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II

Introduction to the Unit

This chapter explains how to use your CyberDictⅢ for the first time, the keys and controls, power sources, default system settings and basic operations of your CyberDictⅢ. We hope it will help you use this device. Please proceed to the following chapters for details of each function under different main menus.

1. How to Use CyberDictⅢ for the First Time

a. Insert two AAA batteries into the battery compartment.

b. Press **ON/OFF** ☐ to turn on your CyberDictⅢ If the screen remains blank after pressing **ON/OFF** ☐, please follow the instructions below:

- Be sure the batteries pack is securely in place.
- Adjust the contrast control for optimal screen viewing.

c. Press [RESET] and follow the instructions shown on the screen.

- press [Y] to delete data.
- press [Y] twice to reset user memory.

d. The main menu of Dictionaries will be displayed.

e. Press 🔘 to switch between Thai and English modes in the main menu.

1

2. Precautions

a. please replace new alkaline battery when the battery low message is indicated.

b. Remove the main battery to avoid leakage and damage to the unit whenever the device will not be used over an extended period of time.

c. All your personal data should be copied onto separate permanent printed records.

d. Resetting the unit will cause permanent personal data loss.

e. To avoid scratching on the screen.

f. When cleaning, rub the screen lightly with a clean, dry and soft cloth. Do not use volatile liquids.

g. The device is not waterproof. Please keep it away from any liquid.

h. The screen may crack if the unit fall to the ground.

i. Any damage caused by the above reasons is not covered by warranty.

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3. Product Layout
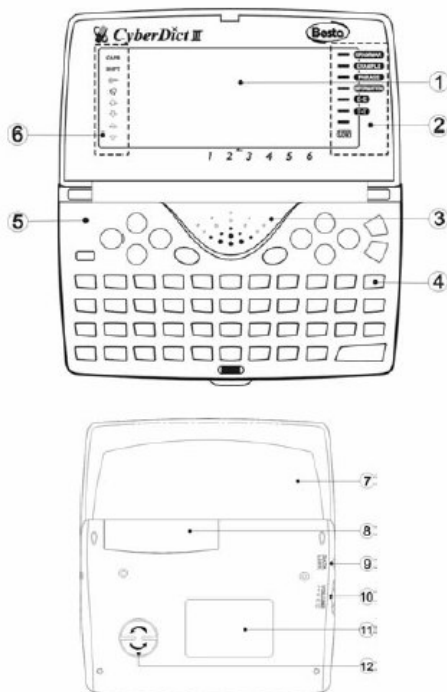
Explanation:

No	Item	Description
1	Screen	LCD screen, 160*64 pt
2	Right Indicator	To indicate status of the system
3	Speaker	For voice and sound effect
4	Keyboard	Keyboard
5	Reset	To initialize the system
6	Left Indicator	To indicate status of the system
7	Main cover	Main cover
8	Battery compartment	To insert the rechargeable battery
9	Data link socket	Data transmission socket
10	Volume	Volume control
11	Main Label	Notes about replace battery
12	Backup battery	Backup for main battery low

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4

4. Keyboard Layout
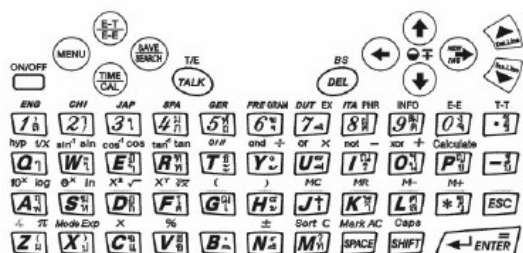
4.1 Keyboard Buttons

No	Key	Function
1	ON/OFF	Power on / off button
2	TALK	Listen in English, Chinese and Japanese
3	E-T / E-E	Switch between English-Thai Dictionary and Longman English dictionary
4	MENU	Under the main menus, press it to shift from one to another
		Return to the main menu
5	THAI/ENG	Switch between Thai and English

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6	SAVE/SEARCH	Save data
		Search data
7	DEL	Delete an English letter or Thai character at/in front of the cursor
8	→	Shift the cursor to the right
		Highlight a word to be cross-searched in the explanation of a headword
		Shift (right) among the main menus
	Shift+→	Insert a letter/character at the cursor
		Create a new file
9	←	Shift the cursor to the left or "Back Space"
		Shift (left) among the main menus
10	↑	Shift the cursor up
		Scroll a line up
11	↓	Shift the cursor down
		Scroll a line down
12	(prev)	View the previous entry or page
	Sift+(prev)	Insert a blank line
13	(next)	View the next entry or page
	Sift+(next)	Delete a line
14	1	Numeric key "1"
		Thai character "?"
		View English in Travel Dialogues

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	shift+1	Comma for the text
15	2	Numeric key "2"
		Thai character "?"
		View Chinese in Travel Dialogues
	shift+2	Thai character "?"
16	3	Numeric key "3"
		Thai character "?"
		View Japanese in Travel Dialogues
17	4	Numeric key "4"
		Thai character "?"
		View Spanish in Travel Dialogues
	shift+4	Thai character "?"
18	5	Numeric key "5"
		Thai character "?"
		View German in Travel Dialogues
	shift+5	Thai character "?"
19	6	Numeric key "6"
		Thai character "?"
		View French in Travel Dialogues
		View Grammar for English headword
	shift+6	Thai character "?"
20	7	Numeric key "7"
		Thai character "?"
		View Dutch in Travel Dialogues

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		View example for English headword
21	8	Numeric key "8"
		Thai character "?"
		View Italian in Travel Dialogues
		View phrase for English headword
	shift+8	Thai character "?"
22	9	Numeric key "9"
		Thai character "?"
		View Information for English headword
	shift+9	Thai character "?"
23	0	Numeric key "0"
		Thai character "?"
		To access Longman English Dictionary
	shift+0	Thai character "?"
24	.	Full stop for the text
		Decimal point for calculator
		Thai character "?"
		To access Thai-Thai Dictionary
	shift+.	Thai character "?"
25	Q	English letter "Q"
		Thai character "?"
		Mathematic sign "1/X"
	shift+Q	Mathematic sign "hyp"
26		English letter "W"

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	Key	Description
	W	Thai character "?"
		Mathematic sign "sin"
	shift+W	Thai character "?"
		Mathematic sign "$\sin^{-1}$"
27	E	English letter "E"
		Thai character "?"
		Mathematic sign "cos"
	shift+E	Thai character "?"
		Mathematic sign "$\cos^{-1}$"
28	R	English letter "R"
		Thai character "?"
		Mathematic sign "tan"
	shift+R	Thai character "?"
		Mathematic sign "$\tan^{-1}$"
29	T	English letter "T"
		Thai character "?"
	shift+T	Thai character "?"
		Mathematic sign "$\delta/\textit{н}$"
30	Y	English letter "Y"
		Thai character "?"
		Mathematic sign "÷"
	shift+Y	Thai character "?"
		Logical sign "and"
31	U	English letter "U"
		Thai character "?"
		Mathematic sign "x"
		Thai character "?"

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	Key	Description
32	shift+U	Logical sign "or"
	I	English letter "I"
		Thai character "?"
		Mathematic sign "−"
	shift+I	Thai character "?"
		Logical sign "not"
33	O	English letter "O"
		Thai character "?"
		Mathematic sign "+"
	shift+O	Thai character "?"
		Logical sign "xor"
34	P	English letter "P"
		Thai character "?"
		Mathematic sign "Calculate"
	shift+P	Thai character "?"
35	−	Hyphen for the text
		Thai character "?"
	shift+−	Thai character "?"
36	A	English letter "A"
		Thai character "?"
		Mathematic sign "log"
	shift+A	Thai character "?"
		Mathematic sign "10^x"
37	S	English letter "S"
		Thai character "?"

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	Key	Description
		Mathematic sign "ln"
	shift+S	Thai character "?"
		Mathematic sign "e^{x}"
38	D	English letter "D"
		Thai character "?"
		Mathematic sign "$\sqrt{\ }$"
	shift+D	Thai character "?"
		Mathematic sign "x^2"
39	F	English letter "F"
		Thai character "?"
		Mathematic sign "$1/x$"
	shift+F	Thai character "?"
		Mathematic sign "x^y"
40	G	English letter "G"
		Thai character "?"
		Open bracket for text sign "("
	shift+G	Thai character "?"
41	H	English letter "H"
		Thai character "?"
		Close bracket for text sign ")"
	shift+H	Thai character "?"
42	J	English letter "J"
		Thai character "?"
		Mathematic sign "MC"
	shift+J	Thai character "?"

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	Key	Description
43	K	English letter "K"
		Thai character "?"
		Mathematic sign "MR"
	shift+K	Thai character "?"
44	L	English letter "L"
		Thai character "?"
		Mathematic sign "M-"
	shift+L	Thai character "?"
45	*	Asterisk " * " for the text
		A wildcard search symbol "*" to be used in English-Thai Dictionary
		Thai character "?"
		Mathematic sign "M+"
	shift+*	Thai character "?"
46	ESC	To exit current function
47	Z	English letter "Z"
		Thai character "?"
		Mathematic sign "π"
	shift+Z	Mathematic sign "$\maltese$"
48	X	English letter "X"
		Thai character "?"
		Sign "EXP" Express exponent
	shift+X	Mathematic sign "mode"
49		English letter "C"

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	Thai character "?"	
	Mathematic sign "X!"	
shift+	Thai character "?"	
50	English letter "V"	
	Thai character "?"	
	Mathematic sign "%"	
shift+	Thai character "?"	
51	English letter "B"	
	Thai character "?"	
shift+	Thai character "?"	
52	English letter "N"	
	Thai character "?"	
	Mathematic sign "±"	
shift+	Thai character "?"	
53	English letter "M"	
	Thai character "?"	
	Mathematic sign "C"	
shift+	Thai character "?"	
54	Enter a space when editing data	
	Mathematic sign "AC"	
shift+	Display special symbols	
56	SHIFT	Press it before inputting an English letter to shift it to upper case / lower case

	shift+ SHIFT	Lock the keyboard for inputting capital letters in English
57		Enter data or begin a search
		Move the cursor to the next line or next page during data editing
	ENTER	Return to the previous screen. A function similar to ESC
		Mathematic sign "="

5. On-screen Indicator Descriptions
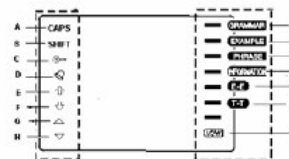
The following indicators are displayed at the right of the screen:

No	Indicator	What it means
1	Grammar	The status of the grammar display
2	Example	The status of the Example display
3	Phrase	The status of the phrase display
4	Information	The status of the information display
5	E-E	The status of the longman English Dictionary
6	T-T	The status of the Thai-Thai Dictionary

7	LOW	Battery low

The following indicators are displayed at the left of the screen:

No	Indicator	What it means
A	CAPS	The keyboard is locked for inputting capital letters
B	SHIFT	Ready for input a capital or lower case letter
C	⊙⌐	The data is protected by a security password
D	🔔	The alarm is set
E	⇧	To scroll a line up
F	⇩	To scroll a line down
G	▲	More data is available (Press to view it)
H	▼	More data is available (Press to view it)

6. Power Sources

Main Power:

   a. Two AAA batteries.

Backup Power:

   a. A CR220 lithium battery for data backup in Random Access Memory.

[Caution]

   a. Remember to switch off the power before replacing the battery.

   b. To prevent battery leakage which may damage The unit, do not mixed old and new batteries.

   c. Damage caused by a power adaptor of another model is not covered by the warranty.

   d. Do not replace the main batteries and the backup battery at the same time or some of the system settings which are kept in RAM will be lost.
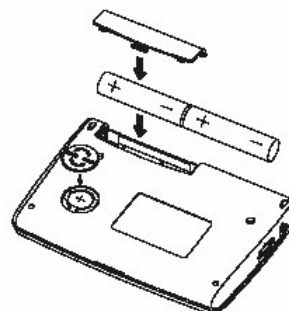
7. Default System Settings

Local city: Bangkok
Local time setting: 08:00, 2002.01.01
World city: New York
Time system: 24-hours system
Alarm setting: Off
Key Tones: On
DST: None
Display language: Thai
Power Cut-off Interval: 5 minutes
Opening setting: Dictionary Menu
Password setting: None

8. Main Menus

8.1 General Operation

1. Press 🔲🔲🔲 to shift among the main menus.
2. Press 🔲 / 🔲 for the previous or the next page.
3. Press 🔲 / 🔲 for the previous or the next item.
4. If English-Thai Dictionary is highlighted, press any alphabet keys to access the dictionary directly.
5. Choose the desired item and press 🔲 for access.
6. Press 🔲 to return to the main menu.

8.2 Main Menus

a. [Dictionaries]


```
1.English-Thai Dictionary
2.Thai-English Dictionary
3.Longman English Dictionary
4.Thai-Thai Dictionary        0
```

```
5.Proverbs
6.Useful Vocabularies
7.Travel Dialogues
8.User's Dictionary            0
```

```
6.Useful Vocabularies
7.Travel Dialogues
8.User's Dictionary
9.Revision Dictionary          0
```

b. [Data]

```
1.Name Card Manager
2.Memorandum
3.Personal Information
4.Telephone Information        2
```

```
5.Travel Guide
6.Thai Embassy Overseas
7.Police Stations in Thailand
8.Hospitals in Thailand        2
```

c. [Calculator]

```
1.Calculator
2.Scientific Calculator
3.Statistical Calculator
4.Formula Calculator           3
```

```
5.Unit Conversion
6.Currency Conversion
7.Size Conversion
8.Personal Finance             3
```

D. [Time]

```
1.Local and World Time
2.Schedule
3.Class Schedule
4.Commemorative Days           4
```

```
5.Lunar and Solar Calendar
6.Games World
7.Information Communication
8.System                       4
```
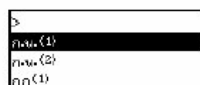
1. English-Thai Dictionary

* General vocabulary with
  clear Thai definitions.
* **Input type:** smart input
* **Search method:**
  Wildcard search -- replace the unknown letter(s)
  with "?" or "∗".
  Secondary searches --Spelling check, nearest word
  and user's dictionary.
* Provides grammar, example, phrases and
  information.
* Allows cross-searching among Eng -Thai Dictionary,
  Thai-Eng Dictionary and Longman Dictionary.
* Save word explain for Revision Dictionary.
* English pronunciation for headword.
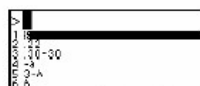
2. Thai-English Dictionary

* General vocabulary with
  clear English definitions.
* Allows cross-searching
  among Eng–Thai
  Dictionary, Thai-Eng Dictionary and Longman
  Dictionary.
* English pronunciation for highlighted words.

3. Longman English Dictionary

* General vocabulary with
  English definitions.
* Smart input.
* Wildcard search -- replace
  the unknown letter(s) with "?" or "∗".
* Secondary searches -- Spelling check, nearest
  word and user's dictionary.
* Provides grammar, example, phrases and
  information.
* Pronunciation for English headword and highlighted
  word.
* Save word explain for Revision Dictionary.

4. Thai-Thai Dictionary

* General vocabulary with
  clear Thai definitions.
* Smart input.

5. Proverbs

* English proverb with Thai
  definitions.
* Allows cross-searching
  among Thai-English
  Dictionary, Eng -Thai
  Dictionary and Longman Dictionary.
* English pronunciation for the whole proverbs.

* Thai proverbs with English definitions.
* Allows cross-searching among Thai-Eng Dictionary,
  Eng -Thai Dictionary and Longman Dictionary.
* English pronunciation.

6. Useful Vocabularies

* Contains 10 categories and
  74 subcategories.
* Useful vocabularies in both
  English and Thai.
* English pronunciation for
  highlighted word.
* Allows cross-searching among Eng -Thai Dictionary,
  Thai-Eng Dictionary and Longman Dictionary.

7. Travel Dialogues

* Contains 10 main themes
  and 46 situations;
  sentence in nine languages
* Allows cross-searching
  among Thai-Eng Dictionary, Eng-Thai Dictionary
  Longman Dictionary and Tai-Tai Dictionary.
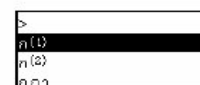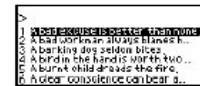* English, Chinese and Japanese pronunciation.

8. User's Dictionary

* Creates personal dictionary
  for searching.
* Allows to create, edit,
  delete and save data.
* Allows cross-searching among Thai-Eng Dictionary,
  Eng -Thai Dictionary and Longman Dictionary.
* English pronunciations for highlighted word.
* The create words can be looked up in the Eng–
  Thai dictionary and longman dictionary through
  secondary searches.
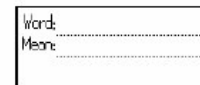
9. Revision Dictionary

* TOEFL words Exercises
  Provides four exercises:
  learning, review & test,
  recalling and practice.
* Test based on vocabulary already stored in
  Eng–Thai Dictionary and Longman Dictionary.
* When you have finished the Practice session, The
  result of the test will be display.
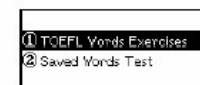
1. Name Card Manager

* Input data in Thai, English, numbers and special symbol
* Searches name cards by means of keyword and tel number.
* Inputs, saves, modifies, deletes and creates new data.
* Stores portraits for name card
* Name index function: includes English, Thai index.

```
Name:Tom
H/Tel:5452880
H/Addr:
```

2. Memorandum

* Inputs data in Thai, English, numbers and special symbol
* Searches Memorandum by means of keyword and title.
* Inputs, saves, modifies, deletes and creates new data.
* Memorandum index function: includes English, Thai index.

```
Title:Meeting
Memo:at 3:00
```

3. Personal Information

* Inputs data in Thai, English, numbers and special symbol.
* Inputs, saves, modifies, deletes and creates new data.

```
Name:Tony
Sex:Male
Age:22
```

* Searches name card by means of keyword.

4. Telephone Information

* Provides the guide to making international phone calls, country telephone codes, area codes of major cites.
* Provides Thai area postal code.

```
①International Dialing
②Country Code
③Thai Area Code
```

5. Travel Guide

* Provides detailed information about 188 countries and their major cities. including GMT, Capital, Cit, Language, Abbreviation, C/Cod, Idd/A, Volt, Currency, Religion information etc.

```
C'try:Afghanistan Su
        สกาน
GMT:+4p0
(1city)
```

6. Thai Embassy Overseas

* Provides detailed information about country, state, address, telephone, fax and web of Thai embassies overseas.

```
C'try:Canada
State:Ontario
Addr:Royal Thai Emba
      Island Park Drive
```

7. Police Stations in Thailand

* Provides detailed information about province, state, address, zip, telephone, and fax of the police stations in different areas.

```
Prov:กรุง เทพฯ
  Sta:สน.บวลาเท
Addr:320 ถนนศรีอยุธยา
      แขวงทุ่งพลาเทก เขต
```

8. Hospitals in Thailand

* Provides detailed information about province, hospital name, address, zip, telephone and fax of the hospitals in different areas.

```
Prov:เบชรบุรี
Hosp:ร.พ.เขาย้อย
Addr:อ.เขาย้อย
  Zip:78140
```

The definition of mathematical symbols:

[MC]   : Key [J], deletes the total amount in memory.
[MR]   : Key [K],displays total amount in memory.
[M+]   : Key [L],calculates in memory plus.
[M-]   : Key [*],calculates in memory minus.
[C]   : Key [M],deletes the current entry
[AC]   : Key [Space],deletes the calculation result.
[Mode]   : Key shift+[X],shifts amount the base system.
[%]   : Key [V],calculates percent.
[+/-]   : Key [N],enters plus or minus signs.
[Hyp]   : Key shift+[Q],shift among hyperbolic sine,
               cosine,tangent functions.
[1/X]   : Key [Q],reciprocal signs.
[sin]   : Key [W],sine function.
$[\sin^{-1}]$: Key shift+[W], arc sine function.
[cos]   : Key [E],cosine function
$[\cos^{-1}]$: Key shift+[E], arc cosine function.
[tan]   : Key [R],tangent function .
$[\tan^{-1}]$: Key shift+[R], arc tangent function.
[° ' "]   : Key [T],angel and radian signs.
[Xor]   : Key shift+[O],Boolean calculation signs.
$[10^x]$: Key shift+[A],common exponent.
[log]   : Key [A],common logarithm.
$[e^x]$: Key shift+[S],natural exponent .
[ln]   : Key [S],natural logarithm.
$[x^2]$: Key shift+[D],calculates square .
$[\sqrt{\ }]$: Key [D],calculates square root.
$[x^y]$: Key shift+[F],power signs.
$[\sqrt[y]{x}]$: Key [F], extract signs.

[π]   : Key [Z],circumference ratio.
[∠]   : Key shift+[Z],shift between angle and radian.
[Exp]   : Key [X],common exponent.
[X!]   : Key [C],calculates factorial
[Sort]   : Key shift+[M],sorts in statistic calculator.

1. Calculator

* 12-digit number calculation
  for four basic arithmetical
  operations.
* Storage functions: [MR],
  [MC], [M+], [M-]
* Number conversion among binary, octonary,
  decimal and hexadecimal systems

2. Scientific Calculator

* Four basic arithmetical
  operations.
* Function, Boolean
  calculation and conversion
  for angle, radian.
* Number conversion among binary, octonary,
  decimal and hexadecimal systems

3. Statistical Calculator

* Four basic arithmetical
  operations, calculate
  functions and integrals.
* Statistically calculates
  uniform, linear regression, logarithmic regression,
  exponential regression and power regression
  based on the values entered.
* Sorts, analyzes for data up to 99 entries.

4. Formula Calculator

* Provides mathematic
  formula, physical formula
  and fundamental equations
  used in calculation of area
  volume, series, probability,
  geometry and triangle.
* Calculates formula depending on the entered
  variables.

5. Unit Conversion

* Converts various units of
  measure (length, area,
  volume, weight, temperature,
  etc.)

* Displays conversion unit and ratio and equivalent.

6. Currency Conversion

* 17 popular currencies for
  conversion
* Computation among the
  exchange rate and quantity.
* Displays conversion unit and ratio and equivalent.

7. Size Conversion

* Tables of corresponding
  size of clothing and shoes in
  different countries.

8. Personal Finance

* Manage 12 types of daily expense, includes: Food,
  Clothes, Furniture, Traffic,
  Amusement, Education,
  Postage, Taxi, Drawing and
  3 others.
* Manage deposit and draw sum.

Calculation

There are 8 useful calculators listed as below.

1.Calculator	5.Unit Conversion
2.Scientific Calculator	6.Currency Conversion
3.Statistical Calculator	7.Size Conversion
4.Formula Calculator ❸	8.Personal Finance ❸

Fundamental mathematic symbols:

[+]   : addition (O)

[-]   : subtraction (I)

[x]   : multiplication (U)

[÷]   : division (Y)

[MC]   : memory clear (J)

[MR]   : memory replay (K)

[M-]   : minus from memory value (L)

[M+]   : plus into memory value (*)

[C]   : clear / clear error (M)

[AC]   : all clear (SPACE)

[Mode]   : shift among counting systems (SHIFT + X)

        DEC -- decimal system

        HEX – hexadecimal system

        BIN – binary system

        OCT – octonary system

[%]   : percentage (V)

[X!]   : factorial (C)

Boolean operation symbols

[and]   : and (SHIFT + Y)

[or]   : or (SHIFT + U)

[not]   : not (SHIFT + I)

[xor]   : exclusive or (SHIFT + O)

Operation symbols for Statistical Calculator

[Sort]   : sorting (SHIFT + M)

[Calculate] : calculation (P)

Operation symbols for Expenses Manager

[Type]   : change type of expenses (SHIFT+B)

1. Calculator

Fundamental mathematic symbols and boolean operation symbols can be used in Calculator.

Example: 1234567+987=?

Initial screen of calculator

Memory:	0
	Dec 0.

Press 1234567

Memory:	0
	Dec 1,234,567.

[+/-]   : plus or minus (N)

Scientific mathematic symbols

[Hyp]   : hyperbolic (SHIFT + Q)

[1/X]   : inverse (Q)

[sin]   : sine (W)

[sin⁻¹]   : arc sine (SHIFT + W)

[cos]   : cosine (E)

[cos⁻¹]   : arc cosine (SHIFT + E)

[tan]   : tangent (R)

[tan⁻¹]   : arc tangent (SHIFT + R)

[°'"]   : degree/minute/second (T)

[log]   : logarithm (A)

[10ˣ]   : power of 10 (SHIFT + A)

[ln]   : natural logarithm (S)

[eˣ]   : exponential (SHIFT + S)

[√‾]   : square root (D)

[x²]   : square (SHIFT + D)

[ʸ√x̄]   : yth root (F)

[xʸ]   : yth power (SHIFT + F)

[□]   : pi (Z)

[∡]   : shift among degree / radian / gradient (SHIFT+Z)

[Exp]   :exponential (constant) (X)

Press [+]

Memory:	0
	Dec 1,234,567. +

Press 987

Memory:	0
	Dec 987.

Press [ENTER]

Memory:	0
	Dec 1,235,554.

Example: (1*7)-(2*3)=?

Press 1 [*] 7[M+]

Memory:	7
	Dec 7.

Press 2 [*] 3[M-]

Memory:	1
	Dec 6.

Press [MR]

Memory:	1
	Dec 1.

2. Scientific Calculator

[+][-][x][÷][AC][Mode][+/-], scientific mathematic symbols and boolean operation symbols can be used.

Note: Haxadecimal, octonary and binary mode do not support

scientific mathematic symbols.

Example: How to change counting system and angular unit?
Initial screen of scientific calculator

Press [SHIFT] [Z], change to 'Radian'.

From initial screen, press [SHIFT] [X] change to hexadecimal.
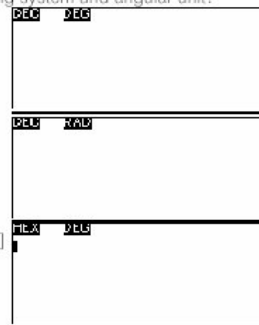
More examples:
Example: sin(60)=?
Press [W] 60 [ENTER]

Example:asin(0.5)=?
Press [SHIFT][W] 0.5 [ENTER]

Example: sinh(30)=?
Press [SHIFT][Q][W]30[ENTER]

Example: 25 AND 60 =?
Press 25 [SHIFT][Y]60[ENTER]
(011001 AND 111100 = 011000)

Example: How to convert minutes and seconds to degrees?
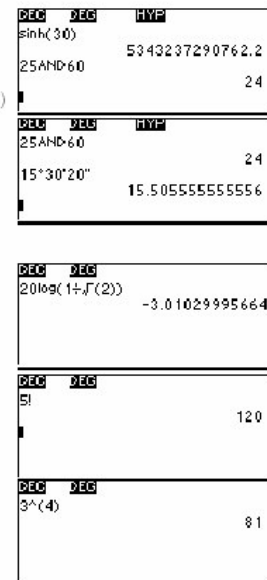Press 15[T]30[T]20[T][ENTER]

Example:Calculate $20\log(1/\sqrt{2})$=?
Press 20[A]1[Y][D]2[ENTER]

Example: 5!=?
Press 5[C][ENTER]

Example: 3^4=?
Press 3[SHIFT][F]4[ENTER]

3. Statistical Calculator

For uniform statistic calculation, Yi is the total number (q'ty) of Xi.
For example, 10 person got 60 points, means that (Xi, Yi) is (60,10).
For the regressions, (Xi, Yi) will be treazted as a paired data.
Example:

Initial screen of Statistical Calculator

Press 1 [ENTER] 2 [ENTER] 3 [ENTER] 4 [ENTER] 5 [ENTER] 6 [ENTER] 7 [ENTER] 8 [ENTER]

Press [SHIFT][M]

Select 2.Descending sort from X

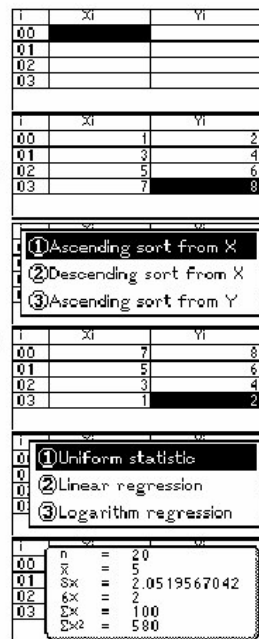Press [P]

Select 1.Uniform statistic

Note:
n=8+6+4+2=20

sum=7*8+5*6+3*4+1*2=100

mean=100/20=5

$$Sx=\sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i-\bar{x})^2}$$

$$\sigma x=\sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x})^2}$$

Sorting Type:
1. Ascending sort from X – Sorts X in ascending order
2. Descending sort from X – Sorts X in descending order
3. Ascending sort from Y – Sorts Y in ascending order
4. Descending sort from Y – Sorts Y in desceding order

Calculations:
1. Uniform statistic – Calculate statistical variables of Xi (number of data point, mean of X values, sample standard deviation of X, population standard deviation of X, sum of X values, sum of x^2 values)
2. Linear regression – Fits a linear model to data $y=a+bx$
3. Logarithm regression – Fits a logarithmic model to data $y=a+b\,\ln x$ $x>0$
4. Index (Exponential) regression – Fits an exponential model to data $y=ab^x$ $y>0$
5. Power regression – Fits a power regression to data $y=ax^b$ $x>0$, $y>0$

Example:
Input data

Press [P]
Select 2.Linear regression.
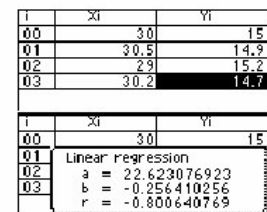
4. Formula Calculator

There are 6 categories in Formula Calculator.

```
①Area        ③Series
②Volume      ④Probability
③Series      ⑤Geometry
④Probability ⑥Triangle
```

4.1. Area

There are 13 formulas in this category.

```
①Triangle(1)     ⑤Parallelogram(1)
②Triangle(2)     ⑥Parallelogram(2)
③Triangle(3)     ⑦Trapezoid
④Rectangle       ⑧Circle
⑨Sector(1)       ⑩Sector(2)
ⒶSector(2)       ⒷEllipse
ⒷEllipse         ⒸSphere
ⒸSphere          ⒹCylinder
```

Example: Calculate area of a tringle.

Select 1.Triangle (1)

Press 3 [⊕] 4 [⊕]

```
S = ½ah
a  =  3
h  =  4
S  =  ▮
```

Press [ENTER], the result is 6.

```
S = ½ah
a  =  3
h  =  4
S  =  ▮6
```

4.2. Volume

There are 4 formulas in this category.

```
①Spheroid
②Cylinder
③Cone
④Pyramid
```

Examples:

Select 1. Spheroid

Press 5 [⊕] [ENTER]

```
V = 4⁄3 π r³
r  =  5
V  =  ▮23.5987756
```

Select 4. Pyramid

Press 2 [⊕] 5 [⊕] [ENTER]

```
V = ⅓ sh
S  =  2
h  =  5
V  =  ▮3.3333333333
```

4.3. Series

There are 4 formulas in this category.

```
①Arithmetic Series
②Geometric Series
③Squared numbers' sum
④Cubic number value sum
```

Examples:

Select 1. Arithmetic Series

Press 5 [⊕] 10 [⊕] 2 [⊕] [ENTER]

Note:

```
S = ½ n[2a₀+(n-1)d]
a₀  =  5
n   =  10
d   =  2
S   =  ▮140
```

$5+7+9+11+13+15+17+19+21+23=140$

Select 3. Squared numbers' sum

Press 5 [⊕] [ENTER]

Note:

```
S = ⅙ n(n+1)(2n+1)
n  =  5
S  =  ▮55
```

$1+4+9+16+25=55$

4.4. Probability

There are 9 formulas in this category.

```
①Binomial distri prob fnt   ⑤Exponent distri prob fnt
②Poisson distri prob fnt    ⑥Uniform distri prob fnt
③Geometry distri prob fnt   ⑦Normal distri prob fnt
④Non-Euclid geom prob fnt   ⑧Stand-normal dist fnt
⑥Uniform distri prob fnt
⑦Normal distri prob fnt
⑧Stand-normal dist fnt
⑨Recombinable
```

Example:

Select 1. Binomial distri prob fnf

Press 2 [⊕] 5 [⊕] 0.8 [⊕]

[ENTER]

```
P(x)=Cₙˣpˣ(1-p)ⁿ⁻ˣ  0<P<1 ×=0,1,···,n
×  =  2
n  =  5
p  =  0.8
P  =  0.0512
```

4.5. Geometry

There are 5 formulas in this category.

```
①Vector dot product   ②Vector angle
②Vector angle         ③Two dots' distance
③Two dots' distance   ④Dot & line's distance
④Dot & line's distance ⑤Intersection angle
```

Example:

Select 1. Vector dot product

Press 5 [⊕] 6 [⊕] [7] [⊕] 9[⊕]

```
I=A⃗·B⃗=a₁b₁+a₂b₂
a₁  =  5
b₁  =  6
a₂  =  7
b₂  =  ▮9
```

Press [ENTER]

```
I=A⃗·B⃗=a₁b₁+a₂b₂
b₁  =  6
a₂  =  7
b₂  =  9
I   =  ▮93
```

4.6. Triangle

There are 4 formulas in this category.

```
①Cosine
②Fahrenheit
③Sine(1)
④Sine(2)
```

Example:

Select 1 Cosine.

Press 2 [⊕] 3 [⊕] 1.5 [⊕]

[ENTER]

```
a²=b²+c²-2bcCosA   0<A<π
b  =  2
c  =  3
A  =  1.5
a  =  ▮.4858504816
```

5. Unit Conversion

There are 8 kinds of conversion.

①Length Conversion ④Heat Conversion
②Temperature Conversion ⑤Volume Conversion
③Area Conversion ⑥Power Conversion

⑥Power Conversion
⑦Weight Conversion
⑧Pressure Conversion

Examples:
Select 1.Length Conversion
Press [⊕] once to select Meter.

mm ⇒ Meter	
1: 0.001	
	0.

Press 101001398 [ENTER]
101001398mm=101001.398
Meter
Press [⊕] to shift the cursor.
Press [⊕] a few time to select
'Inch'
Press 100 [ENTER]
100 inches=2.54 Meter

mm ⇒ Meter	
1: 0.001	
	10 100 1398.
	10 100 1.398

Inch ⇐ Meter	
1: 0.0254	
	0.

Inch ⇒ Meter	
1: 0.0254	
	100.
	2.54

Example: 20 horse power = ? Watt

Press [⊕] or [⊕]to choose other
currencies.
Example: press [⊕] to choose
NTD, press 34.5 [ENTER]

Setup Currency	
1 USD ⇒	
	34.5
	NTD

6.2. Currency Calculation

Initial screen of 2. Currency
Calculation

USD ⇒ BAHT	
1: 45.6	
	0.

Press [⊕] and [⊕] to shift the
cursor.
Press [⊕] and [⊕] to select
currencies

USD ⇐ BAHT	
1: 45.6	
	0.

Example: USD20=BAHT ?
Press 20 [ENTER]

USD ⇒ BAHT	
1: 45.6	
	20.
	912

Example: BAHT4900=NTD?
Press [⊕][⊕][⊕][⊕][⊕]
Press 4900 [ENTER]

BAHT ⇒ NTD	
1: 0.7565789474	
	4900.
	3707.23684211

7. Size Conversion

Select 6. Power Conversion

Hp ⇒ Kw	
1: 0.745	
	0.

Press [⊕] once
Press 20 [ENTER]

Hp ⇒ W	
1: 745	
	20.
	14900

6. Currency Conversion
To ensure your result is are correct, please review and check the
exchange rates among the currencies in 1. Currency Setup before
proceed to 2. Currency Calculation.

① Currency Setup
② Currency Calculate

6.1. Currency Setup
The initial screen of 1. Currency
Setup.

Setup Currency	
1 USD ⇒	
	43.3
	BAHT

Setting exchange rate of the
currency.
Example, press 45.6 [ENTER].

Setup Currency	
1 USD ⇒	
	45.6
	BAHT

①Women Clothes ②Women Shoes
②Women Shoes ③Women Hats
③Women Hats ④Men Shirts
④Men Shirts ⑤Men Shoes

Select 1. Women Clothes

America	8	10	12
Britain	32	34	36
Japan	7	9	11
Germany	34	36	38

Press [⊕][⊕][⊕][⊕][⊕][⊕]
to view more data.

Britain	38	40	42
Japan	13	15	17
Germany	40	42	---
Europe	42	44	46

8. Personal Finance

① Expenses Manager
② Saving Manager

8.1. Expenses Manager

8.1.1. Create new data
Select 1. Expenses Manager
Press Y

Add Data?
Yes No

Input data.
Example: Press 90 [ENTER]
chicken rice

Type:Food	
Sum:90	
Memo:chicken rice	

chicken rice

Press [SAVE]

List screen will be displayed.

```
Type: All
┌──────────────┬──────────┐
│ Date         │ Sum      │
├──────────────┼──────────┤
│ 2001.11.20   │ 90       │
│              │          │
├──────────────┴──────────┤
│ 1.New 2.type  3.Delete  4.Settle │
└─────────────────────────┘
```

8.1.2. Add new data

Press 1.New under list screen.
Press [⊕] and input date.

```
Type:Food
Date:2001/11/20 (Tue)
Sum:
```

Press [SHIFT][B] to set the type
of expenses.

```
①Food
②Clothes
③Furniture
```

Example: Select 'Clothes'
Input all other data
Press [ENTER]
Press [SAVE] and return to list
screen.

```
Type:Clothes
Sum:100
Memo:T-shirt
```

```
Type: All
┌──────────────┬──────────┐
│ Date         │ Sum      │
├──────────────┼──────────┤
│ 2001.11.20   │ 90       │
│ 2001.11.20   │ 100      │
├──────────────┴──────────┤
│ 1.New 2.type  3.Delete  4.Settle │
└─────────────────────────┘
```

8.1.3. View and modify data

Select a data under list screen.
Press [ENTER]

```
Type:Food
Date:2001,11,20       1.New
Sum:90                2.Edit
```

Modify the category name and
press [SAVE]

Example: Change 'Food' to
'Drink'

then press [SAVE]

The type names with 'Food' in all
related records were changed to
'Drink'.

```
1 Drink
2 Clothes
3 Furniture
```

```
Type:Drink
Date:2001,11,20       1.New
Sum:90                2.Edit
```

8.1.6. Settle

Under list screen.

```
Type: All
┌──────────────┬──────────┐
│ Date         │ Sum      │
├──────────────┼──────────┤
│ 2001.11.20   │ 90       │
│ 2001.11.20   │ 100      │
│ 2001.11.20   │ 120      │
├──────────────┴──────────┤
│ 1.New 2.type  3.Delete  4.Settle │
└─────────────────────────┘
```

Press 4

Set start and cutoff date.

```
Type: All
Start:2001/11/20 (Tue)
Cutoff:2001/11/20 (Tue)
Sum:
```

Press [ENTER]
Note: Sum of all expenses during
this period is 310.

```
Type: All
Start:2001/11/10 (Sat)
Cutoff:2001/11/20 (Tue)
Sum: 310
```

Press [SHIFT][B], select 'Food',
press [ENTER].
Note: Sum of expense in 'Food'
category during this period is

```
Type:Food
Start:2001/11/10 (Sat)
Cutoff:2001/11/20 (Tue)
Sum: 210
```

Press 2 to edit data.
Example: Change sum into 120.

```
Type:Food
Date:2001/11/20 (Tue)
Sum:120
```

Press [SAVE],
'Save as new file?' will appear.
Y: Save as new file, the original
data will be retained.
N:The original data will be
overwrited by modified data.
Press Y. Return to list screen

```
Save as new file?
   ( Yes )   ▌No▐
```

```
Type: All
┌──────────────┬──────────┐
│ Date         │ Sum      │
├──────────────┼──────────┤
│ 2001.11.20   │ 90       │
│ 2001.11.20   │ 100      │
│ 2001.11.20   │ 120      │
├──────────────┴──────────┤
│ 1.New 2.type  3.Delete  4.Settle │
└─────────────────────────┘
```

8.1.4. Delete Data

Select a data under list screen.
Press 3 to delete the data.
Press Y to confirm.

```
Type: All
    Delete?
   ( Yes )   ▌No▐
```

8.1.5. Change category name

Press 2 under list screen.

```
1 Food
2 Clothes
3 Furniture
```

210.

8.1.7. Data protection by password

If you had set a password, whenever you enter Expenses Manager,
you need to input the original password.

8.2. Saving Manager

8.2.1. Deposit money and rename the account

Initial screen of Saving Manager

```
┌──────────────┬──────────┐
│ Sum          │ 0        │
├──────────────┼──────────┤
│ ▌Save1       │ 0      ▐ │
│ Save2        │ 0        │
│ Save3        │ 0        │
│ Save4        │ 0        │
├──────────────┴──────────┤
│ 1.Deposit 2.Draw 3.Rename │
└─────────────────────────┘
```

Press 1 to deposit money.
Example: Press 900 [ENTER]

```
Save1
Current Sum:    900
Deposit:        0
```

Press [ESC]

```
┌──────────────┬──────────┐
│ Sum          │ 900      │
├──────────────┼──────────┤
│ ▌Save1       │ 900    ▐ │
│ Save2        │ 0        │
│ Save3        │ 0        │
│ Save4        │ 0        │
├──────────────┴──────────┤
│ 1.Deposit 2.Draw 3.Rename │
└─────────────────────────┘
```

Press 3 under list screen to
rename the account.
Example: Press Bank1
Press [ENTER]

```
Prev.Name:Save1
Curr.Name:bank1
```

```
Prev.Name:bank1
Curr.Name:
```

Press [ESC]

So, you have saved 900 in Bank1 account.

Sum	900
bank1	900
Save2	0
Save3	0
Save4	0
1,Deposit 2,Draw 3,Rename	

8.2.2. Withdraw money

Select a appropriate account under list screen, press 2 to withdraw money. Input the money to be withdrawn.
Example: Press 300
Press [ENTER]

bank1

Current Sum: 900

Draw: 300█

bank1

Current Sum: 600

Draw: 0

Press [ESC]

Note: Now you have 600 in bank1 account.

Sum	600
bank1	600
Save2	0
Save3	0
Save4	0
1,Deposit 2,Draw 3,Rename	

1. Local and World Time

* Displays time and date of the local city and other cities simultaneously.
* Provides 228 world cities for selection.
* Time adjustable.
* Provides daylight saving setting. (Summer time)
* Alarm clock.

Local City	World City
Bangkok	New York
11:35(Sun)	23:35(Tue)
2001/11/14	2001/11/13

2. Schedule

* Displays weekly schedule.
* Allows to create, modify, save and delete schedule.
* Sets the alarm for important scheduled activities.

Title:
Date: 2001/10/23 (Sun)
Start: 10:43

3. Class Schedule

* Allows to create, modify and delete curriculum.
* Stores class curriculum, including subjects, teachers and places from Monday to Sunday.

4. Commemorative Days

* Stores solar and lunar commemorative days.
* Allows to set a password for the security of saved data.
* Allows to create, modify and delete data.

① Solar
② Lunar

5. Lunar and Solar Calendar

* Allows to search any date of Solar & Lunar calendar from year 1881 to 2099.
* Allows to create schedule and commemorative day directly.

2001 - 10

6. Games World

* Eight games: 24 points, Square World, Dworld, Othello, Kongming Chess, Land Mines, Puzzles and Straight move.

① 24 points
② Square World
③ DWorld
④ Othello

7. Information Communication

* Allows to Send and Receive data.
* Allows to send single or all data from class schedule, name card manage, memorandum, etc.

① Send All
② Send Single
③ Receive Data

8. System

System Setting

* Sets menu in Thai or English.
* Speech and tone adjustment.
* Sets key sound on or off.
* Sets start-up screen.
* Password set up and deletion.
* Sets the automatic power-off period.
* 12 or 24 hours for selection
* Hot line service for customer contact.

① System Settings
② System Status

System Status

* Displays memory status and saved data groups.
* Deletes the whole group of personal data