Getting Acquainted
— Read This First!

About this User's Guide

•Function Keys and Menus

- Many of the operations performed by this calculator can be executed by pressing function keys [F1] through [F6]. The operation assigned to each function key changes according to the mode the calculator is in, and current operation assignments are indicated by function menus that appear at the bottom of the display.
- This user's guide indicates the current operation assigned to a function key in parentheses following the key cap marking for that key. [F1] (Comp), for example, indicates that pressing [F1] selects {Comp}, which is also indicated in the function menu.
- When {▷} is indicated in the function menu for key [F6], it means that pressing [F6] displays the next page or previous page of menu options.

•Menu Titles

- Menu titles in this user's guide include the key operation required to display the menu being explained. The key operation for a menu that is displayed by pressing [OPTN] and then {MAT} would be shown as: **[OPTN]-[MAT]**.
- [F6] (▷) key operations to change to another menu page are not shown in menu title key operations.

•Command List

- The Program Mode Command List (page 453) provides a graphic flowchart of the various function key menus that shows how to maneuver to the menu of commands you need.

  Example: The following operation displays Xfct: **[VARS]-[FACT]-[Xfct]**

•Icons Used in This User's Guide

- The following are the meanings of the icons used in this user's guide.

: Function not supported by fx-9750G PLUS

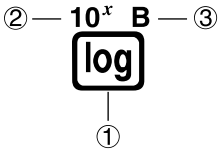

: Important


: Note

: Reference page

1. Key Markings

Many of the calculator's keys are used to perform more than one function. The functions marked on the keyboard are color coded to help you find the one you need quickly and easily.



	Function	Key Operation
①	log	log
②	10^x	SHIFT log
③	B	ALPHA log

The following describes the color coding used for key markings.

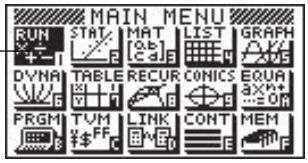
Color	Key Operation
Orange	Press SHIFT and then the key to perform the marked function.
Red	Press ALPHA and then the key to perform the marked function.

2. Selecting Icons and Entering Modes

This section describes how to select an icon in the Main Menu to enter the mode you want.

•To select an icon

1. Press [MENU] to display the Main Menu.



Currently selected icon

* The above shows the CFX-9850 GB PLUS screen.

2. Use the cursor keys (◀, ▶, ▲, ▼) to move the highlighting to the icon you want.
3. Press [EXE] to display the initial screen of the mode whose icon you selected.

- You can also enter a mode without highlighting an icon in the Main Menu by inputting the number or letter marked in the lower right corner of the icon.
- Use only the procedures described above to enter a mode. If you use any other procedure, you may end up in a mode that is different than the one you thought you selected.

The following explains the meaning of each icon.

Icon	Mode Name	Description
	RUN	Use this mode for arithmetic calculations and function calculations, and for calculations involving binary, octal, decimal and hexadecimal values.
	STATistics	Use this mode to perform single-variable (standard deviation) and paired-variable (regression) statistical calculations, to perform tests, to analyze data and to draw statistical graphs.
	MATrix	Use this mode for storing and editing matrices.
	LIST	Use this mode for storing and editing numeric data.
	GRAPH	Use this mode to store graph functions and to draw graphs using the functions.
	DYNAmic graph	Use this mode to store graph functions and to draw multiple versions of a graph by changing the values assigned to the variables in a function.

Icon	Mode Name	Description
	TABLE	Use this mode to store functions, to generate a numeric table of different solutions as the values assigned to variables in a function change, and to draw graphs.
	RECURsion	Use this mode to store recursion formulas, to generate a numeric table of different solutions as the values assigned to variables in a function change, and to draw graphs.
	CONICS	Use this mode to draw graphs of conic sections.
	EQUAtion	Use this mode to solve linear equations with two through six unknowns, quadratic equations, and cubic equations.
	PRoGraM	Use this mode to store programs in the program area and to run programs.
	Time Value of Money	Use this mode to perform financial calculations and to draw cash flow and other types of graphs.
	LINK	Use this mode to transfer memory contents or back-up data to another unit.
 	CONTrast	Use this mode to adjust the contrast of the display.
	MEMory	Use this mode to check how much memory is used and remaining, to delete data from memory, and to initialize (reset) the calculator.

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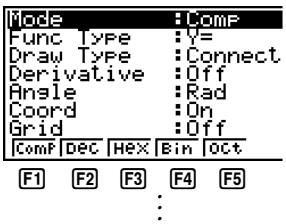
■ Using the Set Up Screen

The mode's set up screen shows the current status of mode settings and lets you make any changes you want. The following procedure shows how to change a set up.

•To change a mode set up

1. Select the icon you want and press [EXE] to enter a mode and display its initial screen. Here we will enter the RUN Mode.

2. Press [SHIFT] [SETUP] to display the mode's set up screen.
   - This set up screen is just one possible example. Actual set up screen contents will differ according to the mode you are in and that mode's current settings.



3. Use the ▲ and ▼ cursor keys to move the highlighting to the item whose setting you want to change.
4. Press the function key ([F1] to [F6]) that is marked with the setting you want to make.
5. After you are finished making any changes you want, press [EXIT] to return to the initial screen of the mode.

■ Set Up Screen Function Key Menus

This section details the settings you can make using the function keys in the set up display.

•Mode (calculation /binary, octal, decimal, hexadecimal mode)

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- {**Comp**} ... {arithmetic calculation mode}
- {**Dec**}/{**Hex**}/{**Bin**}/{**Oct**} ... {decimal}/{hexadecimal}/{binary}/{octal}

•Func Type (graph function type)

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- {**Y=**}/{**r=**}/{**Parm**}/{**X=c**} ... {rectangular coordinate}/{polar coordinate}/{parametric coordinate}/{X = constant} graph

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- {**Y>**}/{**Y<**}/{**Y≥**}/{**Y≤**} ... $\{y>f(x)\}/\{y<f(x)\}/\{y\geq f(x)\}/\{y\leq f(x)\}$ inequality graph

- The [X,θ,T] key inputs one of three different variable names. Which variable name it inputs is determined by the {Func Type} setting you make.

•Draw Type (graph drawing method)

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- {**Con**}/{**Plot**} ... {connected points}/{unconnected points}

•Derivative (derivative value display)

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- {**On**}/{**Off**} ... {display on}/{display off} while Graph-to-Table, Table & Graph, and Trace are being used

•Angle (default unit of angular measurement)

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- {**Deg**}/{**Rad**}/{**Gra**} ... {degrees}/{radians}/{grads}

•Coord (graph pointer coordinate display)

P.130 • {**On**}/{**Off**} ... {display on}/{display off}

•Grid (graph gridline display)

P.121 • {**On**}/{**Off**} ... {display on}/{display off}

•Axes (graph axis display)

P.121 • {**On**}/{**Off**} ... {display on}/{display off}

•Label (graph axis label display)

P.121 • {**On**}/{**Off**} ... {display on}/{display off}

•Display (display format)

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P.15 • {**Fix**}/{**Sci**}/{**Norm**}/{**Eng**} ... {fixed number of decimal places specification}/{number of significant digits specification}/{exponential format display range toggle}/{Engineering Mode}

•Integration (Integration calculation)

P.60 • {**Gaus**}/{**Simp**} ... integration calculation using {Gauss-Kronrod rule}/{Simpson's rule}.

•Stat Wind (statistical graph view window setting method)

P.251 • {**Auto**}/{**Man**} ... {automatic}/{manual}

•Graph Func (function display during graph drawing and trace)

P.187 • {**On**}/{**Off**} ... {display on}/{display off}

•Background (graph display background)

P.140 • {**None**}/{**PICT**} ... {no background}/{graph background picture specification}

•Plot/Line (plot and line graph color setting)

• {**Blue**}/{**Orng**}/{**Grn**} ... {blue}/{orange}/{green}

•Resid List (residual calculation)

P.267 • {**None**}/{**LIST**} ... {no calculation}/{list specification for the calculated residual data}

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•List File (list file specification)

• {**File 1**} to {**File 6**} ... {specification of which list file to display while using the List function}

•Dual Screen (Dual Screen Mode status)

The Dual Screen Mode settings you can make depends on whether you pressed SHIFT SET UP while in the GRAPH Mode, TABLE Mode, or RECUR Mode.

GRAPH Mode

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• {**Grph**}/{**GtoT**}/{**Off**} ... {graphing on both sides of Dual Screen}/{graph on one side and numeric table on the other side of Dual Screen}/{Dual Screen off}

TABLE/RECUR Mode

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• {**T+G**}/{**Off**} ... {graph on one side and numeric table on the other side of Dual Screen}/{Dual Screen off}

•Simul Graph (simultaneous graphing mode)

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• {**On**}/{**Off**} ... {simultaneous graphing on (all graphs drawn simultaneously)}/{simultaneous graphing off (graphs drawn in area numeric sequence)}

•Dynamic Type (Dynamic Graph type)

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• {**Cnt**}/{**Stop**} ... {non-stop (continuous)}/{automatic stop after 10 draws}

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•Locus (Dynamic Graph Locus Mode)

• {**On**}/{**Off**} ... {locus identified by color}/{locus not drawn}

•Variable (Table Generation and Graph Draw settings)

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• {**Rang**}/{**LIST**} ... {use table range}/{use list data}

•Σ Display (Σ value display in recursion table)

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• {**On**}/{**Off**} ... {display on}/{display off}

•Slope (display of derivative at current pointer location in conic section graph)

• {**On**}/{**Off**} ... {display on}/{display off}

•Payment (payment period setting)

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• {**BGN**}/{**END**} ... {beginning}/{end} setting of payment period

•Date Mode (number of days per year setting)

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• {**365**}/{**360**} ... interest calculations using {365}/{360} days per year

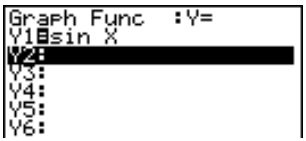
* The 365-day year must be used for date calculations in the Financial Mode. Otherwise, an error occurs.

3. Display

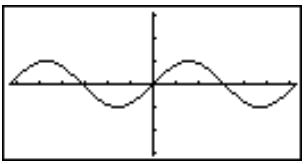
■ About the Display Screen

This calculator uses two types of display: a text display and a graphic display. The text display can show 21 columns and eight lines of characters, with the bottom line used for the function key menu, while the graph display uses an area that measures 127 (W) × 63 (H) dots.

Text Display



Graph Display



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■ About Display Colors **[OPTN]-[COLR]**

The calculator can display data in three colors: orange, blue, and green. The default color for graphs and comment text is blue, but you can specify orange or green if you want.

- {**Orng**}/{**Grn**} ... {orange}/{green}
- The above setting affects the color of graphs and comment text. Specify the color you want to use before inputting the graph's function or the program comment text.

■ About Menu Item Types

This calculator uses certain conventions to indicate the type of result you can expect when you press a function key.

• Next Menu

Example: HYP

Selecting HYP displays a menu of hyperbolic functions.

• Command Input

Example: sinh

Selecting sinh inputs the sinh command.

• Direct Command Execution

Example: DRAW

Selecting DRAW executes the DRAW command.

■ Exponential Display

The calculator normally displays values up to 10 digits long. Values that exceed this limit are automatically converted to and displayed in exponential format. You can specify one of two different ranges for automatic changeover to exponential display.

Norm 1 ..... 10^{-2} (0.01) > |*x*|, |*x*| ≧ 10^{10}

Norm 2 ..... 10^{-9} (0.000000001) > |*x*|, |*x*| ≧ 10^{10}

•To change the exponential display range

1. Press SHIFT SETUP to display the set up screen.
2. Use ▲ and ▼ to move the highlighting to “Display”.
3. Press F3 (Norm).

The exponential display range switches between Norm 1 and Norm 2 each time you perform the above operation. There is no display indicator to show you which exponential display range is currently in effect, but you can always check it by seeing what results the following calculation produces.

AC 1 ÷ 2 0 0 EXE

```
1÷200
                5.E-03
```
(Norm 1)

```
1÷200
                0.005
```
(Norm 2)

All of the examples in this manual show calculation results using Norm 1.

•How to interpret exponential format

```
1.2E12
                1.2E+12
```

1.2E+12 indicates that the result is equivalent to 1.2×10^{12}. This means that you should move the decimal point in 1.2 twelve places to the right, because the exponent is positive. This results in the value 1,200,000,000,000.

```
1.2E-3
                1.2E-03
```

1.2E–03 indicates that the result is equivalent to 1.2×10^{-3}. This means that you should move the decimal point in 1.2 three places to the left, because the exponent is negative. This results in the value 0.0012.

■ Special Display Formats

This calculator uses special display formats to indicate fractions, hexadecimal values, and sexagesimal values.

•Fractions

456⌟12⌟23
456⌟12⌟23 ..... Indicates: $456\frac{12}{23}$

•Hexadecimal Values

ABCDEF12
ABCDEF12 ..... Indicates: $ABCDEF12_{(16)}$, which equals $-1412567278_{(10)}$

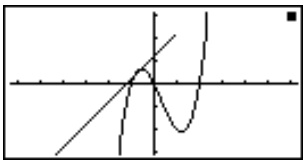
•Sexagesimal Values

12.58244
12°34'56.78" ..... Indicates: 12° 34' 56.78"

- In addition to the above, this calculator also uses other indicators or symbols, which are described in each applicable section of this manual as they come up.

■ Calculation Execution Indicator

Whenever the calculator is busy drawing a graph or executing a long, complex calculation or program, a black box (■) flashes in the upper right corner of the display. This black box tells you that the calculator is performing an internal operation.

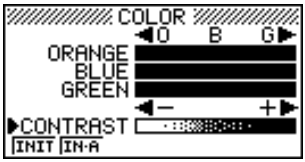


4. Contrast Adjustment

Adjust the contrast whenever objects on the display appear dim or difficult to see.

•To display the contrast adjustment screen

Highlight the **CONT** icon in the Main Menu and then press [EXE].



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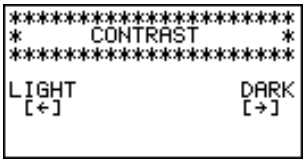

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•To adjust the contrast

Press the ▶ cursor key to make the display darker and the ◀ cursor key to make it lighter. Holding down either key changes the setting at high speed.

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•To adjust the color tint

It is recommended that you always adjust the CONTRAST setting first.

1. Use the cursor ▲ and ▼ keys to move the pointer so it is next to the color (ORANGE, BLUE, GREEN) whose tint you want to adjust.
2. Press the ▶ cursor key to give the color a greener tint and the ◀ cursor key to give it an orange tint. Holding down either key changes the setting at high speed.

•To initialize color tint settings

• {**INIT**}/{**IN·A**} ... {initialize highlighted color}/{initialize all colors}

•To exit the contrast adjustment screen

Press [MENU] to return to the Main Menu.

• You can change the CONTRAST setting at any time without displaying the contrast adjustment screen. Simply press [SHIFT] and then ◀ or ▶ to change the setting. Press [SHIFT] once again after the setting is the way you want.

5. When you keep having problems…

If you keep having problems when you are trying to perform operations, try the following before assuming that there is something wrong with the calculator.

■ Get the Calculator Back to its Original Mode Settings

1. In the Main Menu, select the **RUN** icon and press [EXE].
2. Press [SHIFT] [SETUP] to display the set up screen.
3. Highlight "Angle" and press [F2] (Rad).
4. Highlight "Display" and press [F3] (Norm) to select the exponential display range (Norm 1 or Norm 2) that you want to use.

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5. Now enter the correct mode and perform your calculation again, monitoring the results on the display.

■ In Case of Hang Up

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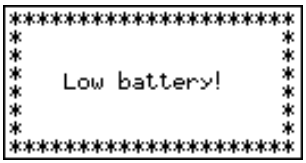
- Should the unit hang up and stop responding to input from the keyboard, press the P button on the back of the calculator to reset the memory. Note, however, that this clears all the data in calculator memory.

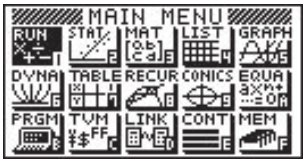
■ Low Battery Message

The low battery message appears whenever you press [AC/ON] to turn power on or [MENU] to display the Main Menu while the main battery power is below a certain level.

[AC/ON] or [MENU]



↓ *About 3 seconds later*



* The above shows the CFX-9850 GB PLUS screen.

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If you continue using the calculator without replacing batteries, power will automatically turn off to protect memory contents. Once this happens, you will not be able to turn power back on, and there is the danger that memory contents will be corrupted or lost entirely.

- You will not be able to perform data communications operations once the low battery message appears.