



Owner's Guide

920 Compact Scientific Calculator

Before starting calculation, be sure to press the **ON/C** key and to confirm that "0" is shown in the display.

Special care should be taken not to damage the unit by bending or dropping. For example, do not carry it in your hip packet.

THE KEYBOARD

1. OFF STAT	8. CE n1	15. EXP π A	22. \div \rightarrow BIN	29. \pm/\mp
2. ON/C	9. \rightarrowDEG \rightarrow D.M.S.D	16. y^x $x \sqrt[y]{y}$ B	23. \times \rightarrow OCT	30. \bullet RND
3. 2ndF	10. ln e^x E	17. $\sqrt{}$ $\sqrt[3]{}$ C	24. $-$ \rightarrow HEX	31. $=$ %
4. DRG DRG \blacktriangleright	11. log 10^x F	18. x^2 $1/x$	25. $+$ \rightarrow DEC	
* 5. hyp arc hyp	12. a $\rightarrow r\theta$	19. (\uparrow	26. $\bar{x} \rightarrow M$ \bar{x} Σx^2	
6. sin cos tan \sin^{-1} \cos^{-1} \tan^{-1}	13. b $\rightarrow xy$	20.) n Σx	27. MR s σ	
7. F\leftrightarrowE TAB	14. \rightarrow CPLX	21. 0 - 9	28. M+ DATA CD	

1. **OFF**

Power off key

When this key is depressed, the calculator is turned off.

Automatic Power - Off Function (A.P.O.)

This calculator is automatically turned off approximately 8 minutes after the last key operation to save the batteries.

2. **STAT**
ON/C
ON/C

Power on and clear/statistical calculation mode key

: Push this key to turn the calculator on.

It is ready for operation. When pushed during operation it clears the calculator except for the memory.

2ndF **STAT**

: Statistical program will be activated.

When the calculator is set to the statistical calculation mode through these keys the symbol **STAT** appears and at the same time the numerical values and calculation commands, except for memory contents are cleared.

Meanwhile, in the statistical calculation mode the **)**,

x→M, **MR** and **M+** keys work as the **n**, **\bar{x}** , **S** and **DATA** keys, respectively.

And pushing these keys immediately after the **2ndF** key they work as the **Σx** , **Σx^2** , **σ** and **CD** keys.

3. **2ndF**

2nd function designation key

4. **DRG**
DRG

Degree / Radian / Grad selector /

angular unit conversion key

Used for calculation of trigonometric, inverse trigonometric and coordinate conversion. The **DRG** key changes the angular mode.



(Press **DRG**)

Ex. DEG → GRAD : Depress the **DRG** key twice.

“**DEG**” mode - Entries and answers are in decimal degrees.

“**RAD**” mode - Entries and answers are in radians.

“**GRAD**” mode - Entries and answers are in grads.

$$(100^g = 90^\circ = \frac{\pi}{2})$$

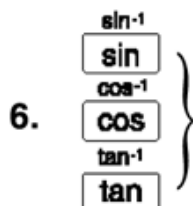
2ndF **DRG**

It converts the displayed number into the value of the next angular mode.

[DEG → RAD → GRAD → DEG]

5. **arc hyp**
hyp

Hyperbolic / arc hyperbolic key



Trigonometric / inverse trigonometric function key



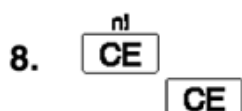
Display format exchange / Tabulation key

: When a calculation result is displayed in the floating decimal point system, pushing the key displays the result in the scientific notation system.

Pushing the key once more displays the result back to floating decimal point system again



: To specify the number of decimal digits in the calculation result.



Clear entry / Factorial key

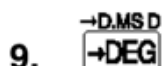
: Used to clear an incorrectly entered number.

123 455 456 → 579.



: Calculates the factorial of the displayed number.

Factorial of n [n!] = n.(n-1).(n-2)..... 2.1



Degree / minute / second ↔ Decimal degrees conversion / hexadecimal number key

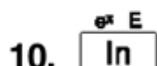


: To convert degree / minute / second to decimal degree and vice versa



: Hexadecimal number “D” key

(effective only in hexadecimal number model - HEX mode)



Natural logarithm / antilogarithm and hexadecimal number key



: Used to obtain the logarithm with the base e (e = 2.718281828)

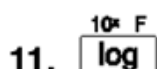


: Calculates the antilogarithm with the base e of the displayed number.



HEX mode

Hexadecimal number “E ” key.



Common logarithm / antilogarithm and hexadecimal number key



: Used to obtain the logarithm with the base of 10.



: Calculates the antilogarithm with the base of 10.



: HEX mode

Hexadecimal number “ F ” key.

12.

a

Real number enter / coordinate conversion key

- This is used when the real parts of complex numbers are to be inputted and when calling the real parts of calculation results.
- This is used during coordinate conversions when the x coordinate of the Rectangular coordinates (x, y) is input or when the r of the polar coordinates (r, θ) is input. It is also used for calling the calculated values of x or θ .

2ndF → rθ

: Converts rectangular coordinate into polar coordinate.

13.

b

Imaginary number enter / coordinate conversion key

- This is used when the imaginary parts of complex numbers are to be input and when calling the imaginary parts of the calculation results.
- This is used during coordinate conversions when the y coordinate of the Rectangular coordinates (x, y) is input or when the θ of the polar coordinates (r, θ) is input. It is also used for calling the calculated values of y or θ .

2ndF → xy

: Converts polar coordinate into rectangular coordinate.

14.

Right shift / complex number mode key

Example	Key in	Display
1	123456789	123456789
2	123456789	123456789
3	123456789	123456789
4	123456789	123456789
5	123456789	123456789
6	123456789	123456789
7	123456789	123456789
8	123456789	123456789
9	123456789	123456789
10	123456789	123456789
11	123456789	123456789
12	123456789	123456789
13	123456789	123456789
14	123456789	123456789
15	123456789	123456789
16	123456789	123456789
17	123456789	123456789
18	123456789	123456789
19	123456789	123456789
20	123456789	123456789
21	123456789	123456789
22	123456789	123456789
23	123456789	123456789
24	123456789	123456789
25	123456789	123456789
26	123456789	123456789
27	123456789	123456789
28	123456789	123456789
29	123456789	123456789
30	123456789	123456789
31	123456789	123456789
32	123456789	123456789
33	123456789	123456789
34	123456789	123456789
35	123456789	123456789
36	123456789	123456789
37	123456789	123456789
38	123456789	123456789
39	123456789	123456789
40	123456789	123456789
41	123456789	123456789
42	123456789	123456789
43	123456789	123456789
44	123456789	123456789
45	123456789	123456789
46	123456789	123456789
47	123456789	123456789
48	123456789	123456789
49	123456789	123456789
50	123456789	123456789
51	123456789	123456789
52	123456789	123456789
53	123456789	123456789
54	123456789	123456789
55	123456789	123456789
56	123456789	123456789
57	123456789	123456789
58	123456789	123456789
59	123456789	123456789
60	123456789	123456789
61	123456789	123456789
62	123456789	123456789
63	123456789	123456789
64	123456789	123456789
65	123456789	123456789
66	123456789	123456789
67	123456789	123456789
68	123456789	123456789
69	123456789	123456789
70	123456789	123456789
71	123456789	123456789
72	123456789	123456789
73	123456789	123456789
74	123456789	123456789
75	123456789	123456789
76	123456789	123456789
77	123456789	123456789
78	123456789	123456789
79	123456789	123456789
80	123456789	123456789
81	123456789	123456789
82	123456789	123456789
83	123456789	123456789
84	123456789	123456789
85	123456789	123456789
86	123456789	123456789
87	123456789	123456789
88	123456789	123456789
89	123456789	123456789
90	123456789	123456789
91		

1.) 123456 \rightarrow \rightarrow 123.
45 \rightarrow 12345.

2.) 5 EXP 24 \rightarrow \rightarrow 5.00
35 \rightarrow 5.35

2ndF CPLX

: Used to set the complex number mode.

15.

EXP

 π

A

Enter exponent / Pi and hexadecimal number key

- : To enter number in scientific notation.
- : The constant π ($\pi = 3.141592654$) is entered.
- : HEX mode
- Hexadecimal number “**A**” key.

16.

 y^x

y^x / $\sqrt[y]{x}$ and hexadecimal number key

: Raizes a number to a power


































 $\sqrt[n]{y}$



B

: Calculates the x th root of y .

: HEX mode

Hexadecimal number “ **B** ” key

17.   : **Square root / cube root and hexadecimal number key**
: Calculates the square root of the number displayed.
-   : Calculates the cube root of the number displayed.
 : HEX mode
Hexadecimal number “C” key
18.   : **Square / reciprocal key**
: Calculates a square of the number displayed.
-   : Calculates the reciprocal of the number displayed.
19.   : **Open parenthesis / exchange key**
: Used to open parenthesis.
-   : Used to exchange the number being displayed with the number stored in the working register. ($x \leftrightarrow y$)
20.   : **Close parenthesis / statistical calculation key**
: Used to close parenthesis.
• When the statistical mode is set
 : Displays the number of samples entered. (n)
-   : Used to obtain the sum of the data ($\sum x$)
21.    : **Number keys**
Used to enter numbers
22.   : **Division / binary number mode key**
: Depressed for division
-   : Used to set the binary system mode.
Converts the number displayed into the number in base 2.
23.   : **Multiplication / octal number mode key**
: Depressed for multiplication
-   : Used to set the octal system mode.
Converts the number displayed into the number in base 8.
24.   : **Minus / hexadecimal number mode key**
: Depressed for subtraction
-   : Used to set the hexadecimal system mode.
Converts the number displayed into the number in base16.



24.  

Minus / hexadecimal number mode key

: Depressed for subtraction



: Used to set the hexadecimal system mode.
Converts the number displayed into the number in base16.



25.  

Plus / decimal number mode key

: Depressed for addition.





: Used to set decimal system mode (normal mode).
Converts the number displayed into the number in base10.

26.  

Memory-in / statistical calculation key

: Clears the number in the memory and then store the number being displayed in the memory.

To clear the memory depress the  key and then the  key.



- When the statistical mode is set.



: Used to obtain the mean value of the data. (\bar{x})



: Used to obtain the sum of squares of data. ($\sum x^2$)

27.  

Recall memory / statistical calculation key

: Displays the contents of the memory. The contents of the memory remain unchanged after this key operation.



- When the statistical mode is set.



: Used to obtain the standard deviation of the sample.





: Used to obtain the standard deviation of the population.

28.  

Memory plus / DATA CD key

: Used to add the number being displayed or calculated result to the contents of the memory.

When subtracting a number from the memory, depress the  and  keys in this order.

- When the statistical mode is set.



: Used to enter the data (numbers)










: Used to correct the mis-entry. (Delete function)



29. 

Change sign key



Changes the sign of the number displayed from a positive to a negative or vice verse.



Example: 5  \rightarrow -5

30.  **Decimal point / random number key**
 : Example: 12.3 →    
 0.7 →  

  : These keys are used to generate uniform random numbers from 0.0000 to 0.999

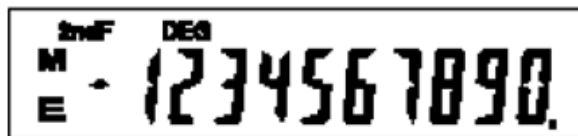
Note : Random number generation is not possible when binary / octal / hexadecimal system mode is set.

31.   **Equals / percent key**
 : Completes four arithmetic calculations (+, −, ×, ÷), $\sqrt[x]{y}$, y^x and complex number calculations.

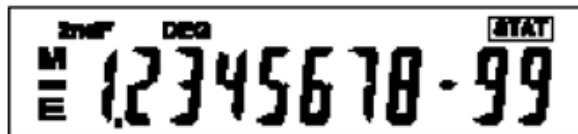
  : Used for the percentage calculation and add-on / discount calculation.

DISPLAY

(1) Display format



(Floating decimal system, normal display)



(Scientific notation system)

└──────────┘ └──┘
 Mantissa Exponent

(2) Symbols

-	: Minus symbol Indicates that the number in the display following the “-” is a negative.
M	: Memory symbol Appears when a number is stored in the memory.
E	: Error Symbol Appears when a overflow or an error is detected.
2ndF	: 2nd function designation symbol Appears when the 2nd function is designated.
hyp	: Hyperbolic function designation symbol Appears when hyperbolic function is designated.
DEG	: Degree mode symbol Appears when the degree mode is designated or shows that angular mode of the converted result is in degree.
RAD	: Radian mode symbol Appears when the radian mode is designated or shows that the angular mode of the converted result is in radian.
GRAD	: Grad mode symbol Appears when the grad mode is designated or shows that the angular mode of the converted result is in grad.
()	: Parenthesis symbol Appears when a calculation with parenthesis is performed by depressing the () key.
BIN	: Appears when the binary system mode is set or shows the displayed number is a binary number.
OCT	: Appears when the octal system mode is set or shows the displayed number is an octal number.
HEX	: Appears when the hexadecimal system mode is set or shows the displayed number is a hexadecimal number.
CPLX	: Appears when the complex number mode is set.
STAT	: Appears when the statistical calculation mode is set.

(3) Display system

This machine displays a calculation result (x), if it is within the following range, in the floating decimal point system.

$$0.000000001 \leq 1 \times 1 \leq 9999999999$$

And otherwise the machine displays “ x ” in the scientific notation system. However a calculation result within in the above range is also capable of being display in the scientific notation system by pressing the **F↔E** key .

Example: **2ndF** **TAB** **9**
. **5** **÷** **9** **=** → 0.055555556
(The 10th decimal place is rounded.)
F↔E → 5.5555555-02
(The 10th decimal place of the mantissa is rounded)
F↔E → 0.055555556
2ndF **TAB** **.** → 0.055555555

This is determined by the calculator in the form of $5.55555555556 \times 10^{-2}$. Rounding the 11 th digit of the mantissa results in $5.55555555556 \times 10^{-2}$. When changed to the floating decimal display, the rounded parts may not be displayed as in this example.

BATTERY REPLACEMENT

If the displayed becomes dark or dim, replace the battery with new ones according to the following procedure.

Battery: L1131 x 1 (or equivalent)

1. Turn off the calculator.
2. Remove the battery cover.
3. Replace the battery. (+ side must be up)
4. Replace the battery cover.
5. After the replacement, press “ RESET ” to clear the calculator. When the battery are correctly installed “**DEG 0** ” will be displayed. (if the display shows nothing or a meaningless symbol or the keys become inoperative, remove the battery and install them again.)
Press “ RESET ” and check the display again.

Note:

- wipe off the surface of the new battery with cloth and then install the battery.
- Subject to change without notice