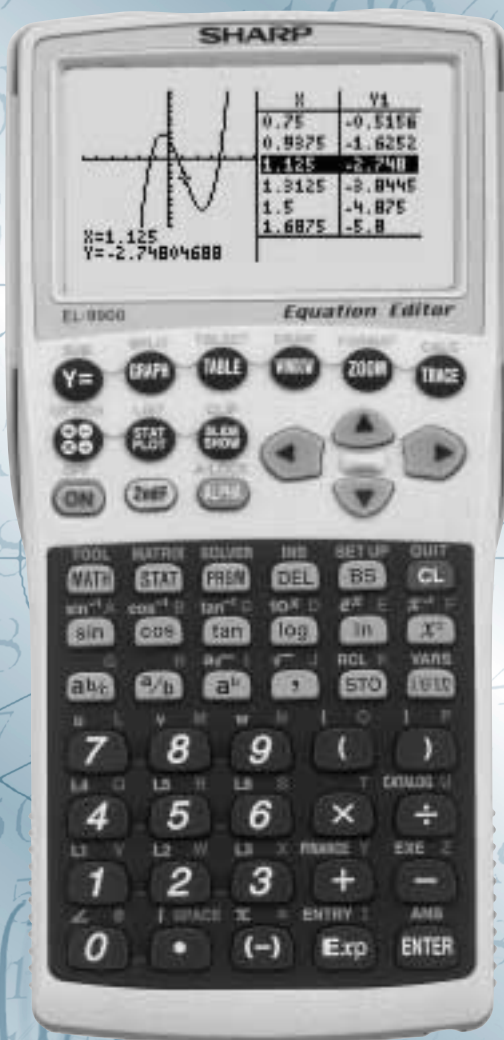


SHARP

Graphing Calculator **EL-9900** OPERATION GUIDE



For Advanced Levels



For Basic Levels

Introduction

Around the world, there's a growing need for graphing calculators that can be used as educational tools. More and more schools are starting to introduce calculators in the lower grades. Despite this trend, though, current graphing calculators are often designed with too many functions allotted to a limited number of keys. They take too long to get used to operating, and are too complex to be used for their main purpose — as learning support tools.

That's why SHARP developed the EL-9900, with the world's first reversible keyboard. This unique keyboard has functions used in lower grades on one side and those for higher grades on the other, along with different function select menus for both basic and advanced keyboards. The 2-in-1 EL-9900 helps students learn not only basic operations — such as fractions, pie charts and easy statistics — but also high-level functions and complex statistics. It's a simple case of just reversing the keyboard. And, as well as being easy to use, it's economical; there's no need for a student to buy a new calculator when he begins studying more advanced functions.

The EL-9900 features the latest useful functions from our current models. The Equation Editor, for example, displays equations as they would appear in a textbook, while the Slide Show function displays inputted equations, tables, or graphs in a slide-show style.

Our intention with this Operation Guide is to introduce the main features of the EL-9900, using operation examples, so that teachers can use this calculator more easily.

Note)

- The Reversible Keyboard is an original SHARP technology, patent pending.
- For more information on the EL-9900, please visit this web page:
<http://sharp-world.com/products/calculator/product/graphing/9900.html>

Contents

Sales points	P 1
Basic operation	P 2
Equation editor	P 4
Features	
Slide show	P 6
Graphing procedure	P 8
System options	
PC-link system	P 10
Set to set communication	P 11
OHP system	P 12
List of Menu/Sub-menu Items	P 13
Specifications	P 31

Changing the keyboard

Using the reversible keyboard of this calculator changes not only its appearance, but also its internal functions and configurations.

To change the keyboard:

1. Press **2nd F** **OFF** to turn off the calculator's power.

2. Open the battery compartment cover.
Hold the calculator as illustrated.

3. Slide the keyboard eject tab
(KEYBOARD EJECT) down.

The keyboard will be ejected.

Be careful not to drop the keyboard
on the floor, as this may damage it.

4. Turn the keyboard over, and place it
back in the calculator as illustrated.
Secure by gently pressing the
keyboard until you hear the notch click.

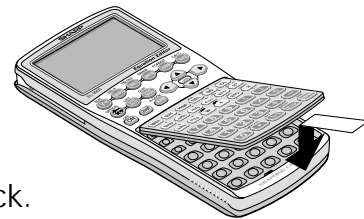
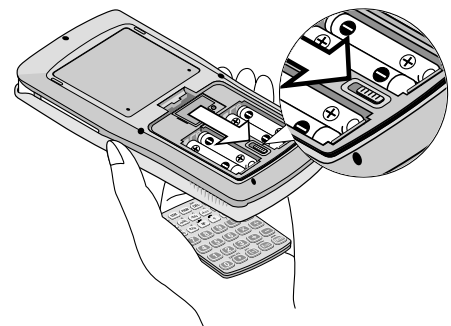
Note: Clean the edges and contact points of the keyboard and the keyboard tap
before reattaching the keyboard to the main unit. DO NOT touch the
pad portion in the keyboard tap.

5. Replace the battery compartment cover.

6. Press **ON**.

7. Make sure that the message shown
on the right appears.

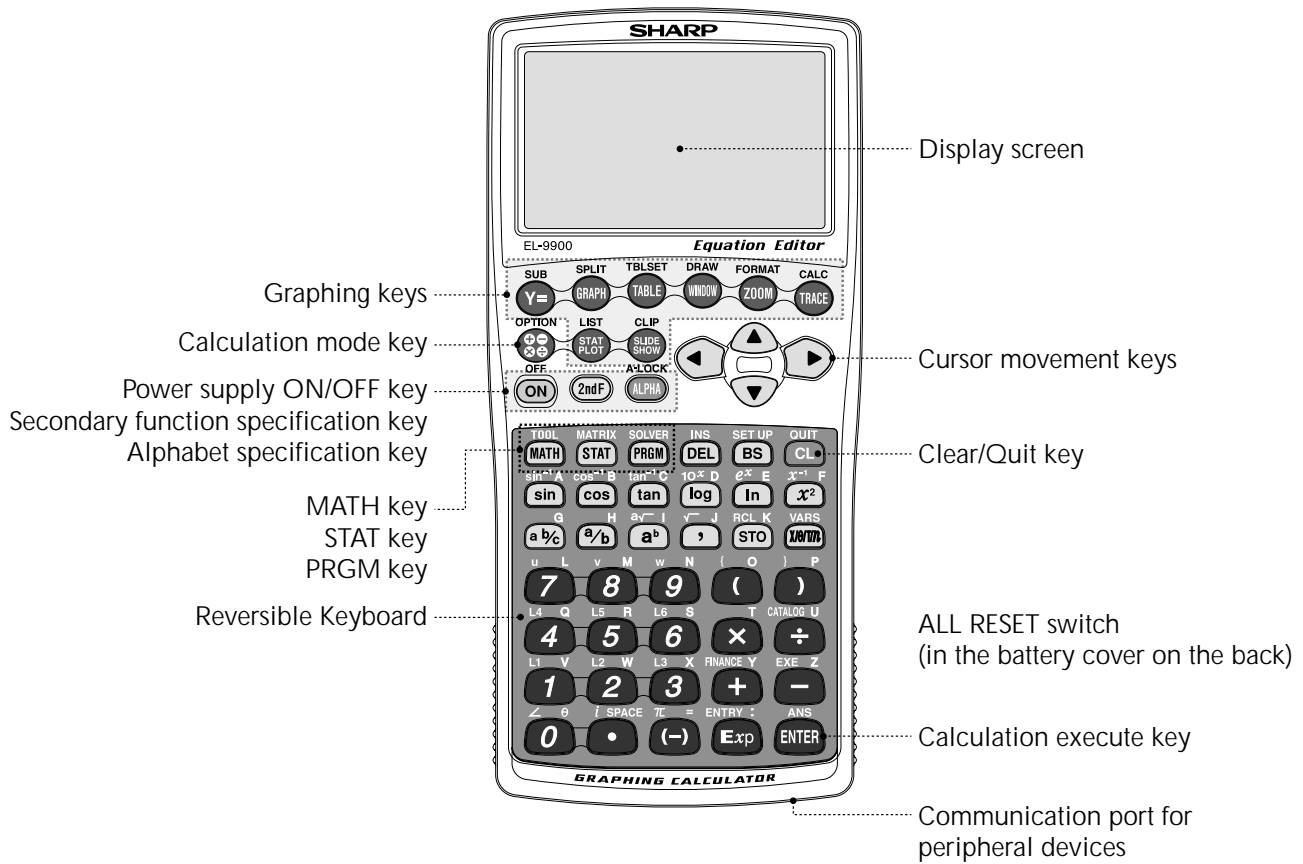
8. Press **ON**.




```
PRESS [CL] KEY TO  
CLEAR ALL DATA  
PRESS [ON] KEY TO  
CANCEL
```

Basic operation

Names of parts & main keys



ON	Power on	Y=	Equation entry mode
2nd F OFF	Power off	GRAPH	Draw graph
CL	Erase equation and answer	TABLE	View table of function values
2nd F QUIT	Cancel previous function	WINDOW	Graph size setting mode
	Enter calculation mode	ZOOM	Adjust viewing mode
MATH	Display function menu	TRACE	Trace graph mode
STAT	Enter statistics mode	ENTER	Calculation execute key
PRGM	Enter programming mode		

Basic operation

Guide to key use

Press **2nd F** to use secondary functions (in yellow).

Press **ALPHA** to use the alphabet keys (in violet).

Example: x^{-1} \xrightarrow{F} x^2

To select " x^2 ": x^2

To select " x^{-1} ": $\xrightarrow{2nd F}$ x^2 \rightarrow $\xrightarrow{2nd F}$ x^{-1}
 Displayed as follows:

To select F: \xrightarrow{ALPHA} x^2 \rightarrow \xrightarrow{ALPHA} **F**
 Displayed as follows:

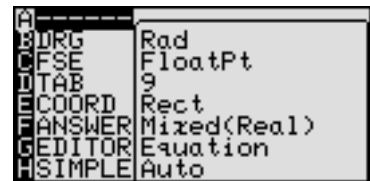
SET UP menu

There may be differences in the results of calculations and in displayed content, as this calculator has detailed set up menus involving options such as angle units and display formats.

The set up menu screen will appear upon pressing

2nd F **SET UP**.

Confirm the current settings or change the settings using the cursor keys.



Adjusting screen contrast

- The contrast adjust screen will appear when pressing

2nd F **OPTION**.



Press **+** to darken contrast.

Press **-** to lighten contrast.

Reset function

1) When trouble occurs

Press **2nd F** **OPTION** **E** to enter the reset mode.



- Use this function (**1** or **2**) to return all settings to the default value or to delete all data.

2) All RESET operation

- If trouble still occurs, proceed as follows:
 - Press **2nd F** **OFF** to turn the calculator off.
 - Open the battery cover.
 - Press the RESET switch in the battery compartment.
 - Place the battery cover back on.
 - Press **ON**.
 - Returns to the initial display.

CAUTION

If you press **CL** in step 5, it will delete all data stored in the calculator.

Equation editor

The equation editor allows equations to be viewed just as they are written in textbooks. This aids student comprehension and allows mistakes to be found quickly.

Example

Input the equation and see how it can be easily viewed with the equation editor.

<Advanced calculation mode>

<Basic calculation mode>

① $\int_0^{\frac{1}{2}} \frac{x}{\sqrt{1-x^2}} dx$

② $1\frac{1}{2} \div \left(-\frac{5}{6}\right)$

① $\int_0^{\frac{1}{2}} \frac{x}{\sqrt{1-x^2}} dx$

Key Operation

1



Display



Notes

Clear the display.

2



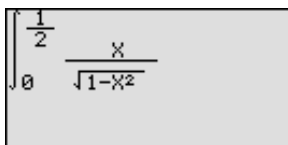
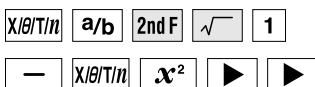
Select CALC and \int (Integral function)

3



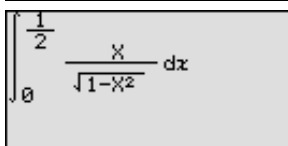
Enter the range of the integral.

4



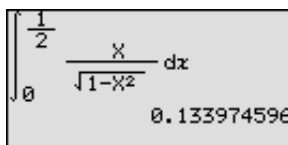
Enter $\frac{x}{\sqrt{1-x^2}}$

5



Complete equation input.

6



Calculate the expression.

[The mark in the upper right corner will blink for approximately 10 seconds, indicating that the expression is being calculated.]

② $1\frac{1}{2} \div \left(-\frac{5}{6}\right)$

Key Operation

Display















Notes

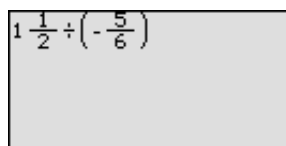
1 See page 1 and switch the calculator to Basic calculation mode.

2  



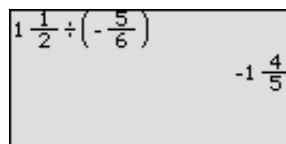
Clear the display.

3       
      



Enter the equation.

4 



Calculate the expression.

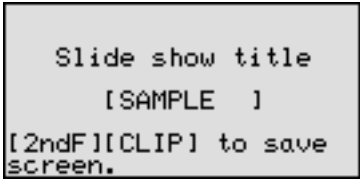

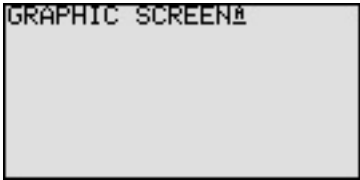
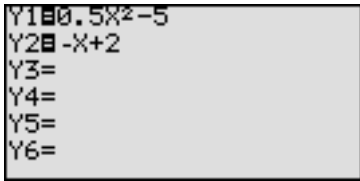
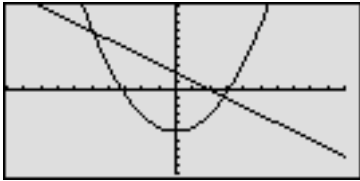
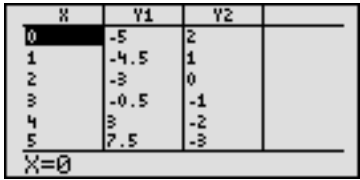
Slide show

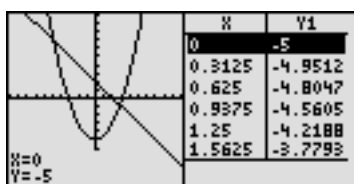
Utilizing the calculator's graphing capabilities, the slide show function helps students understand a range of mathematical concepts. With this function, the calculator's screen images can be captured, organized and stored.

Example

Use the slide show function to create an original slide show.

Before carrying out the following operation, press the reset switch in the battery compartment and press the **CL** **ENTER** keys (caution: previously entered equations and memory will be erased).

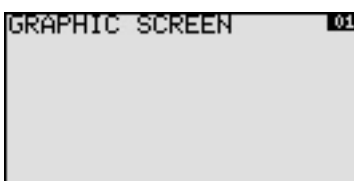
<u>Key Operation</u>	<u>Display</u>	<u>Notes</u>
1 SLIDE SHOW C ENTER S A M P L E ENTER		Enter the slide show creation mode and input a title.
2  2nd F A-LOCK G R A P H I C SPACE S C R E E N		Create the first screen and press 2nd F CLIP to register it. The message "STORESCREEN 01" will appear momentarily to show that registration is completed.
3 2nd F CLIP		
4 Y= 0 . 5 X/θ/T/n x² - 5 ENTER (-) X/θ/T/n + 2		Enter the graph equations "0.5X ² -5" and "-X+2" at Y1 and Y2 respectively. Registers as the second screen.
5 2nd F CLIP		
6 GRAPH		Displays the graph. Registers as the third screen.
7 2nd F CLIP		
8 TABLE		Shows the table. Registers as the fourth screen.
9 2nd F CLIP		

Key OperationDisplayNotes**10** **2nd F** **SPLIT**

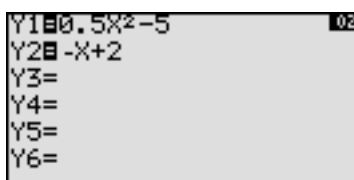
The graph and table are shown simultaneously.
Registers as the fifth screen.

11 **2nd F** **CLIP****12** **SLIDE SHOW** **B**

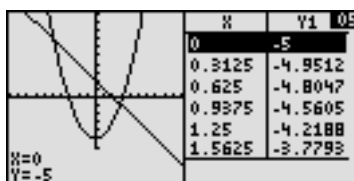
Sets the slide show to the playback mode.

13 **0** **1**

Press **ENTER** to recall the first screen.
The symbol **01** is displayed in the top right corner of the screen.

14 **▼**

Press the **▼** key to recall the second screen.
The symbol **02** is displayed on the screen.

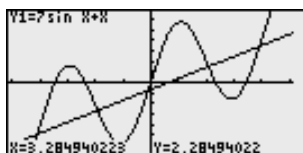
15 **▼** **▼** ...

Press the **▼** key repeatedly to view the screens in the order that they were created. The last screen is shown at left. This is the end of the playback.

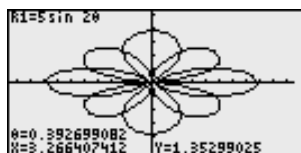
Graphing procedures

With the EL-9900, graphs can be drawn in one of 4 modes: by rectangular coordinates, by polar coordinates, by parameters, or by sequences.

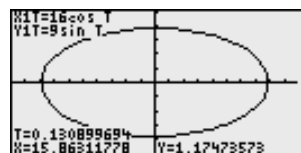
(Note: Graphs in polar coordinate, parameter, and sequence modes cannot be drawn using the Basic keyboard.)



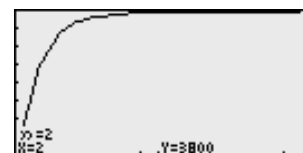
Rectangular coordinates



Polar coordinates



Parameters



Sequences

Graphing Steps

Example: Draw a rectangular graph.

Key Operation

1 **Y=** **X/θ/τ/n** **a^b** **3** **▶**
+ **X/θ/τ/n** **x²** **—**
2 **X/θ/τ/n**

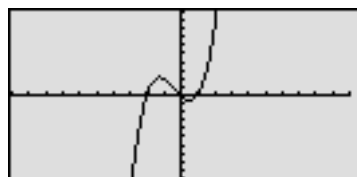
Display

```
Y1=X3+X2-2X
Y2=
Y3=
Y4=
Y5=
Y6=
```

Notes

Enter the equation.

2 **GRAPH**



Draw the graph.

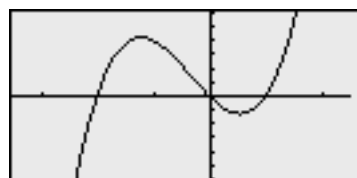
3 **WINDOW** **(-)** **3** **•** **5** **ENTER**
2 **•** **5** **ENTER** **1** **ENTER**
(-) **3** **ENTER** **3** **ENTER**
• **5** **ENTER**

(Amend the range size.)

```
Window (Rect)
Xmin=-3.5
Xmax=2.5
Xscl=1
Ymin=-3
Ymax=3
Yscl=0.5
```

Adjust the viewing window.

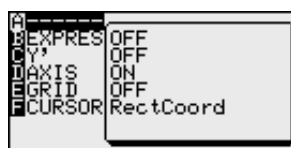
4 **GRAPH**



Extra Options

The EL-9900 has detailed settings, as shown below, so that graphs can be displayed in various formats.

2nd F **FORMAT**



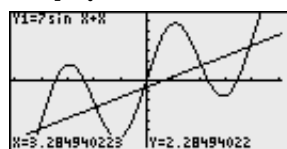
B EXPRESS Choose this setting to display the written form of equations on the graph screen.

C Y' The numeric derivative (dx/dy) can be displayed on the graph screen.

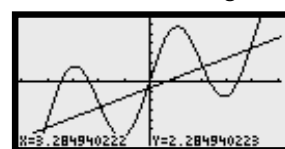
D AXIS The graph axes can be made invisible with this menu item.

E GRID An X-Y grid can be displayed in the background.

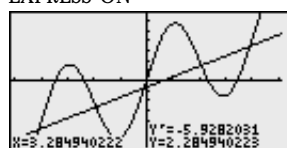
(Displays in bold outline are the default settings.)



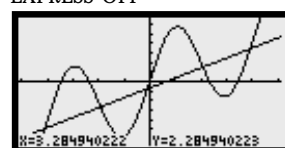
EXPRES ON



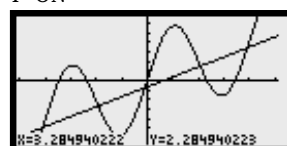
EXPRES OFF



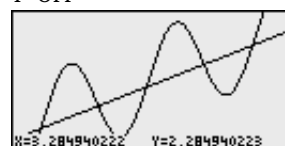
Y' ON



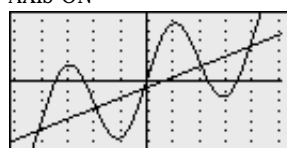
Y' OFF



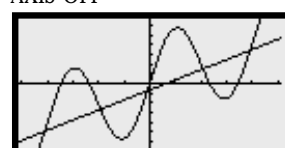
AXIS ON



AXIS OFF



GRID ON



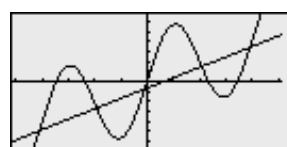
GRID OFF

Using the DRAW function, you can also add lines, circles and dots to the graph screen, and change the settings for line appearance and for shading. Below are two examples.

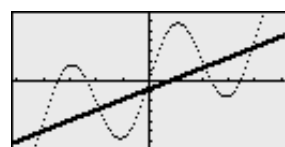
2nd F **DRAW**



D LINE Sets the line appearance of each graph to solid line, dotted line, bold line, locus or dots.

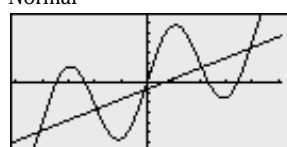


Normal

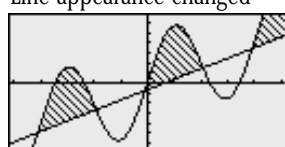


Line appearance changed

G SHADE Use this function to illustrate inequalities, intersections and complements of multiple graphs.



Normal

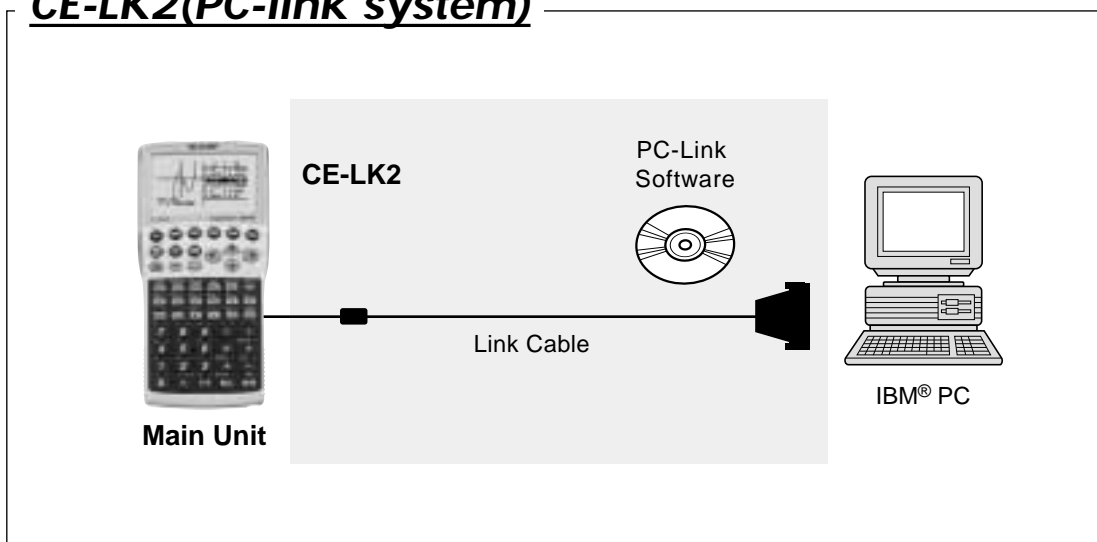


Shaded

PC-LINK

Connect the EL-9900 with a PC to expand the possibilities of data exchange using PC-Link Software.

CE-LK2(PC-link system)



What is PC LINK?

- Creates and edits EL-9900 programs on a PC.
- Receives and saves programs and various data from EL-9900.
- Makes a backup of all the contents of EL-9900.
- Sends programs and various data to EL-9900.
- Loads image data of EL-9900.
- Converts programs and various data files into a Text File. Converts program text files into a Program File.
- Prints out programs and various data files.

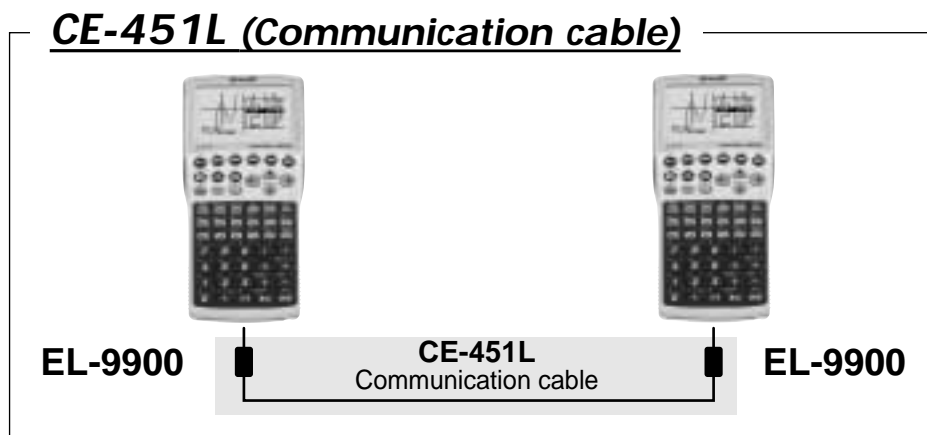
Procedure

- 1** Turn off the EL-9900.
- 2** Connect the EL-9900 to the PC by using the PC-Link Cable (see above diagram).
- 3** Open PC-Link Software.
- 4** Switch on EL-9900.
* It is essential to use the same port for both the PC and the PC-Link Software.
- 5** Operate according to the instructions on the screen.



Set to set communication

Transfer data between two EL-9900 calculators using the communication cable (CE-451L).

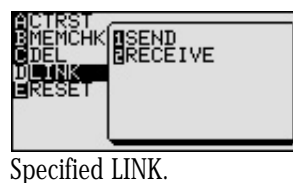


Communication Procedure

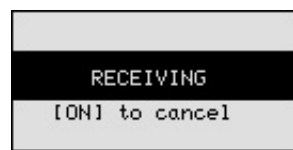
1 Plug the cable into both calculators.

2 Turn power on.

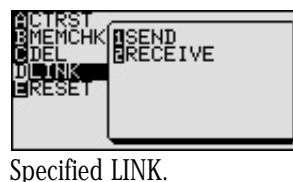
3 Receiver
2nd F **OPTION**
 ▼ ▼ ▼
 (or **D**)



4 **ENTER** ▼
ENTER
 (or **2**)



5 Sender
2nd F **OPTION**
 ▼ ▼ ▼
 (or **D**)



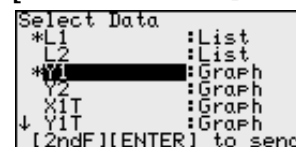
6 **ENTER** **ENTER**
 (or **1**)



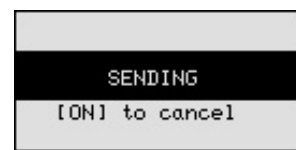
7 **ENTER** **ENTER**



8 **ENTER**
 ▼ ▼
ENTER



9 **2nd F** **ENTER**



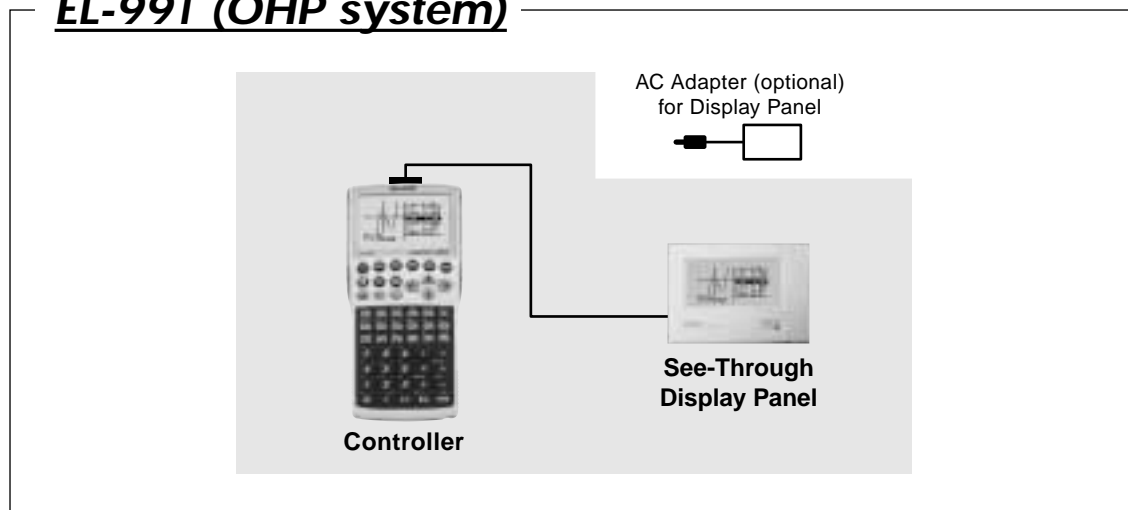
List of the SEND menu

A SELECT	Sends files individually as described below.
01 ALL	Selects and displays all files.
02 List	Selects and displays all list files.
03 Matrix	Selects and displays all matrix files.
04 Graph Eqn	Selects and displays all graph equations.
05 Solver Eqn	Selects and displays all solver equations.
06 Program	Selects and displays all program files.
07 G_Data	Selects and displays all graph data files.
08 L_Data	Selects and displays all list data files.
09 Picture	Selects and displays all picture data files.
10 Slide	Selects and displays all self-made slide shows.
11 A-Z, Ø	Selects and displays all fixed memory of A to Z, and Ø
B BACKUP	Menu to send all file data. Use this feature to send the entire content.

OHP System

Use the EL-9900 OHP system with the overhead projector to make classroom presentations convenient for the whole class to see.

EL-99T (OHP system)



Procedure

1

Switch off the Controller.

2

Plug the cable connector of the See-Through Display Panel straight into the connection terminal of the Controller.

(The optional AC adaptor is recommended for extended use of the See-Through Display Panel.)

3

Switch on the Controller.

4

Operating the Controller.

The displays of the See-Through Display Panel and the Controller are synchronized. Place the See-Through Display Panel on top of the overhead projector to project images onto the screen.

5

Turn on the power to the overhead projector.

List of Menu/Sub-menu Items

CATALOG function lets you access almost all the functions and commands.
Square brackets indicate that the value or variable is optional.

1. MATH menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
MATH CALC			
log ₂	log ₂ <i>value</i>	<div>A</div> <div>0</div> <div>1</div>	
2 ^X	2 <i>value</i>	<div>A</div> <div>0</div> <div>2</div>	
fmin(	fmin(<i>equation, lower limit of x, upper limit of x</i>)	<div>A</div> <div>0</div> <div>3</div>	
fmax(	fmax(<i>equation, lower limit of x, upper limit of x</i>)	<div>A</div> <div>0</div> <div>4</div>	
d/dx(	d/dx(<i>equation, value of x [, tolerance]</i>)	<div>A</div> <div>0</div> <div>5</div>	
∫	∫ <i>equation, lower limit, upper limit [, tolerance]</i> dx	<div>A</div> <div>0</div> <div>6</div>	
dx	∫ <i>equation, lower limit, upper limit [, tolerance]</i> dx	<div>A</div> <div>0</div> <div>7</div>	
Σ(	Σ (<i>expression, initial value, end value [, increment]</i>)	<div>A</div> <div>0</div> <div>8</div>	
sec	sec <i>value</i>	<div>A</div> <div>0</div> <div>9</div>	
csc	csc <i>value</i>	<div>A</div> <div>1</div> <div>0</div>	
cot	cot <i>value</i>	<div>A</div> <div>1</div> <div>1</div>	
sec ⁻¹	sec ⁻¹ <i>value</i>	<div>A</div> <div>1</div> <div>2</div>	
csc ⁻¹	csc ⁻¹ <i>value</i>	<div>A</div> <div>1</div> <div>3</div>	
cot ⁻¹	cot ⁻¹ <i>value</i>	<div>A</div> <div>1</div> <div>4</div>	
sinh	sinh <i>value</i>	<div>A</div> <div>1</div> <div>5</div>	
cosh	cosh <i>value</i>	<div>A</div> <div>1</div> <div>6</div>	
tanh	tanh <i>value</i>	<div>A</div> <div>1</div> <div>7</div>	
sinh ⁻¹	sinh ⁻¹ <i>value</i>	<div>A</div> <div>1</div> <div>8</div>	
cosh ⁻¹	cosh ⁻¹ <i>value</i>	<div>A</div> <div>1</div> <div>9</div>	
tanh ⁻¹	tanh ⁻¹ <i>value</i>	<div>A</div> <div>2</div> <div>0</div>	
sin	sin <i>value</i>		<div>A</div> <div>1</div>
cos	cos <i>value</i>		<div>A</div> <div>2</div>
tan	tan <i>value</i>		<div>A</div> <div>3</div>
log	log <i>value</i>		<div>A</div> <div>4</div>
10 ^x	10 <i>value</i>		<div>A</div> <div>5</div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
[MATH] NUM			
abs(	abs(<i>value</i>)	<div>B</div> <div>1</div>	<div>B</div> <div>1</div>
round(	round(<i>value</i> [, <i>digit number of decimals</i>])	<div>B</div> <div>2</div>	<div>B</div> <div>2</div>
ipart	ipart <i>value</i>	<div>B</div> <div>3</div>	<div>B</div> <div>3</div>
fpart	fpart <i>value</i>	<div>B</div> <div>4</div>	<div>B</div> <div>4</div>
int	int <i>value</i>	<div>B</div> <div>5</div>	<div>B</div> <div>5</div>
min(	min(<i>value A</i> , <i>value B</i>) or min(<i>list</i>)	<div>B</div> <div>6</div>	<div>B</div> <div>6</div>
max(	max(<i>value A</i> , <i>value B</i>) or max(<i>list</i>)	<div>B</div> <div>7</div>	<div>B</div> <div>7</div>
lcm(	lcm(<i>natural number</i> , <i>natural number</i>)	<div>B</div> <div>8</div>	<div>B</div> <div>8</div>
gcd(	gcd(<i>natural number</i> , <i>natural number</i>)	<div>B</div> <div>9</div>	<div>B</div> <div>9</div>
remain	<i>natural number</i> remain <i>natural number</i>		<div>B</div> <div>0</div>
[MATH] PROB			
random	random [(<i>number of trial</i>)]	<div>C</div> <div>1</div>	<div>C</div> <div>1</div>
rndInt(	rndInt(<i>minimum value</i> , <i>maximum value</i> [, <i>number of trial</i>])	<div>C</div> <div>2</div>	<div>C</div> <div>2</div>
rndCoin	rndCoin [(<i>number of trial</i>)]		<div>C</div> <div>3</div>
rndDice	rndDice [(<i>number of trial</i>)]		<div>C</div> <div>4</div>
nPr	<i>value A</i> nPr <i>value B</i>	<div>C</div> <div>3</div>	<div>C</div> <div>5</div>
nCr	<i>value A</i> nCr <i>value B</i>	<div>C</div> <div>4</div>	<div>C</div> <div>6</div>
!	<i>value</i> !	<div>C</div> <div>5</div>	<div>C</div> <div>7</div>
[MATH] CONV			
→deg	<i>value</i> →deg	<div>D</div> <div>1</div>	<div>D</div> <div>1</div>
→dms	<i>value</i> →dms	<div>D</div> <div>2</div>	<div>D</div> <div>2</div>
xy→r(	xy→r(<i>x-coordinate</i> , <i>y-coordinate</i>)	<div>D</div> <div>3</div>	
xy→θ(	xy→θ(<i>x-coordinate</i> , <i>y-coordinate</i>)	<div>D</div> <div>4</div>	
rθ→x(	rθ→x(<i>r-coordinate</i> , <i>θ-coordinate</i>)	<div>D</div> <div>5</div>	
rθ→y(	rθ→y(<i>r-coordinate</i> , <i>θ-coordinate</i>)	<div>D</div> <div>6</div>	
[MATH] ANGLE			
°	<i>value</i> ° [<i>value</i> ' <i>value</i> "]	<div>E</div> <div>1</div>	<div>E</div> <div>1</div>
'	<i>value</i> ° <i>value</i> ' [<i>value</i> "]	<div>E</div> <div>2</div>	<div>E</div> <div>2</div>
"	<i>value</i> ° <i>value</i> ' <i>value</i> " Print " <i>character strings</i> "	<div>E</div> <div>3</div>	<div>E</div> <div>3</div>
r	<i>value</i> r	<div>E</div> <div>4</div>	<div>E</div> <div>4</div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
g	<i>value g</i>	E 5	
[MATH] INEQ			
=	<i>value A = value B</i>	F 1	
≠	<i>value A ≠ value B</i>	F 2	
>	<i>value A > value B</i>	F 3	
≥	<i>value A ≥ value B</i>	F 4	
<	<i>value A < value B</i>	F 5	
≤	<i>value A ≤ value B</i>	F 6	
[MATH] LOGIC			
and	<i>value A and value B</i>	G 1	
or	<i>value A or value B</i>	G 2	
not	<i>not value</i>	G 3	
xor	<i>value A xor value B</i>	G 4	
xnor	<i>value A xnor value B</i>	G 5	
[MATH] COMPLEX			
conj(	<i>conj(complex number)</i>	H 1	
real(	<i>real(complex number)</i>	H 2	
image(	<i>image(complex number)</i>	H 3	
abs(	<i>abs(complex number)</i>	H 4	
arg(	<i>arg(complex number)</i>	H 5	
[MATH] (in the N-base calculation mode) LOGIC			
and	<i>value A and value B</i>	A 1	
or	<i>value A or value B</i>	A 2	
not	<i>not value</i>	A 3	
neg	<i>neg value</i>	A 4	
xor	<i>value A xor value B</i>	A 5	
xnor	<i>value A xnor value B</i>	A 6	

2. LIST menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>LIST</div><div>OPE/NAME</div></div>			
L1	No arguments		<div>A</div> <div>1</div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
L2	No arguments		<input type="text" value="A"/> <input type="text" value="2"/>
L3	No arguments		<input type="text" value="A"/> <input type="text" value="3"/>
L4	No arguments		<input type="text" value="A"/> <input type="text" value="4"/>
L5	No arguments		<input type="text" value="A"/> <input type="text" value="5"/>
L6	No arguments		<input type="text" value="A"/> <input type="text" value="6"/>
sortA(	sortA(<i>list name</i> [, subordinate list name1, ... , subordinate list name n])	<input type="text" value="A"/> <input type="text" value="1"/>	<input type="text" value="B"/> <input type="text" value="1"/>
sortD(	sortD(<i>list name</i> [, subordinate list name1, ... , subordinate list name n])	<input type="text" value="A"/> <input type="text" value="2"/>	<input type="text" value="B"/> <input type="text" value="2"/>
dim(	dim(<i>list</i>)	<input type="text" value="A"/> <input type="text" value="3"/>	<input type="text" value="B"/> <input type="text" value="3"/>
fill(	fill(<i>value</i> , <i>list</i>)	<input type="text" value="A"/> <input type="text" value="4"/>	<input type="text" value="B"/> <input type="text" value="4"/>
seq(	seq(<i>equation</i> , <i>start value</i> , <i>end value</i> [, <i>increment</i>])	<input type="text" value="A"/> <input type="text" value="5"/>	<input type="text" value="B"/> <input type="text" value="5"/>
cumul	cumul <i>list</i>	<input type="text" value="A"/> <input type="text" value="6"/>	
df_list	df_list <i>list</i>	<input type="text" value="A"/> <input type="text" value="7"/>	<input type="text" value="B"/> <input type="text" value="6"/>
augment(	augment(<i>list 1</i> , <i>list 2</i>)	<input type="text" value="A"/> <input type="text" value="8"/>	<input type="text" value="B"/> <input type="text" value="7"/>
list→mat(	list→mat(<i>list 1</i> , ... , <i>list n</i> , <i>matrix name</i>)	<input type="text" value="A"/> <input type="text" value="9"/>	
mat→list(	mat→list(<i>matrix name</i> , <i>list name 1</i> , ... , <i>list name n</i>) mat→list(<i>matrix name</i> , <i>column number</i> , <i>list name</i>)	<input type="text" value="A"/> <input type="text" value="0"/>	
<input type="text" value="2ndF"/> <input type="text" value="LIST"/> MATH			
min(	min(<i>value A</i> , <i>value B</i>) or min(<i>list</i>)	<input type="text" value="B"/> <input type="text" value="1"/>	<input type="text" value="C"/> <input type="text" value="1"/>
max(	max(<i>value A</i> , <i>value B</i>) or max(<i>list</i>)	<input type="text" value="B"/> <input type="text" value="2"/>	<input type="text" value="C"/> <input type="text" value="2"/>
mean(	mean(<i>list</i> [, <i>frequency list</i>])	<input type="text" value="B"/> <input type="text" value="3"/>	<input type="text" value="C"/> <input type="text" value="3"/>
median(	median(<i>list</i> [, <i>frequency list</i>])	<input type="text" value="B"/> <input type="text" value="4"/>	<input type="text" value="C"/> <input type="text" value="4"/>
sum(	sum(<i>list</i> [, <i>start number</i> , <i>end number</i>])	<input type="text" value="B"/> <input type="text" value="5"/>	<input type="text" value="C"/> <input type="text" value="5"/>
prod(	prod(<i>list</i> [, <i>start number</i> , <i>end number</i>])	<input type="text" value="B"/> <input type="text" value="6"/>	
stdDv(	stdDv(<i>list</i> [, <i>frequency list</i>])	<input type="text" value="B"/> <input type="text" value="7"/>	<input type="text" value="C"/> <input type="text" value="6"/>
varian(	varian(<i>list</i> [, <i>frequency list</i>])	<input type="text" value="B"/> <input type="text" value="8"/>	<input type="text" value="C"/> <input type="text" value="7"/>
<input type="text" value="2ndF"/> <input type="text" value="LIST"/> L_DATA			
StoLD	StoLD <i>natural number</i>	<input type="text" value="C"/> <input type="text" value="1"/>	<input type="text" value="D"/> <input type="text" value="1"/>
RclLD	RclLD <i>natural number</i>	<input type="text" value="C"/> <input type="text" value="2"/>	<input type="text" value="D"/> <input type="text" value="2"/>

* "list" in the above table means a list or a list name.

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div>2ndF</div> <div>LIST</div> { }			
{	No arguments		<div>E</div> <div>1</div>
}	No arguments		<div>E</div> <div>2</div>

3. STAT menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
STAT EDIT/OPE			
EDIT	No arguments	A ENTER	A ENTER
sortA(	sortA(<i>list</i> [, subordinate list 1, ..., subordinate list n])	B 1	B 1
sortD(	sortD(<i>list</i> [, subordinate list 1, ..., subordinate list n])	B 2	B 2
SetList	SetList [<i>list name 1</i> , <i>list name 2</i> , <i>list name 3</i> , ...]	B 3	B 3
ClrList	ClrList <i>list name1</i> [, <i>list name 2</i> , ...]	B 4	B 4
STAT CALC			
1_Stats	1_Stats [<i>x list name</i> [, <i>frequency list</i>]]	C 1	C 1
2_Stats	2_Stats [<i>x list name</i> , <i>y list name</i> [, <i>frequency list</i>]]	C 2	C 2
ANOVA(	ANOVA(<i>list name 1</i> , <i>list name 2</i> [, ...])	C 3	
STAT REG			
Med_Med	Med_Med (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 1	D 1
Rg_ax+b	Rg_ax+b (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 2	D 2
Rg_a+bx	Rg_a+bx (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 3	
Rg_x ²	Rg_x ² (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 4	D 3
Rg_x ³	Rg_x ³ (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 5	
Rg_x ⁴	Rg_x ⁴ (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 6	
Rg_ln	Rg_ln (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 7	
Rg_log	Rg_log (<i>list name for x</i> , <i>list name for y</i> [, <i>frequency list</i>] [, <i>equation name to store</i>])	D 0 8	

* "list" in the above table means a list or a list name.

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
Rg_ab ^x	Rg_ab ^x (list name for x, list name for y [, frequency list] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="0"/> <input type="text" value="9"/>	<input type="text" value="D"/> <input type="text" value="4"/>
Rg_ae ^{bx}	Rg_ae ^{bx} (list name for x, list name for y [, frequency list] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="0"/>	
Rg_x ⁻¹	Rg_x ⁻¹ (list name for x, list name for y [, frequency list] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="1"/>	<input type="text" value="D"/> <input type="text" value="5"/>
Rg_ax ^b	Rg_ax ^b (list name for x, list name for y [, frequency list] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="2"/>	
Rg_logistic	Rg_logistic (list name for x, list name for y [, frequency list] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="3"/>	
Rg_sin	Rg_sin ([iterations,] list name for x, list name for y [, frequency list] [, period] [, equation name to store])	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="4"/>	
x'	value or list x'	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="5"/>	<input type="text" value="D"/> <input type="text" value="6"/>
y'	value or list y'	<input type="text" value="D"/> <input type="text" value="1"/> <input type="text" value="6"/>	<input type="text" value="D"/> <input type="text" value="7"/>
<input type="text" value="STAT"/> TEST			
χ^2 test	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="1"/>	
Ftest2samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="2"/>	
Ttest1samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="3"/>	
Ttest2samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="4"/>	
TtestLinreg	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="5"/>	
Tint1samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="6"/>	
Tint2samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="7"/>	
Ztest1samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="8"/>	
Ztest2samp	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="9"/>	
Ztest1prop	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="0"/>	
Ztest2prop	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="1"/>	
Zint1samp	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="2"/>	
Zint2samp	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="3"/>	
Zint1prop	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="4"/>	
Zint2prop	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="5"/>	
InputList	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="6"/>	
InputStats	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="7"/>	
<input type="text" value="STAT"/> DISTRI			
pdfnorm(	pdfnorm(value [, mean, standard deviation])	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="1"/>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
cdfnorm(	cdfnorm(lower limit, upper limit [,mean, standard deviation])	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="2"/>	
InvNorm(	InvNorm(probability [, mean, standard deviation])	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="3"/>	
pdfT(	pdfT(value, degree of freedom)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="4"/>	
cdfT(	cdfT(lower limit, upper limit, degree of freedom)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="5"/>	
pdf χ^2(	pdf χ^2 (value, degree of freedom)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="6"/>	
cdf χ^2(	cdf χ^2 (lower limit, upper limit, degree of freedom)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="7"/>	
pdfF(	pdfF(value, degree of freedom of numerator, degree of freedom of denominator)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="8"/>	
cdfF(	cdfF(lower limit, upper limit, degree of freedom of numerator, degree of freedom of denominator)	<input type="text" value="F"/> <input type="text" value="0"/> <input type="text" value="9"/>	
pdfbin(	pdfbin(number of trial, success probability [, success numbers])	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="0"/>	
cdfbin(	cdfbin(number of trial, success probability [, success numbers])	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="1"/>	
pdfpoi(	pdfpoi(mean, value)	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="2"/>	
cdfpoi(	cdfpoi(mean, value)	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="3"/>	
pdfgeo(	pdfgeo(success probability, value)	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="4"/>	
cdfgeo(	cdfgeo(success probability, value)	<input type="text" value="F"/> <input type="text" value="1"/> <input type="text" value="5"/>	

4. STAT PLOT menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div>STAT PLOT</div> PLOT1/PLOT2/PLOT3/LIMIT/ON/OFF			
PLOT1	No arguments	<div>A</div> <div>ENTER</div>	<div>A</div> <div>ENTER</div>
PLOT2	No arguments	<div>B</div> <div>ENTER</div>	<div>B</div> <div>ENTER</div>
PLOT3	No arguments	<div>C</div> <div>ENTER</div>	<div>C</div> <div>ENTER</div>
SET	No arguments	<div>D</div> <div>1</div>	<div>D</div> <div>1</div>
LimON	No arguments	<div>D</div> <div>2</div>	<div>D</div> <div>2</div>
LimOFF	No arguments	<div>D</div> <div>3</div>	<div>D</div> <div>3</div>
PlotON	PlotON [number]	<div>E</div> <div>1</div>	<div>E</div> <div>1</div>
PlotOFF	PlotOFF [number]	<div>E</div> <div>2</div>	<div>E</div> <div>2</div>
<div>STAT PLOT</div> (in STAT PLOT mode) HIST/B.L./N.P./N.D./BOX/PIE/S.D./XYLINE			
Hist	No arguments	<div>A</div> <div>1</div>	<div>A</div> <div>1</div>
Broken •	No arguments	<div>B</div> <div>1</div>	<div>B</div> <div>1</div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
Broken +	No arguments	B 2	B 2
Broken □	No arguments	B 3	B 3
Norm •_X	No arguments	C 1	C 1
Norm+_X	No arguments	C 2	C 2
Norm □_X	No arguments	C 3	C 3
Norm •_Y	No arguments	C 4	C 4
Norm+_Y	No arguments	C 5	C 5
Norm □_Y	No arguments	C 6	C 6
NormDis	No arguments	D 1	D 1
Box	No arguments	E 1	E 1
MBox •	No arguments	E 2	E 2
MBox+	No arguments	E 3	E 3
MBox □	No arguments	E 4	E 4
Pie	No arguments	F 1	F 1
Pie%	No arguments	F 2	F 2
Scattr •	No arguments	G 1	G 1
Scattr+	No arguments	G 2	G 2
Scattr □	No arguments	G 3	G 3
xyLine•	No arguments	H 1	H 1
xyLine+	No arguments	H 2	H 2
xyLine □	No arguments	H 3	H 3

5. DRAW menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>DRAW</div>DRAW</div>			
ClrDraw	No arguments	<div>A</div> <div>1</div>	<div>A</div> <div>1</div>
Line(	Line(<i>x-coordinate of start point, y-coordinate of start point, x-coordinate of end point, y-coordinate of end point [,0]</i>)	<div>A</div> <div>2</div>	<div>A</div> <div>2</div>
H_line	H_line <i>y-value</i>	<div>A</div> <div>3</div>	<div>A</div> <div>3</div>
V_line	V_line <i>x-value</i>	<div>A</div> <div>4</div>	<div>A</div> <div>4</div>
T_line(	T_line(<i>equation, x-value</i>)	<div>A</div> <div>5</div>	<div>A</div> <div>5</div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
Draw	Draw <i>equation</i>	<input type="button" value="A"/> <input type="button" value="6"/>	<input type="button" value="A"/> <input type="button" value="6"/>
Shade(	Shade(<i>equation 1, equation 2 [, begin, end]</i>)	<input type="button" value="A"/> <input type="button" value="7"/>	<input type="button" value="A"/> <input type="button" value="7"/>
DrawInv	DrawInv <i>equation</i>	<input type="button" value="A"/> <input type="button" value="8"/>	<input type="button" value="A"/> <input type="button" value="8"/>
Circle(	Circle(<i>x-coordinate of center, y-coordinate of center, radius</i>)	<input type="button" value="A"/> <input type="button" value="9"/>	<input type="button" value="A"/> <input type="button" value="9"/>
Text(	Text(<i>column, row, "character strings"</i>)	<input type="button" value="A"/> <input type="button" value="0"/>	<input type="button" value="A"/> <input type="button" value="0"/>
<input type="button" value="2ndF"/> <input type="button" value="DRAW"/> POINT			
PntON(	PntON(<i>x-coordinate, y-coordinate</i>)	<input type="button" value="B"/> <input type="button" value="1"/>	<input type="button" value="B"/> <input type="button" value="1"/>
PntOFF(	PntOFF(<i>x-coordinate, y-coordinate</i>)	<input type="button" value="B"/> <input type="button" value="2"/>	<input type="button" value="B"/> <input type="button" value="2"/>
PntCHG(	PntCHG(<i>x-coordinate, y-coordinate</i>)	<input type="button" value="B"/> <input type="button" value="3"/>	<input type="button" value="B"/> <input type="button" value="3"/>
PxION(	PxION(<i>column, row</i>)	<input type="button" value="B"/> <input type="button" value="4"/>	<input type="button" value="B"/> <input type="button" value="4"/>
PxIOFF(	PxIOFF(<i>column, row</i>)	<input type="button" value="B"/> <input type="button" value="5"/>	<input type="button" value="B"/> <input type="button" value="5"/>
PxICHG(	PxICHG(<i>column, row</i>)	<input type="button" value="B"/> <input type="button" value="6"/>	<input type="button" value="B"/> <input type="button" value="6"/>
PxITST(	PxITST(<i>column, row</i>)	<input type="button" value="B"/> <input type="button" value="7"/>	<input type="button" value="B"/> <input type="button" value="7"/>
<input type="button" value="2ndF"/> <input type="button" value="DRAW"/> ON/OFF/LINE/G _DATA/PICT/SHADE			
DrawON	DrawON [<i>equation number 1, equation number 2, ...</i>]	<input type="button" value="C"/> <input type="button" value="1"/>	<input type="button" value="C"/> <input type="button" value="1"/>
DrawOFF	DrawOFF [<i>equation number 1, equation number 2, ...</i>]	<input type="button" value="C"/> <input type="button" value="2"/>	<input type="button" value="C"/> <input type="button" value="2"/>
LINE	No arguments	<input type="button" value="D"/> <input type="button" value="ENTER"/>	<input type="button" value="D"/> <input type="button" value="ENTER"/>
StoGD	StoGD <i>number</i>	<input type="button" value="E"/> <input type="button" value="1"/>	<input type="button" value="E"/> <input type="button" value="1"/>
RclGD	RclGD <i>number</i>	<input type="button" value="E"/> <input type="button" value="2"/>	<input type="button" value="E"/> <input type="button" value="2"/>
StoPict	StoPict <i>number</i>	<input type="button" value="F"/> <input type="button" value="1"/>	<input type="button" value="F"/> <input type="button" value="1"/>
RclPict	RclPict <i>number</i>	<input type="button" value="F"/> <input type="button" value="2"/>	<input type="button" value="F"/> <input type="button" value="2"/>
SET	No arguments	<input type="button" value="G"/> <input type="button" value="1"/>	<input type="button" value="G"/> <input type="button" value="1"/>
INITIAL	No arguments	<input type="button" value="G"/> <input type="button" value="2"/>	<input type="button" value="G"/> <input type="button" value="2"/>

6. ZOOM menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div><div></div></div>ZOOM</div>			
Auto Zm_Auto	No arguments	<div><div>A</div><div>1</div></div>	<div><div>A</div><div>1</div></div>
Box Zm_Box	No arguments	<div><div>A</div><div>2</div></div>	<div><div>A</div><div>2</div></div>

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
In Zm_In	No arguments	A 3	A 3
Out Zm_Out	No arguments	A 4	A 4
Default Zm_Default	No arguments	A 5	A 5
Square Zm_Square	No arguments	A 6	A 6
Dec Zm_Dec	No arguments	A 7	A 7
Int Zm_Int	No arguments	A 8	A 8
Stat Zm_Stat	No arguments	A 9	A 9
ZOOM FACTOR/POWER			
FACTOR	No arguments	B ENTER	B ENTER
x^2 Zm_ x^2	No arguments	C 1	C 1
x^{-1} Zm_ x^{-1}	No arguments	C 2	C 2
\sqrt{x} Zm_ $\sqrt{}$	No arguments	C 3	C 3
ZOOM EXP			
10^x Zm_ 10^x	No arguments	D 1	D 1
e^x Zm_ e^x	No arguments	D 2	
log x Zm_log	No arguments	D 3	D 2
ln x Zm_ln	No arguments	D 4	
ZOOM TRIG			
sin x Zm_sin	No arguments	E 1	E 1
cos x Zm_cos	No arguments	E 2	E 2
tan x Zm_tan	No arguments	E 3	E 3

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
$\sin^{-1} x$ Zm_sin ⁻¹	No arguments	E 4	
$\cos^{-1} x$ Zm_cos ⁻¹	No arguments	E 5	
$\tan^{-1} x$ Zm_tan ⁻¹	No arguments	E 6	
ZOOM HYP/STO/RCL			
$\sinh x$ Zm_sinh	No arguments	F 1	
$\cosh x$ Zm_cosh	No arguments	F 2	
$\tanh x$ Zm_tanh	No arguments	F 3	
$\sinh^{-1} x$ Zm_sinh ⁻¹	No arguments	F 4	
$\cosh^{-1} x$ Zm_cosh ⁻¹	No arguments	F 5	
$\tanh^{-1} x$ Zm_tanh ⁻¹	No arguments	F 6	
StoWin	No arguments	G 1	F 1
RclWin	No arguments	H 1	G 1
PreWin	No arguments	H 2	G 2

7. CALC menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>CALC</div><div>CALC</div></div>			
Value	Value x	<div>A</div> <div>1</div>	<div>A</div> <div>1</div>
Intsct	No arguments	<div>A</div> <div>2</div>	<div>A</div> <div>2</div>
Minimum	No arguments	<div>A</div> <div>3</div>	<div>A</div> <div>3</div>
Maximum	No arguments	<div>A</div> <div>4</div>	<div>A</div> <div>4</div>
X_Incpt	No arguments	<div>A</div> <div>5</div>	<div>A</div> <div>5</div>
Y_Incpt	No arguments	<div>A</div> <div>6</div>	<div>A</div> <div>6</div>
Inflec	No arguments	<div>A</div> <div>7</div>	

8. SLIDE SHOW menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>SLIDE SHOW</div><div>CURR/PLAY/NEW/SELECT/EDIT</div></div>			
CURR	No arguments	<div>A</div> <div>ENTER</div>	<div>A</div> <div>ENTER</div>
PLAY	No arguments	<div>B</div>	<div>B</div>
NEW	No arguments	<div>C</div> <div>ENTER</div>	<div>C</div> <div>ENTER</div>
SELECT	No arguments	<div>D</div>	<div>D</div>
MOVE	No arguments	<div>E</div> <div>1</div>	<div>E</div> <div>1</div>
DEL	No arguments	<div>E</div> <div>2</div>	<div>E</div> <div>2</div>
RENAME	No arguments	<div>E</div> <div>3</div>	<div>E</div> <div>3</div>

9. PRGM menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
PRGM			
EXEC	No arguments	<input type="text" value="A"/>	<input type="text" value="A"/>
EDIT	No arguments	<input type="text" value="B"/>	
NEW	No arguments	<input type="text" value="C"/> <input type="text" value="ENTER"/>	
PRGM (in the Programming mode) PRGM			
Print	Print <i>variable</i> Print " <i>character strings</i> ["	<input type="text" value="A"/> <input type="text" value="1"/>	
"	" <i>characters</i> ["	<input type="text" value="A"/> <input type="text" value="2"/>	
Input	Input [" <i>prompt strings</i> ",] <i>variable</i>	<input type="text" value="A"/> <input type="text" value="3"/>	
Wait	Wait [<i>natural number</i>]	<input type="text" value="A"/> <input type="text" value="4"/>	
Rem	Rem <i>comments</i>	<input type="text" value="A"/> <input type="text" value="5"/>	
End	No arguments	<input type="text" value="A"/> <input type="text" value="6"/>	
Key	Key <i>variable</i>	<input type="text" value="A"/> <input type="text" value="7"/>	
PRGM (in the Programming mode) BRNCH			
Label	Label <i>label name</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="1"/>	
Goto	Goto <i>label name</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="2"/>	
If	If <i>conditional statements</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="3"/>	
Then	Then <i>commands</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="4"/>	
Else	[Else <i>commands</i>]	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="5"/>	
EndIf	EndIf	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="6"/>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
For	For <i>variable</i> , start value, end value [, increment] <i>commands</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="7"/>	
Next		<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="8"/>	
While	While <i>conditional statements</i> <i>commands</i>	<input type="text" value="B"/> <input type="text" value="0"/> <input type="text" value="9"/>	
WEnd		<input type="text" value="B"/> <input type="text" value="1"/> <input type="text" value="0"/>	
Gosub	Gosub <i>label name</i>	<input type="text" value="B"/> <input type="text" value="1"/> <input type="text" value="1"/>	
Return	No arguments	<input type="text" value="B"/> <input type="text" value="1"/> <input type="text" value="2"/>	
PRGM (in the Programming mode) SCRN			
ClrT	No arguments	<input type="text" value="C"/> <input type="text" value="1"/>	
ClrG	No arguments	<input type="text" value="C"/> <input type="text" value="2"/>	
DispT	No arguments	<input type="text" value="C"/> <input type="text" value="3"/>	
DispG	No arguments	<input type="text" value="C"/> <input type="text" value="4"/>	
PRGM (in the Programming mode) I/O			
Get	Get <i>variable</i>	<input type="text" value="D"/> <input type="text" value="1"/>	
Send	Send <i>variable</i>	<input type="text" value="D"/> <input type="text" value="2"/>	
PRGM (in the Programming mode) SETUP			
Rect	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="1"/>	
Param	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="2"/>	
Polar	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="3"/>	
Web	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="4"/>	
Time	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="5"/>	
uv	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="6"/>	
uw	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="7"/>	
vw	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="8"/>	
Deg	No arguments	<input type="text" value="E"/> <input type="text" value="0"/> <input type="text" value="9"/>	
Rad	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="0"/>	
Grad	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="1"/>	
FloatPt	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="2"/>	
Fix	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="3"/>	
Sci	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="4"/>	
Eng	No arguments	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="5"/>	
Tab	Tab <i>integer</i>	<input type="text" value="E"/> <input type="text" value="1"/> <input type="text" value="6"/>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
Decimal	No arguments	E 1 7	
Mixed	No arguments	E 1 8	
Improp	No arguments	E 1 9	
$x \pm yi$	No arguments	E 2 0	
$r \angle \theta$	No arguments	E 2 1	
PRGM (in the Programming mode) FORMAT			
RectCursor	No arguments	F 0 1	
PolarCursor	No arguments	F 0 2	
ExprON	No arguments	F 0 3	
ExprOFF	No arguments	F 0 4	
Y'ON	No arguments	F 0 5	
Y'OFF	No arguments	F 0 6	
AxisON	No arguments	F 0 7	
AxisOFF	No arguments	F 0 8	
GridON	No arguments	F 0 9	
GridOFF	No arguments	F 1 0	
Connect	No arguments	F 1 1	
Dot	No arguments	F 1 2	
Sequen	No arguments	F 1 3	
Simul	No arguments	F 1 4	
PRGM (in the Programming mode) S_PLOT			
Plt1(	Plt1(<i>graph type, X list name [, Y list name, frequency list]</i>)	G 1	
Plt2(	Plt2(<i>graph type, X list name [, Y list name, frequency list]</i>)	G 2	
Plt3(	Plt3(<i>graph type, X list name [, Y list name, frequency list]</i>)	G 3	
PlotON	PlotON [<i>number</i>]	G 4	
PlotOFF	PlotOFF [<i>number</i>]	G 5	
LimON	No arguments	G 6	
LimOFF	No arguments	G 7	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
PRGM (in the Prgramming mode) COPY			
StoLine	No arguments	H 1	
RclLine	No arguments	H 2	

10. MATRIX menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div>2ndF</div> <div>MATRIX</div> NAME			
mat A	No arguments	<div>A</div> <div>1</div>	
mat B	No arguments	<div>A</div> <div>2</div>	
mat C	No arguments	<div>A</div> <div>3</div>	
mat D	No arguments	<div>A</div> <div>4</div>	
mat E	No arguments	<div>A</div> <div>5</div>	
mat F	No arguments	<div>A</div> <div>6</div>	
mat G	No arguments	<div>A</div> <div>7</div>	
mat H	No arguments	<div>A</div> <div>8</div>	
mat I	No arguments	<div>A</div> <div>9</div>	
mat J	No arguments	<div>A</div> <div>0</div>	
<div>2ndF</div> <div>MATRIX</div> EDIT			
mat A	No arguments	<div>B</div> <div>1</div>	
mat B	No arguments	<div>B</div> <div>2</div>	
mat C	No arguments	<div>B</div> <div>3</div>	
mat D	No arguments	<div>B</div> <div>4</div>	
mat E	No arguments	<div>B</div> <div>5</div>	
mat F	No arguments	<div>B</div> <div>6</div>	
mat G	No arguments	<div>B</div> <div>7</div>	
mat H	No arguments	<div>B</div> <div>8</div>	
mat I	No arguments	<div>B</div> <div>9</div>	
mat J	No arguments	<div>B</div> <div>0</div>	
<div>2ndF</div> <div>MATRIX</div> OPE			
dim(	dim(<i>matrix name</i>)	<div>C</div> <div>0</div> <div>1</div>	
fill(	fill(<i>value, matrix name</i>)	<div>C</div> <div>0</div> <div>2</div>	
cumul	cumul <i>matrix name</i>	<div>C</div> <div>0</div> <div>3</div>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
augment(	augment(<i>matrix name A, matrix name B</i>)	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="4"/>	
identity	identity <i>dimension value</i>	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="5"/>	
rnd_mat(	rnd_mat(<i>number of row, number of column</i>)	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="6"/>	
row_swap(	row_swap(<i>matrix name, row number, row number</i>)	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="7"/>	
row_plus(	row_plus(<i>matrix name, row number, row number</i>)	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="8"/>	
row_mult(	row_mult(<i>multiplied number, matrix name, row number</i>)	<input type="text" value="C"/> <input type="text" value="0"/> <input type="text" value="9"/>	
row_m.p.(	row_m.p.(<i>multiplied number, matrix name, row number, row number</i>)	<input type="text" value="C"/> <input type="text" value="1"/> <input type="text" value="0"/>	
mat→list(	mat→list(<i>matrix name, list name 1, ..., list name n</i>) mat→list(<i>matrix name, column number, list name</i>)	<input type="text" value="C"/> <input type="text" value="1"/> <input type="text" value="1"/>	
list→mat(	list→mat(<i>list 1, ..., list n, matrix name</i>)	<input type="text" value="C"/> <input type="text" value="1"/> <input type="text" value="2"/>	
<input type="text" value="2ndF"/> <input type="text" value="MATRIX"/> MATH/[]			
det	det <i>matrix name</i>	<input type="text" value="D"/> <input type="text" value="1"/>	
trans	trans <i>matrix name</i>	<input type="text" value="D"/> <input type="text" value="2"/>	
rowEF	rowEF <i>matrix name</i>	<input type="text" value="D"/> <input type="text" value="3"/>	
rrowEF	rrowEF <i>matrix name</i>	<input type="text" value="D"/> <input type="text" value="4"/>	
[	No arguments	<input type="text" value="E"/> <input type="text" value="1"/>	
]	No arguments	<input type="text" value="E"/> <input type="text" value="2"/>	

11. FINANCE menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>FINANCE</div>SOLVER/CALC</div>			
SOLVER	(TVM SOLVER screen appears)	<div>A</div> <div>ENTER</div>	
slv_pmt	slv_pmt [(N, I%, PV, FV, P/Y, C/Y)]	<div>B</div> <div>0</div> <div>1</div>	
slv_I%	slv_I% [(N, PV, PMT, FV, P/Y, C/Y)]	<div>B</div> <div>0</div> <div>2</div>	
slv_PV	slv_PV [(N, I%, PMT, FV, P/Y, C/Y)]	<div>B</div> <div>0</div> <div>3</div>	
slv_N	slv_N [(I%, PV, PMT, FV, P/Y, C/Y)]	<div>B</div> <div>0</div> <div>4</div>	
slv_FV	slv_FV [(N, I%, PV, PMT, P/Y, C/Y)]	<div>B</div> <div>0</div> <div>5</div>	
Npv(	Npv(<i>interest rate, initial investment, list of following collected investment [, frequency list]</i>)	<div>B</div> <div>0</div> <div>6</div>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
Irr(	Irr(<i>initial investment, list of following collected investment [, frequency list] [, assumed revenue rate]</i>)	<input type="button" value="B"/> <input type="button" value="0"/> <input type="button" value="7"/>	
Bal(	Bal(<i>number of payments [, decimal place to round]</i>)	<input type="button" value="B"/> <input type="button" value="0"/> <input type="button" value="8"/>	
ΣPrn(	ΣPrn(<i>initial number of payments, end number of payments [, decimal place to round]</i>)	<input type="button" value="B"/> <input type="button" value="0"/> <input type="button" value="9"/>	
ΣInt(	ΣInt(<i>initial number of payments, end number of payments [, decimal place to round]</i>)	<input type="button" value="B"/> <input type="button" value="1"/> <input type="button" value="0"/>	
→Apr(	→Apr(<i>effective interest rate, number of settlements</i>)	<input type="button" value="B"/> <input type="button" value="1"/> <input type="button" value="1"/>	
→Eff(	→Eff(<i>nominal interest rate, number of settlements</i>)	<input type="button" value="B"/> <input type="button" value="1"/> <input type="button" value="2"/>	
days(	days(<i>start month. day year, end month. day year</i>) days(<i>day month. year, day month. year</i>)	<input type="button" value="B"/> <input type="button" value="1"/> <input type="button" value="3"/>	
<input type="button" value="2ndF"/> <input type="button" value="FINANCE"/> PERIOD			
PmtEnd	No arguments	<input type="button" value="C"/> <input type="button" value="1"/>	
PmtBegin	No arguments	<input type="button" value="C"/> <input type="button" value="2"/>	
<input type="button" value="2ndF"/> <input type="button" value="FINANCE"/> VARS			
N	No arguments	<input type="button" value="D"/> <input type="button" value="1"/>	
I%	No arguments	<input type="button" value="D"/> <input type="button" value="2"/>	
PV	No arguments	<input type="button" value="D"/> <input type="button" value="3"/>	
PMT	No arguments	<input type="button" value="D"/> <input type="button" value="4"/>	
FV	No arguments	<input type="button" value="D"/> <input type="button" value="5"/>	
P/Y	No arguments	<input type="button" value="D"/> <input type="button" value="6"/>	
C/Y	No arguments	<input type="button" value="D"/> <input type="button" value="7"/>	

12. TOOL menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>TOOL</div>N BASE/SYSTEM/POLY</div>			
NBASE	No arguments	<div>A</div> <div>ENTER</div>	
2	No arguments	<div>B</div> <div>2</div>	
3	No arguments	<div>B</div> <div>3</div>	
4	No arguments	<div>B</div> <div>4</div>	
5	No arguments	<div>B</div> <div>5</div>	

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
6	No arguments	<input type="button" value="B"/> <input type="button" value="6"/>	
2	No arguments	<input type="button" value="C"/> <input type="button" value="2"/>	
3	No arguments	<input type="button" value="C"/> <input type="button" value="3"/>	

13. SOLVER menus

Functions Commands	Syntax	Keystrokes	
		Advanced mode	Basic mode
<div><div>2ndF</div><div>SOLVER</div>(in the Solver mode) METHOD/EQTN/SAVE/RENAME</div>			
Equation	No arguments	<div>A</div> <div>1</div>	
Newton	No arguments	<div>A</div> <div>2</div>	
Graphic	No arguments	<div>A</div> <div>3</div>	
EQTN	No arguments	<div>B</div>	
SAVE	No arguments	<div>C</div> <div>ENTER</div>	
RENAME	No arguments	<div>D</div>	

Specifications

Dimensions W x D x H (mm)		86 x 183 x 23 (without hardcase)		
Power		R03 (AAA) x 4		
Backup Battery		CR2032 x 1		
Display	Size (dot)	132 x 64		
	Line x Characters	8 x 22		
	Character Size (dot)	5 x 7		
	Digits (mantissa + exponent)	10 + 2		
Memory	Total Memory Size	64 KB		
	Constant Memory	27 + last answer memory		
Accessory	Protective hard case			
Standard Features	Graphing	Function graphing	Up to 10	
		Parametric graphing	Up to 6	
		Polar graphing	Up to 6	
		Sequence graphing	Up to 3	
		Split screen	Graph-table/graph-equation	
		Graph style		
		Zoom, Trace		
		Table of function values		
	Statistics	Regression models	14	
		Histogram, Broken line plot, Normal probability plot, Normal distribution plot, Box plot, Modified box plot, Pie chart, Scatter diagram, XY line		
	Other	Matrix	Up to 10 (Maximum size : 99 x 99)	
		List	Up to 6 (Maximum length : 999)	
		Programming		
		Trigonometry functions (including sec, csc, cot)		
		Solver		
		Complex numbers		
		Financial calculation		
		Fraction/Decimal conversions		
		Last entry recall (up to 160 steps)		
	Last answer recall			
Features unique to Sharp	Reversible keyboard, Equation editor, Slide show function, List grouping, Σ calculation, Simultaneous equation, Fraction-learning function			
Peripheral	CE-451L	Unit-to-unit communications cable		
	CE-LK2	PC-Link (Print screen/Data storage)		
	EL-99T	OHP system (includes controller)		

* Design and specifications are subject to change without notice.

* Some peripheral products may not be available in some countries.

