton (N)
- Kilo Newton (KN)
- Gram force (gf)
- Kilogram force (Kg)
- Kilogram-meter per second (Kg-m/s)
- Metric Ton force (Tonf)
- Joule per centimeter (J/cm)
- Joule per meter (J/m)

11.6.- Pressure

The Pressure group has the next units:

- Pounds force per square inch (lbf/in²) (psi)
- Pounds force per square feet (lbf/ft²)
- Inches of Mercury at 32°F (in Hg)
- Inches of Water at 32°F (in H₂O)
- Kips per square inches (kip/in²)
- Atmospheres (atm)

- Milli Bars (mbar)
- Bars (bar)
- Newton per square millimeters (N/mm²)
- Newton per square meters: Pascal (Pa)
- Kilopascal (KPa)
- Mega Pascal (MPa)
- Grams force per square centimeters (gf/cm²)
- Kilograms force per square centimeters (Kgf/cm²)
- Kilograms force per square meters (Kgf/m²)
- Dynes per square centimeters (dyne/cm²)
- Millimeters of Mercury (mm Hg)
- Millimeters of Water (mm H₂O)
- Torricelli (torr)

11.7.- Temperature

The Temperature group has the next units:

- Fahrenheit (°F)
- Centigrade (°C)
- Kelvin (°K)
- Rankin (°R)

12.- Date & Time Functions



12.1.- Date Functions

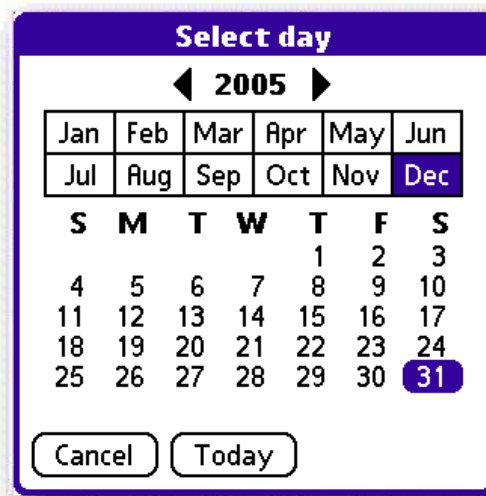
- Day + x: $\boxed{\text{day+}}$ will add x days to the date introduced. For example, Nov 16, 2001 plus 45 days, type the date (for this example the date format of the Palm is MDY): 11.172001 $\boxed{\text{ENT}}$ (if you are in RPN input mode) 45 $\boxed{\text{day+}}$, the display will show Dec 31, 2001 Mon, the result in the stack will be 12.312001

If you are working with Alg input mode, you must type the $\boxed{=}$ at the end, for example, 11.172001 $\boxed{\text{day+}}$ 45 $\boxed{=}$. The display will show Dec 31, 2001 Mon.


- Day – x: $\boxed{\text{day-}}$ this function is very similar to the previous one, but it subtracts the x days to the date.
- Difference Between Days: $\boxed{\Delta\text{day}}$ this function will calculate the number of days between two dates, for example, from Jan 1, 2001 to Jul 31, 2001, type 7.312001 $\boxed{\text{ENT}}$ 1.012001 $\boxed{\Delta\text{day}}$ (if you are in RPN input mode), the result 211 will be in the stack. In Alg 7.312001 $\boxed{\Delta\text{day}}$ 1.012001 $\boxed{=}$ 211 will be shown on the screen.
- Day of Week (DOW): $\boxed{\text{DOW}}$ will return the Day Of Week for the date introduced, i.e. what day of the week will be Dec 25, 2005, type 12.252005 $\boxed{\text{DOW}}$, the display will show “Sun” the result in the stack will depend on what *Week Starts* day you have selected in the Palm OS Preferences (Sunday or Monday), If you have selected Sunday, then the screen will show “Sun” and the number 0 will be on the stack, if you have selected Monday then the screen will show “Sun” but the



number 6 will be on the stack. See your Palm User Manual for more information on Palm OS Preferences.

- Select Day:  this function will help you select or enter a date, it will present the Select Day screen, and the result will be displayed in the screen and appended to the stack. For example, press the  if you select the Nov 16, 2000 then the display will show Nov 16, 2000 Thu, the date 11.162000 will be appended to the stack.



Select Day screen

If you are in Alg input mode, you don't need to type the  button, the result will be available for more calculations as soon as you leave the Select Day screen.

- Today:  will return in one tap the current day, the display will show the current day, and the result will be appended to the stack. In Alg input mode there is no need to press the  button.



12.2.- Time Functions

- Convert HMS to HR: $\boxed{\overline{\text{HR}}}$ will convert a number in HMS to decimal point hours, for example, 1h15m to 1.25h. The HMS format is *h.mmssddd*. Where *h* is hours, *mm* are minutes, *ss* are seconds, and *ddd* are milliseconds.
- Convert HR to HMS: $\boxed{\overline{\text{HMS}}}$ will convert a number in decimal hours HR, to HMS, for example, 105.75698611 hours to 105h45m25.15s. The display will show the HMS format 105:45:25.150, the result in the stack will be 105.452515
- HMS(a) + HMS(b): $\boxed{\text{hms+}}$ this function will add to numbers in HMS format the display will show the result and it will be on the stack.
- HMS(a) - HMS(b): $\boxed{\text{hms-}}$ this function is similar to the previous one but it will subtract the two numbers in HMS format.
- HMS * x: $\boxed{\text{hms*}}$ this function will multiply a HMS format number by x. The result will be displayed and appended to the stack in the HMS format.
- HMS / x: $\boxed{\text{hms/}}$ this function is similar to the previous one but it will divide the HMS format number by x. The result will be displayed and appended to the stack in the HMS format.

13.- Limitations (Unregistered Users)

Unregistered users will have a 30-day evaluation period. You may use and distribute the program freely. After expiry of the period, you are requested to register.

In the evaluation period it will be necessary to press the Evaluate button at entry time, ended the 30 days evaluation period, the button will disappear and it will be necessary to scroll through the text to have it appear again.

Also if the user continues using the application beyond the 30-day evaluation period, a reminder window will appear after two presses of the  button or  button.

14.- Registration

To register is simple, there are many alternatives and you can select the one that better suits you, from OnLine, EMail, Phone, Fax, and standard Mail. You must provide your CustomCalc serial code that appears at entry point.

Visit www.visacsoft.com to find more information on registration.

Registered users will have all the updates and **new versions** of CustomCalc **for free**.

Once registered, you will receive a personal registration code, which has to be entered by pressing the Register button, at the welcome screen.

Appendix A – License

Copyright laws and international copyright treaties, as well as other intellectual property laws and treaties protect this software. **It is licensed for use, not sold.** You are allowed to use and distribute the software in its original, unmodified form as desired. You are limited to one registered copy of the software per registration fee paid, installed on a single PDA connected organizer at any time. You may not reverse engineer, decompile, disassemble, or modify the software.

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Appendix B – Operator Precedence

List of operator precedence from higher to lower (for the Alg entry mode):

- Any function (i.e. Δday , hms^* , C_y^x , \sqrt{x} , $\%$, e^x , etc).
- Multiply \times , or Divide \div functions.
- Subtract $-$, or Add $+$ functions.

Functions that will execute immediately (for the Alg and Seq entry modes)

- Statistical functions: Rand , $\Sigma+n$, \bar{x} , Σx , Σx^2 , $\text{Var}x$, σx , \bar{x}_w , \bar{y} , Σy , Σy^2 , $\text{Var}y$, σy , \bar{x}_w , Σxy , Data in , Data out
- Date functions: sel Day , Today
- TVM functions: n , $\frac{\text{int}}{\text{Yr}}$, PV , FV , PMT , $\frac{\text{Pmt}}{\text{Yr}}$
- Business functions: iPer^+ , iAnu^+ , iNom^+ , iEfe^+ , Curr^+ , Curr^- , Curr , Tax , Tax^+ , and Tax^-

Appendix C – More to Come

As a registered user of CustomCalc you will receive all new versions and updates for free.

Improvements on next versions will have:

- More functions
- More Unit conversions
- Worksheet export to Memo Pad
- Customizable Worksheets
- Bin, Hex, Octal, and Dec conversions and functions
- User Programs
- ... and more

Credits

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Look at www.visacsoft.com for latest information and new releases.

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