

TI58C emulator Manual



TI58C is a program that emulates Texas Instruments calculators from the late 70's on Windows platform. (TI58, TI58C, TI59).



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The **TI58C** is a Texas Instruments programmable calculator from years 70 / 80.



It has a special language (SML: Specialized Machine Language)

- 480 program steps or 60 memories (1 step = 2 nibbles*, 1 memory = 8 bytes), sharing steps/memories is partitionable. (Ex: 240 steps **and** 30 memories)
- RAM = 480 bytes, less than half K byte (about 4K bits!),
- ROM, named "Master Library", of 5000 steps comes standard. (many other modules are optional)
- display red LED 10 digits in 7 segments
- constant memory (for TI58C only, not for TI58 and TI59 !)

a **PC100** printer complete this programmable calculator.

To connect the TI58C to the printer, it is necessary to remove batteries for plug in the pocket calculator on the connector of the printer. Small sensible craftiness: batteries can be put in a trapdoor which assures the load. No ink, the printer "burns" a thermal paper which has the inconvenience to erasing in time... I keep nevertheless my "listings" of programs under forms of paper rolls.



ROM modules of 5000 steps containing about twenty programs or utilities are also marketed:

- ML Master Library
- MU Math Utilities
- LE Leisure Library
- SY Surveying
- EE Electrical Engineering
- ... and many others !

A TV interface has also been marketed by a French electronics company.

This interface has a receptacle identical to the base of connection of the printer and connects to a TV (Black & White) with a coaxial cable of antenna.

The display corresponds exactly to what usually goes out on the printer and a "trace mode" allows to follow step by step the execution of the program for debugging.



Deviations from the original TI58/58C/59

The emulator TI58C incorporates the features of the TI58, TI58C and TI59 but with some variants.

These variants are mainly due either to the lifting of limits [1] of emulated machines, either of the author's own desires...[2], either some features considered as minor that will be implemented in future versions [3], either for compatibility with other programs [4].

- the number of steps and memories can be changed ("*partitionable*" with **OP 17**) but is proposed to "989.999" [1]
- the maximum number of steps is 990 (usually 480 for **TI58/TI58C** and 960 for **TI59**) [1]
- the number of registers is 1000 (usually 60 for **TI58/TI58C** and 100 for **TI59**) [1]
- the registers used for printing alphanumeric instructions **OP 01** to **OP 04**, are different from registers used by **HIR (82)**. [1] et [2]
- the masked instruction **HIR (82)** is accessible from the keyboard of TI58C (**2nd INV**)



- a new instruction is made available : **SB*** (**SBR 2nd IND**) and as the code 26 (replace **2nd INV** never used) [2] (*for the fun and my pleasure...*)



- the instruction **HIR 9x** prints the registers x to 9 used by **HIR (82)**. [2]

0	H0
0	H1
0	H2
0	H3
0	H4
0	H5
0	H6
0	H7
0	H8
0	H9

- new instructions **OP 41** to **99** are managed (see **OP** pages) [2]
- **INV ÷** : remainder of the division. ([4] for compatibility with **Android ti5x** of Lawrence d'Oliveiro)
- **INV PI** displays the equivalent of 1 radian into the display register **X** (1 if radians, $180 \div \text{PI}$ if degrees, $200 \div \text{PI}$ if gradians). ([4] for compatibility with **Android ti5x** of Lawrence d'Oliveiro)
- **INV GTO** puts the address of the location into the display register **X**. ([4] for compatibility with **Android ti5x** of Lawrence d'Oliveiro)
- new instruction **PCT** (code 20) percentage (Ex: $150 + 19.6 \text{ PCT} = \text{gives } 179.4$)



New instructions have also been added.

These instructions are accessible either via the **TI58C** keyboard using the **3rd** function or by typing the instruction directly via the PC keyboard.

The **3rd** function can be used either by making the **3rd** key appear with **ALT J** (depending on the skin used) or by hitting the **2nd** key twice in succession.

- new instruction **KEY** (code 1A) identical to OP 56 (see pages OP)
- new instruction **SND** (code 1B) identical to OP 57 (see pages OP)
- new instruction **RND** (code 1C) identical to OP 51 (see pages OP)
- new instruction **LIB** (code 1D) identical to OP 69 (see pages OP)
- new instruction **CUT** (code 1E) identical to OP 59 (see pages OP)
- new instruction **FNC** (code 1F) identical to OP 43 (see pages OP)
- new instruction **NOW** (code 1G) identical to OP 50 (see pages OP)
- new instruction **STX nnn** (code 1H) ditto STO but for registers 000 to 999
- new instruction **RCX nnn** (code 1I) ditto RCL but for registers 000 to 999
- new instruction **SMX nnn** (code 1J) ditto SUM but for registers 000 to 999 (and **INV SMX nnn**)
- new instruction **PDX nnn** (code 1K) ditto PRD but for registers 000 to 999 (and **INV PDX nnn**)
- new instruction **EXX nnn** (code 1L) ditto EXC but for registers 000 to 999
- new instruction **MOD** (code 1M) identical to **INV ÷** (see previous page)
- new instructions : **CAS, CA*** [**CAS IND**] (code 1N and 1O)

CAS x nnn : x = register number to compare to **X** register
 nnn = address (or label) where to go if equal to **X**
 (or where to go if not equal to **X** and **INV** used)

- new instructions : **LPG, LP*** [**LPG IND**] (code 1P and 1Q) "Link ProGram"

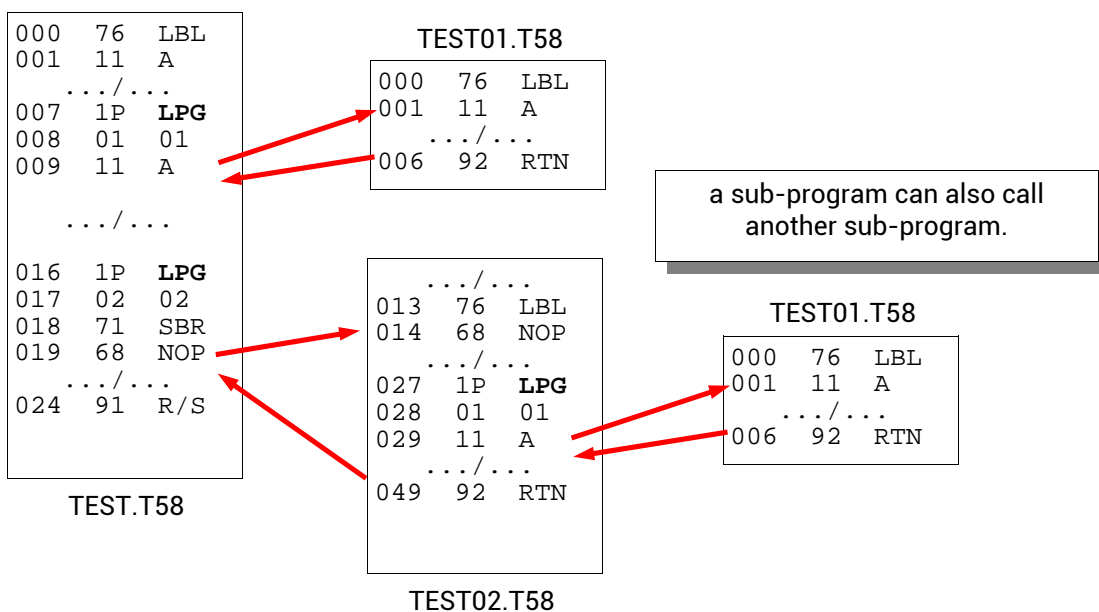
LPG xx loads in high memory (same as **PGM**) the sub-program with the same name as the calling program but with a suffix **xx**.

Ex : if the program **CALCUL.T58** contains **LPG 01**, the sub-program called is **CALCUL01.T58**

if the program **TEST.LST** contains **LPG 02**, the sub-program called is **TEST02.LST**

In the case of extension **T59** or **LST**, if the sub-program does not exist, an attempt is made with **TI58** extension.

if, in the case of program **TEST.LST** that contains **LPG 02**, the sub-program **TEST02.LST** does not exist then the sub-program **TEST02.T58** is loaded.



- new instructions : **LDP, LD*** [*LDP IND*] (code 1R et 1S) "**LoaD Program**"
LDP xx loads in memory a program with the same name as the calling program but with a suffix **xx**.
 Ex : if the program **JEUX.T58** contains **LDP 01** the program **JEUX01.T58** is loaded in memory replacing **JEUX.T58**.
LDP 00 reloads the program **JEUX.T58** in memory replacing **JEUXnn.T58**.
- news instructions : **INC, IN*** [*INC IND*] (code 1T and 1U) "**INC**rement"
INC xx adds 1 in register **xx** : same as **OP 2n** but not limited to registers 0 to 9
(INV INC xx remove 1 from register **xx**.)
- news instructions : **DEC, DE*** [*DEC IND*] (code 1V and 1W) "**DEC**rement"
DEC xx removes 1 from register **xx** : same as **OP 3n** but not limited to registers 0 to 9
(INV DEC xx adds 1 in register **xx**.)
- new instruction : **X!** (code 1X) factorial of **X**.
- new instruction : **FRC** (code 1Y) fractional part of **X**. (same as **INV INT**)
- new instruction : **RPN** (code 2A) : switches to "Reverse Polish Notation" mode.
- new instruction : **ALG** (code 2B) : switches to "Algebraic Notation" mode.
- new test instructions :
 To complete the Instructions **x≥t** (**GE**) and **x=t** (**EQ**)
LE (code 2C) "**Less or Equal**" : **x≤t**
NEQ (code 2D) "**Not Equal**" : **x≠t**
GR (code 2E) "**GR**eater than" : **x>t**
LT (code 2F) "**Less Than**" : **x<t**
 and also :
EZR (code 2G) "**Equal to ZeRo**" : **x=0**
NZR (code 2H) "**Not equal to ZeRo**" : **x≠0**
- new instruction : **INP** (code 2I) "**INP**ut"
INP displays the characters of the Alpha register (see next page) then stops the program while waiting for the input of a number (which will be followed by **R/S** to continue the program at the step following the **INP** instruction).
- 5 new function key labels :
 To complete the labels **A, B, C, D, E, A', B', C', D'** and **E'**
A'' (code 3A) : **3rd A** or *Shift + F1*
B'' (code 3B) : **3rd B** or *Shift + F2*
C'' (code 3C) : **3rd C** or *Shift + F3*
D'' (code 3D) : **3rd D** or *Shift + F4*
E'' (code 3E) : **3rd E** or *Shift + F5*
 Attention: these labels are written on 3 characters : **letter** then ' then '



- Alpha Mode :

To simplify the use of texts usually managed via the character code table, the Alpha mode allows the use of alphanumeric characters without going through the code of each character.

The entry of a 10-character text is accessible via the "Alpha" command, i.e. **3rd INV** (or **2nd 2nd INV**).

This 10 character text is stored in a special Alpha register.

When pressing the keys **3rd INV** (or **2nd 2nd INV**) the alphabetical labels appear in blue above the keys but do not need to be preceded by **2nd**. On the other hand, the numbers and operators must be used preceded by pressing **2nd**.

Pressing **INV** exits alpha mode.

	0	1	2	3	4	5	6	7
0		0	1	2	3	4	5	6
1	7	8	9	A	B	C	D	E
2	-	F	G	H	I	J	K	L
3	M	N	O	P	Q	R	S	T
4	.	U	V	W	X	Y	Z	+
5	x	*	\$	@	e	()	,
6	\	%		/	=	'	x	#
7	²	?	:	!	¶	^	{	}

A	B	C	D	E
	Alpha	Esp.	CE	CLR
	F	G	H	
	I	J	K	
{	L	M	N	}
	7	8	9	*
?	O	P	Q	\
	4	5	6	-
!	R	S	T	^
\$	1	2	3	+
	0	.		=
@	X	Y	Z	:

Actual use of the keyboard in Alpha mode

In **LRN** (programming) mode, Alpha mode can be invoked to enter text up to 10 characters.

This text will take a maximum of 5 steps (2 alphanumeric characters per step) and can be used with **OP** functions for printing or display (see pages on OP 00 to OP 06, OP 55 and OP 80 to OP 86)

Alpha mode can also be used to create program labels with the **LBL** instruction.

Attention: the text must then be limited to 2 characters.

000	76	LBL	015	76	LBL
001	11	A	016	L1	~L1
002	1_	~1_	017	ON	~ON
003	OR	~OR	018	E!	~E!
004	_2	~_2	019	69	OP
005	_?	~_?	020	85	85
006	2I	INP	021	91	R/S
007	32	X/T	022	76	LBL
008	01	1	023	L2	~L2
009	67	EQ	024	TW	~TW
010	L1	~L1	025	O!	~O!
011	02	2	026	69	OP
012	67	EQ	027	85	85
013	L2	~L2	028	91	R/S
014	91	R/S			

Sample program



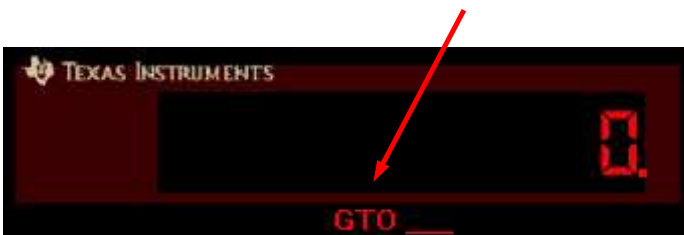
Using the PC Keyboard

Whether in "calculator" mode or "LRN" (programming), you can use your PC keyboard to input your data and your programs.

The key codes for "seconds" instructions not needs to type the key 2nd, type directly the (two or three) letters of the instruction to enter.

For the "functions" from **A** to **E'** use the functions keys of your PC keyboard from F1 to F10.

For the indirect branch instructions (**ST***, **RC*** ...), type the instruction (**STO**, **RCL** ...) then **IND**, the instruction will be well recorded as expected.



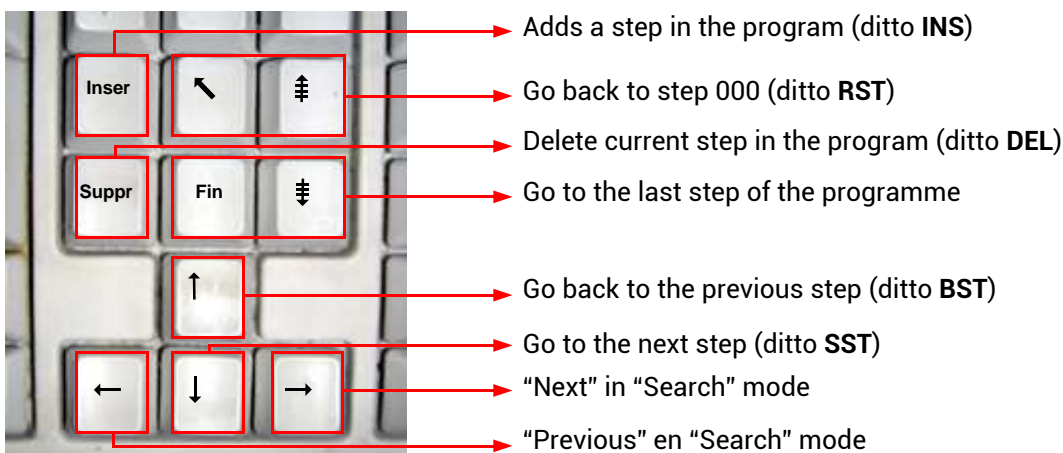
In addition,

- the "Back Space" key deletes the last character,
- the "Escape" key (Esc) cancels the current input,
- the "Back" key is equivalent to **=**,
- the "Delete" key is equivalent to **CLR**.



Note: You can also use **AVG** instead of **AVR**, **SIG** instead of **STA** and **ABS** instead of **IXI**...(see next page "Language agreement")

In "LRN" mode (programming), you can also use the arrow keys on the PC keyboard, and use the "Insert" and "Delete" keys. ("Escape" (Esc) to exit "LRN" mode)



Language agreement

Originally, the calculator knew only the codes of instruction from 00 to 99, their "translation" appearing only on the printer.

Some keys have a title, of which the printed equivalent can vary.

13 codes are thus the object of a particular module suggesting you to choose your translation of the code.

Keys	Code	Possible translations
$x=t$	32	X/T X%T X:T
x^2	33	X2 X^2 X²
$1/x$	35	1/X X1
2nd P→R	37	P/R P>R
y^x	45	YX Y^X
2nd x	50	X ABS
2nd Prd INV	64	PD* PR*
2nd x=t	67	EQ X=T
2nd $x \geq t$	77	GE X>T
2nd $\Sigma+$	78	STA SIG S+
2nd \bar{x}	79	AVR AVG @
GTO INV	83	GT* GO*
+/-	94	+/- CHS
Pct	20	PCT %

To choose your own "translation", enter the sequence ALT W to see the screen of selection of the "translations".

Click the code to define your own values



Additional views

Usually, TI shows only numbers in the "calculator" mode, or shows only address and code of the current instruction in "LRN" mode (programming).

Specific indicators have been added in TI58C program.

Indication of the angle measurement

an red "LED" is displayed on the keypad near the choice of angle measurement used.



Fixed decimal indication

an red "LED" appears on the keypad near the FIX button if a number of fixed decimal was chosen.



Notation indicating

an red "LED" is displayed on the keypad facing ENG key when engineering notation was chosen.



indication of keys waiting

a red text appears above the **2nd** key or above the **INV** key if one of these keys has been used in expectation of another key. .



for the instructions who are waiting a register number, an address number or a flag number, a red text appears above the keyboard TI with the format expected underlined.



Instructions translation

in "LRN" mode (programming) the translation of the instruction code is displayed under the code.



Modules Programs

when a program of a module is loaded (PGM xx), the program name is displayed in the upper left until canceled by PGM 00.



Steps et Registers

The **TI58C** and **TI58** calculators had 240 program steps and 30 registers, and the **TI59** had 480 program steps and 60 records, distribution between steps and registers being configured with instructions **OP 17**.

TI58 / TI58C			TI59		
OP 17	Steps	Registers	OP 17	Steps	Registers
			0	960	0
			1	880	10
			2	800	20
			3	720	30
0	480	0	4	640	40
1	400	10	5	560	50
2	320	20	6	480	60
3	240	30	7	400	70
4	160	40	8	320	80
5	80	50	9	240	90
6	0	60	10	160	100

Ti58C.EXE offers **990** program steps (0 to 989) and **1000** registers (0 to 999). (see **OP 17** page 32)

WARNING !

The registers 100 to 999 can be handled only using indirect addressing with the instructions **ST*** (**STO IND**), **RC*** (**RCL IND**), **SM*** (**SUM IND**), etc...

Indeed the direct instructions **STO**, **RCL**, **SUM**, **PRD**... can be followed by only two digits (00-99) and are thus limited to the first 100 registers.

(or use the offset registers value - see **OP 52 / OP 53**)



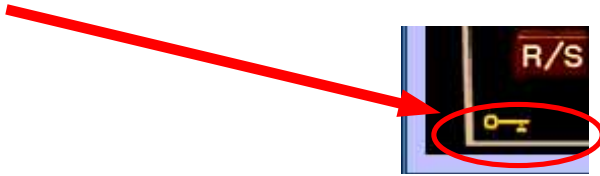
You can also use the TI58C specific extensions :

STX nnn, **RCX nnn**, **SMX nnn**, **INV SMX nnn**, **PDX nnn**, **INV PDX** and **EXX nnn**
to manipulate registers 100 to 999.



Editing registers

Registers of the **TI58C** can be edited by clicking the calculator at the bottom/left (under R / S) or hitting on the keyboard **ALT V**



Flags		<input type="checkbox"/> 0	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9
X	<input type="text" value="0"/>	CE	
T	<input type="text" value="0"/>	CE	
Registers :	<input type="text" value="0"/>	<input type="text" value="00-09"/>	
00	<input type="text" value="0"/>	CE	
01	<input type="text" value="0"/>	CE	
02	<input type="text" value="0"/>	CE	
03	<input type="text" value="0"/>	CE	
04	<input type="text" value="0"/>	CE	
05	<input type="text" value="0"/>	CE	
06	<input type="text" value="0"/>	CE	
07	<input type="text" value="0"/>	CE	
08	<input type="text" value="0"/>	CE	
09	<input type="text" value="0"/>	CE	

On the frame of registers and flags, almost every objects are clickable :

- flags checkboxes,
- register name or number,
- register value,
- buttons "CE",
- registers listbox.

Flags		<input type="checkbox"/> 0	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9
X	<input type="text" value="0"/>	CE	
T	<input type="text" value="0"/>	CE	
Registers :	<input type="text" value="0"/>	<input type="text" value="00-09"/>	
00	<input type="text" value="0"/>	CE	
01	<input type="text" value="0"/>	CE	
02	<input type="text" value="0"/>	CE	
03	<input type="text" value="0"/>	CE	
04	<input type="text" value="0"/>	CE	
05	<input type="text" value="0"/>	CE	
06	<input type="text" value="0"/>	CE	
07	<input type="text" value="0"/>	CE	
08	<input type="text" value="0"/>	CE	
09	<input type="text" value="0"/>	CE	

The registers listbox allow to show the groups of registers 10 by 10 (except registers **OP**).

So the registers **000 to 009**, **010 to 019**, **020 to 029** until **990 to 999**.

Registers **HIR** and **OP** can be also edited.

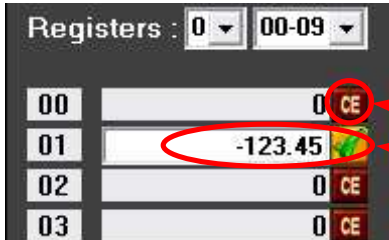
Flags		<input type="checkbox"/> 0	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9
X	<input type="text" value="0"/>	CE	
T	<input type="text" value="0"/>	CE	
Registers :	<input type="text" value="HIR"/>		
H0	<input type="text" value="0"/>	CE	
H1	<input type="text" value="0"/>	CE	
H2	<input type="text" value="0"/>	CE	
H3	<input type="text" value="0"/>	CE	
H4	<input type="text" value="0"/>	CE	
H5	<input type="text" value="0"/>	CE	
H6	<input type="text" value="0"/>	CE	
H7	<input type="text" value="0"/>	CE	
H8	<input type="text" value="0"/>	CE	
H9	<input type="text" value="0"/>	CE	

Flags		<input type="checkbox"/> 0	<input type="checkbox"/> 1
<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9
X	<input type="text" value="0"/>	CE	
T	<input type="text" value="0"/>	CE	
Registers :	<input type="text" value="OP"/>		
OP1	<input type="text" value="0"/>	CE	
OP2	<input type="text" value="0"/>	CE	
OP3	<input type="text" value="0"/>	CE	
OP4	<input type="text" value="0"/>	CE	





Flags can be modified by clicking the checkbox corresponding to the concerned flag. (Idem **STF** / **INV STF**)



The contents of every register can be modified:

- by clicking "CE" the register is erased,
- by clicking the contents of the register a new value can be input.



Click the number (or the name) of a register transfer its contents in the display register **X**.



To click the name of the register **X** shows two buttons:

- Copy the register **X** in the press-paper,
- Paste the press-paper in the register **X**.



Using plugins

As standard, the "Master Library" module is supplied with several other modules (see pgm.zip attached to the installation), knowing that only one module can be loaded in the calculator.

With the TI58C program, you will choose to load a module by clicking on the image of the module who exceeds from the calculator at the bottom right.



The module appears and the module selection screen is displayed.



When opening the "Modules" screen for the first time, the modules are installed from the **PGM.zip** file (creation of the PGM directory, and the subdirectories) and the setting in the **TI58C.ini** file is automatically generated.



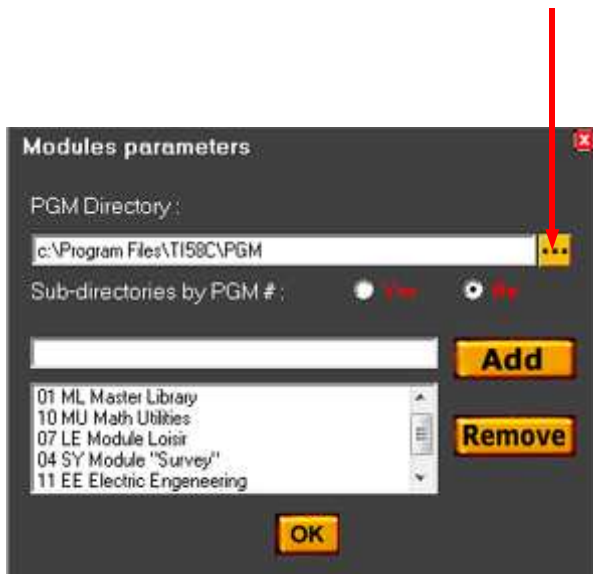
To configure the use of modules, it must be specified :

- 1 the path to the directory containing the modules,
- 2 if each module directory consists of sub-directory per program,
- 3 the reference of each module used.

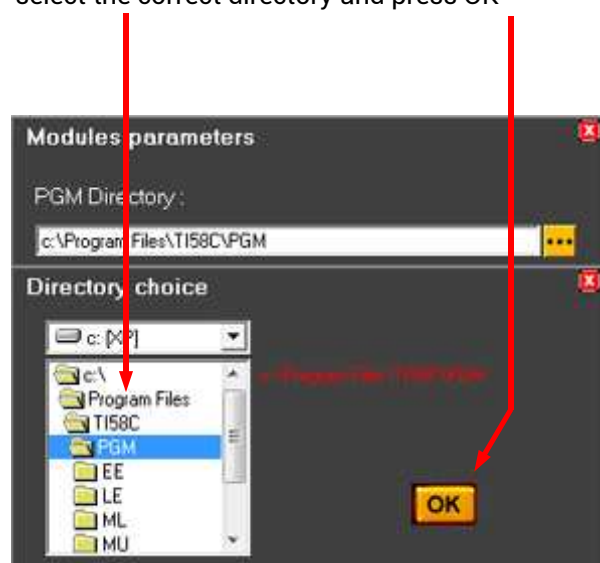


1 Path to the directory containing the modules

Locate the directory containing the modules



select the correct directory and press OK

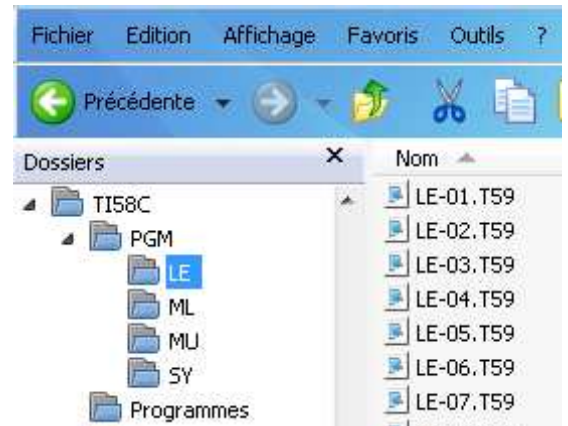


2 Sub-directory per program

The modules directory should contain a module directory whose name is the module code (ML, MU, EE, SY,...)
Each directory of each module can contain

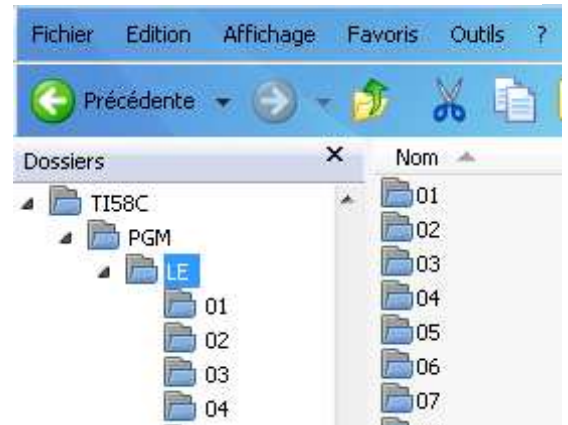
- either directly the routines (ML-01.T59, ML-02.T59 ...)

Sub-directories by PGM # : Yes No



- either directly a subdirectory numbered for each routine (01, 02 ...)

Sub-directories by PGM # : Yes No



3 Reference of each module

01 ML Master Library	<input type="button" value="Add"/> <input type="button" value="Remove"/>
10 MU Math Utilities	
07 LE Module Loisir	
04 SY Module "Survey"	
11 EE Electric Engineering	
14 PH Messages	

Enter the references of modules used and then click "Add"

syntax : **NN XX xxxxxxxxxxxxxxxxxxxx**

NN module number,

XX module code corresponding to the name of the directory module,

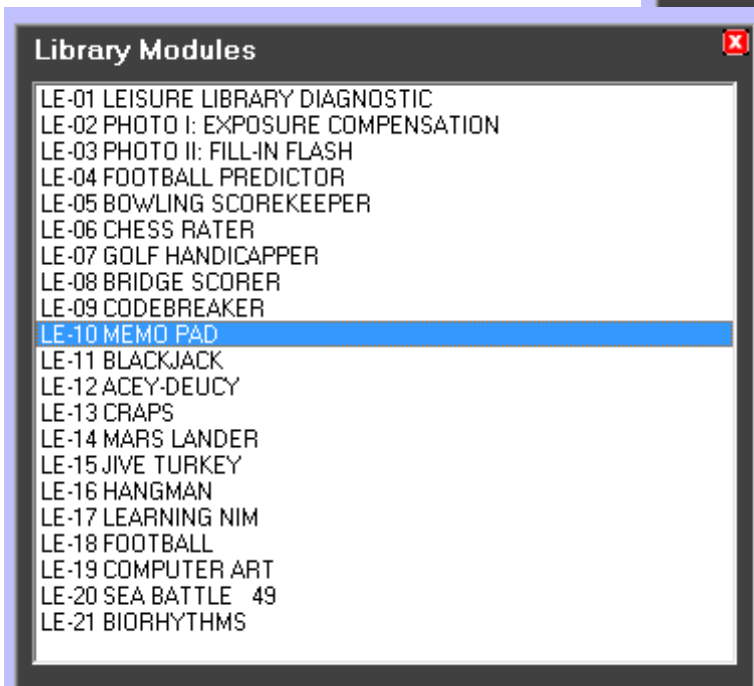
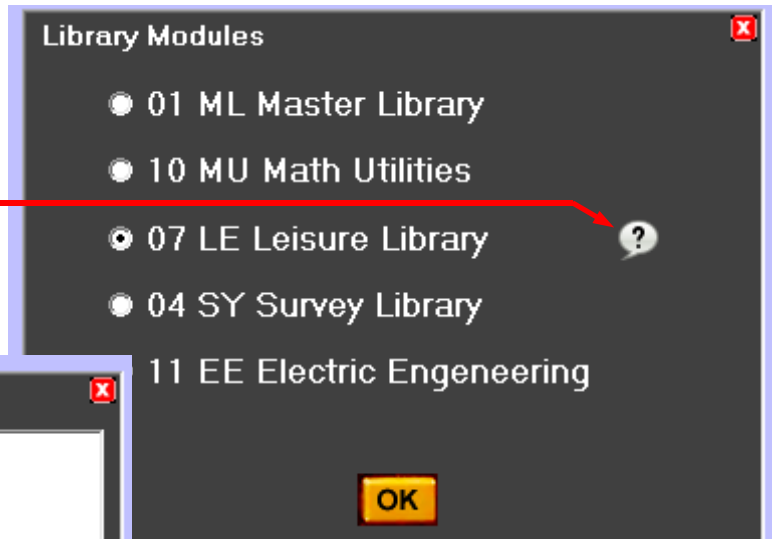
xxxxxxxxxxxxxxxxxxxx module name

(these settings are stored in the file ti58c.ini)

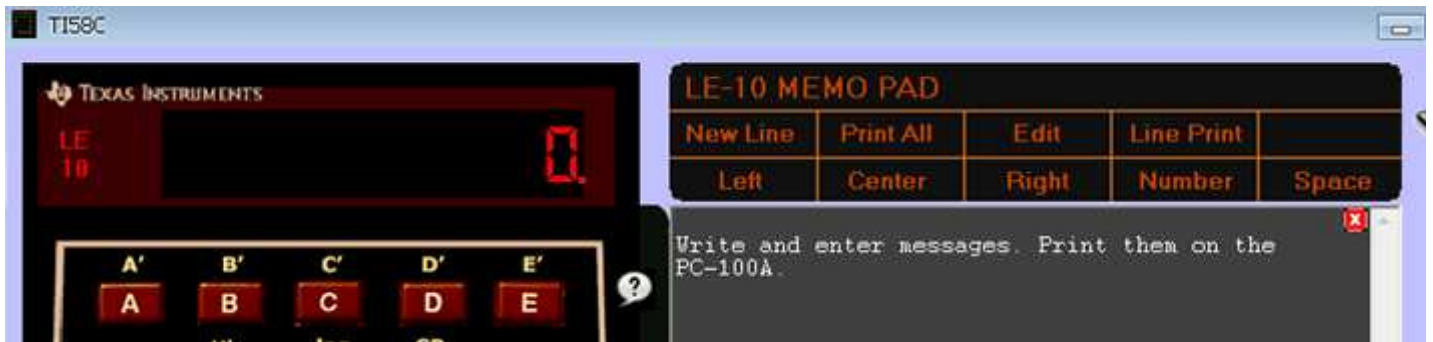


Direct access to the programs modules

When you view the list of modules, you can have access to the list of programs of selected module (*) by clicking on the button opposite the name of the module.



If you double-click the name of a program, the program is loaded in the same way as the instruction **PGM** and the module becomes the current module.



(*) provided that the documentation files (. hlp) of each program are available and knowledgeable

(first line containing :

mm-pp xxxxxxxxxxxxxxxxxxxxxxxxx

where

mm = module code

pp = program number

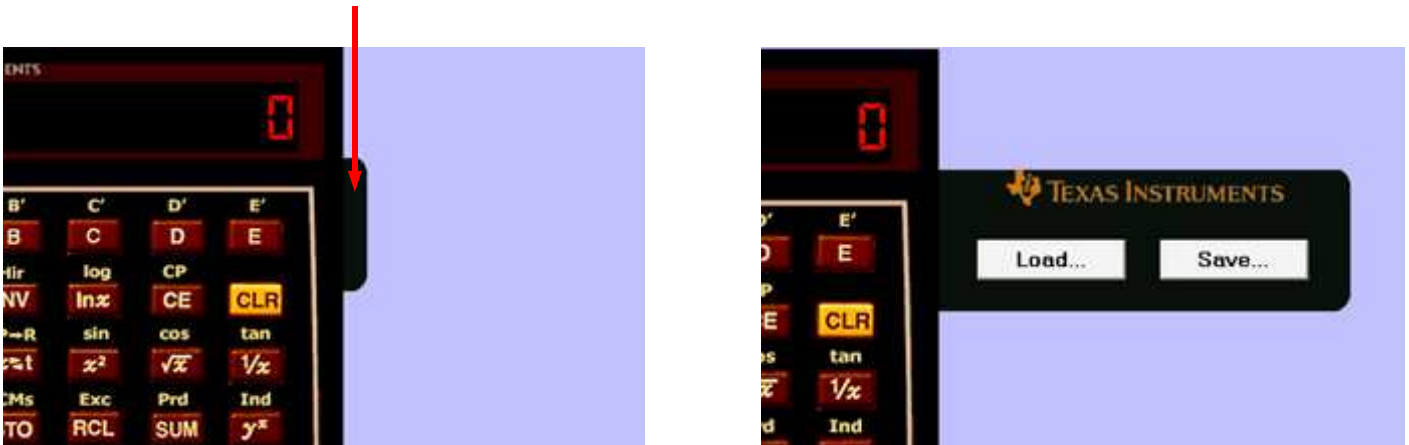
xxxxxxxxxxxxxxxxxxxxxxxxxxxx = program name)



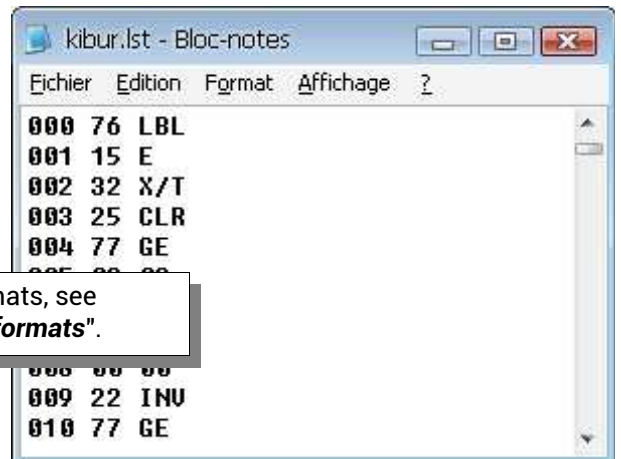
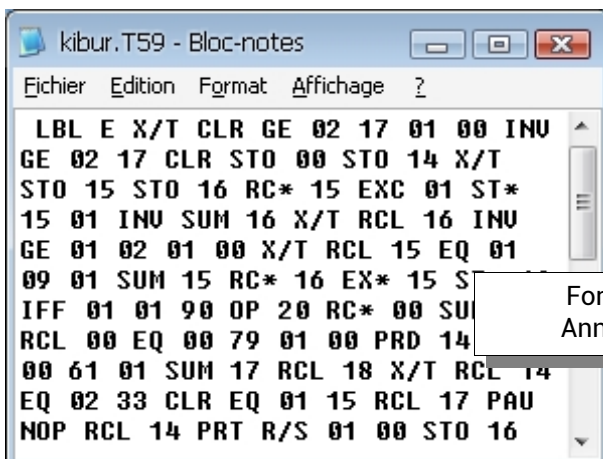
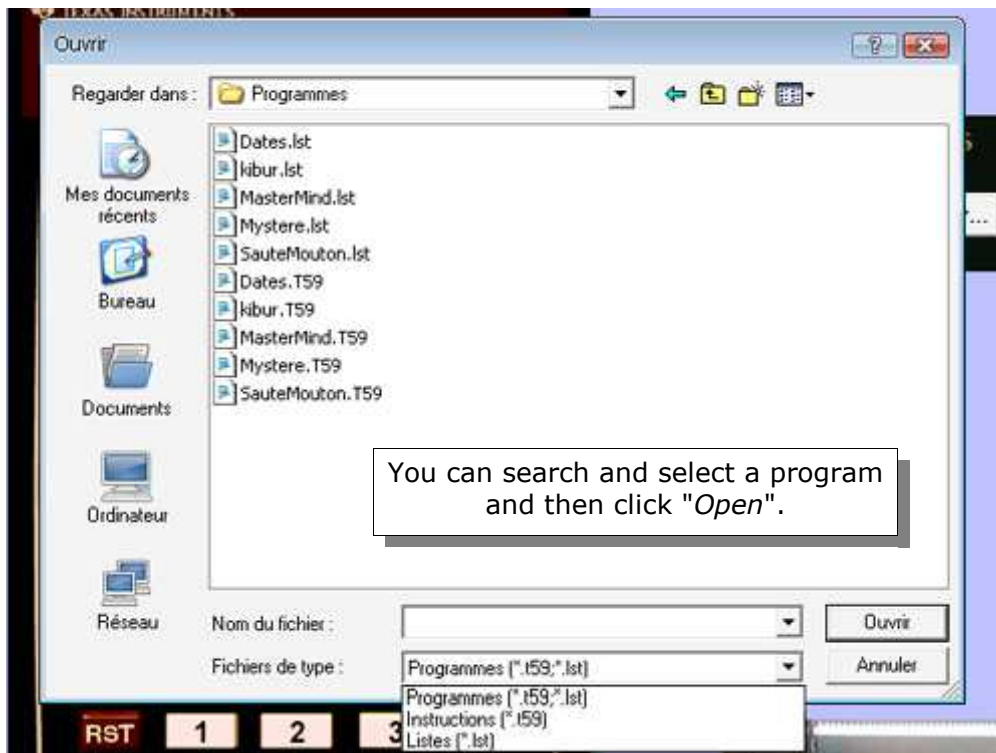
Load/Save programs

TI58C allows you to record your programs and reload them for reuse.

To access to the functions "load/save", click the tab at the top right of the calculator.



The card comes out from the calculator and offers 2 choices "Load" or "Save".



For supported formats, see Annex "**Supported formats**".

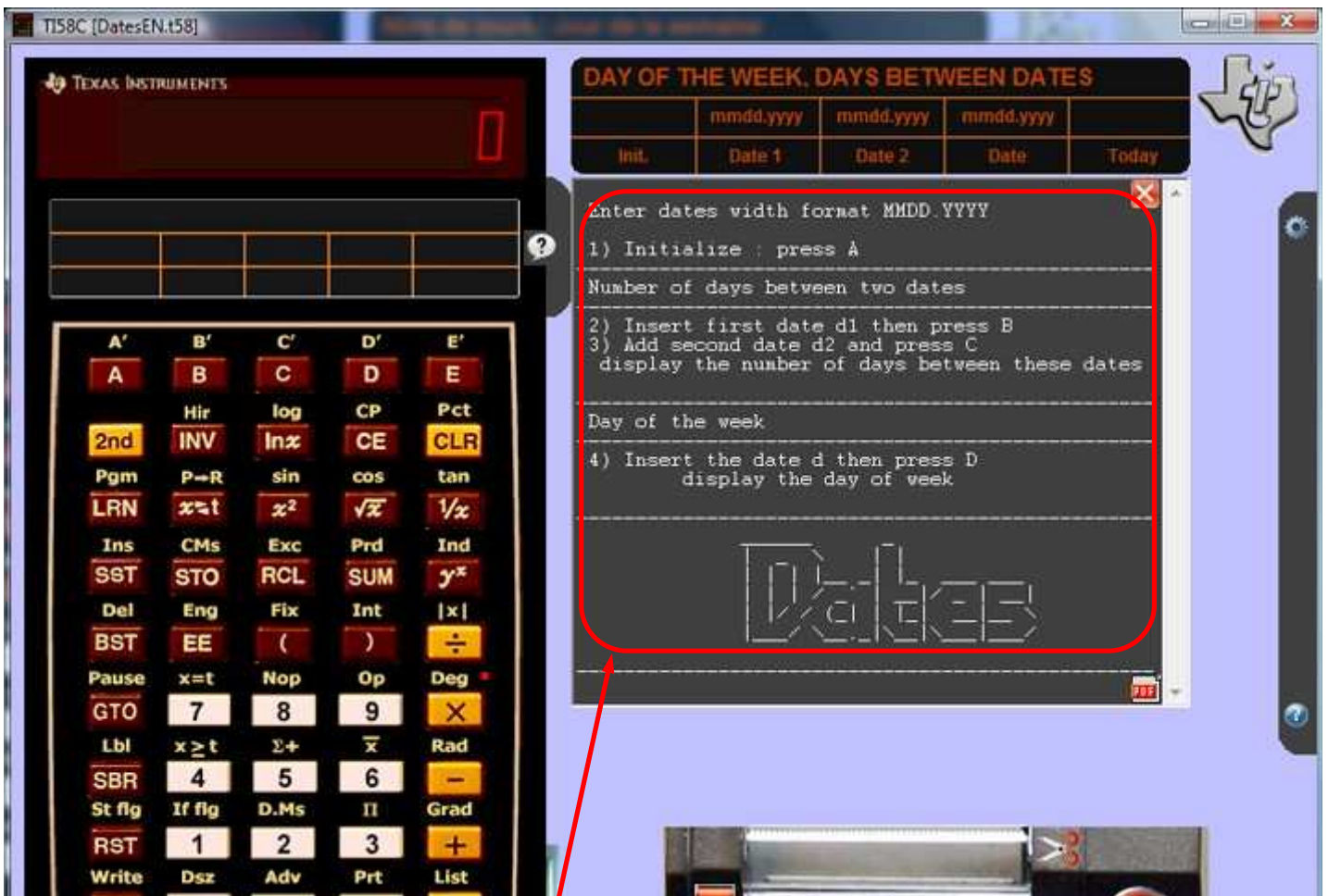


Program help

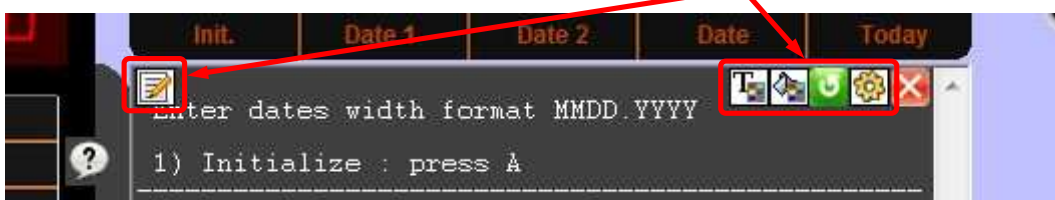
When the program is loaded, an icon may appear if there is a help file for the program.



Click the icon to display the help.



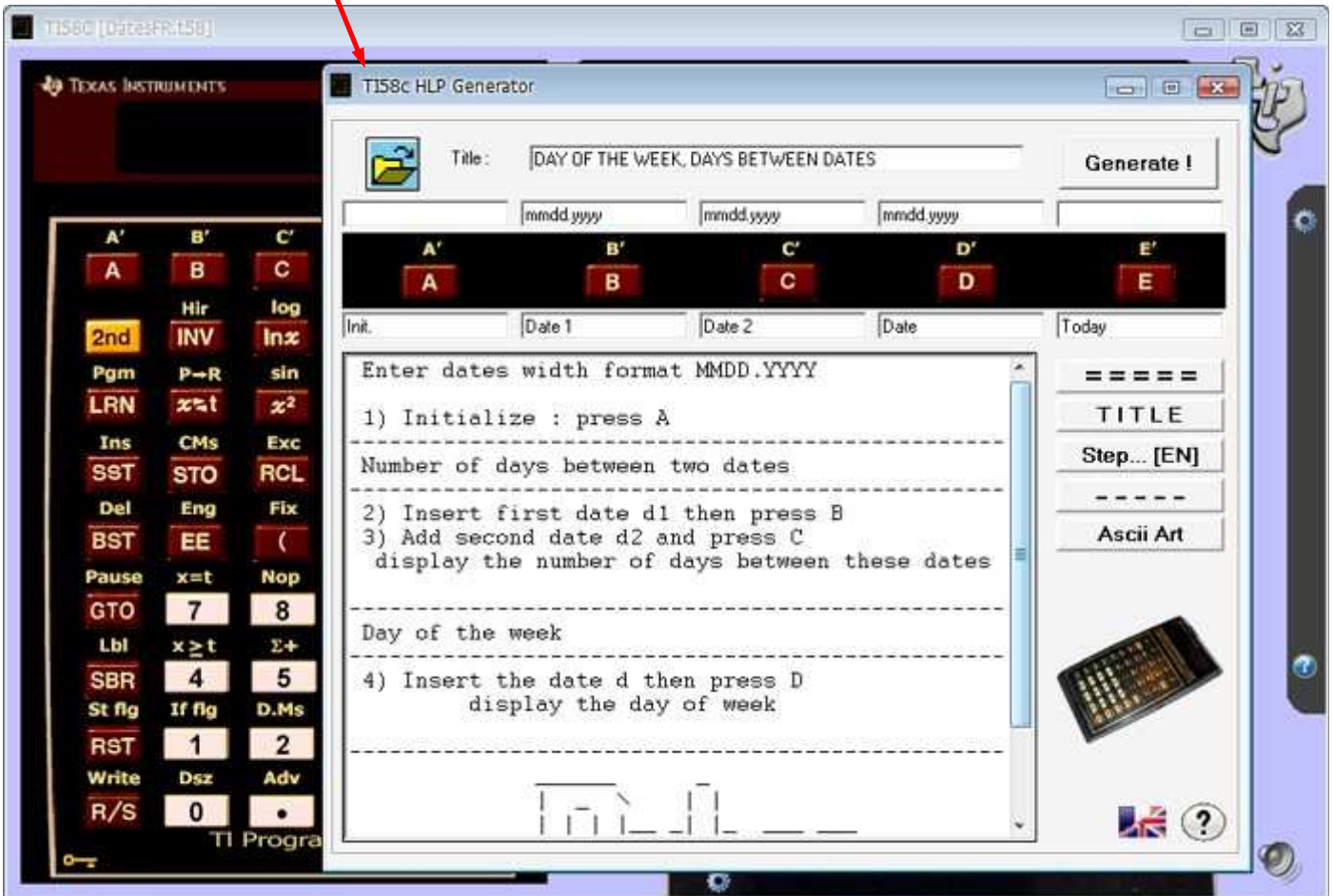
Click on the text box shows some buttons.





Buttons for customization.
(see page 76)

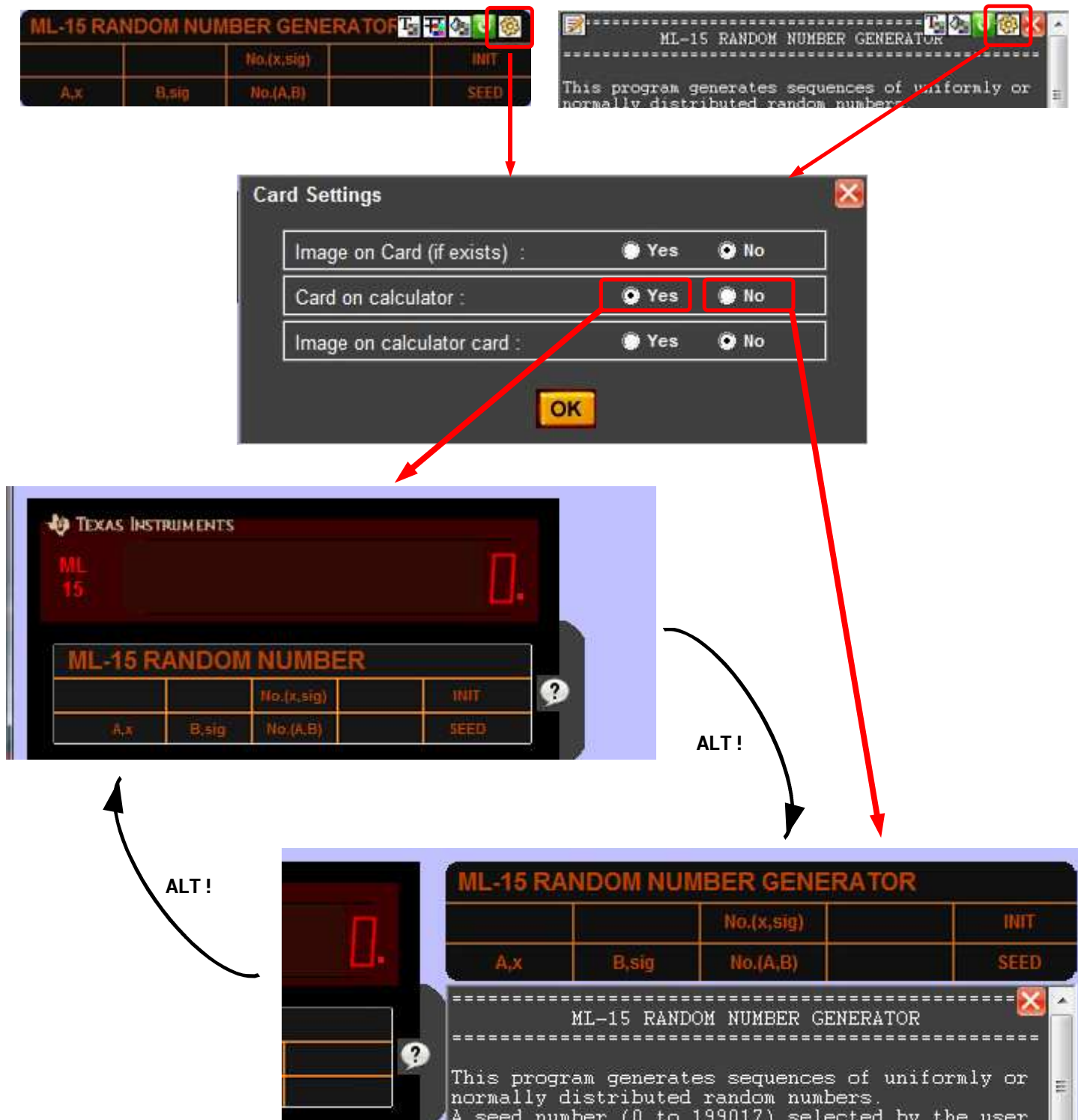
Click on this button to edit the help file



Clicking on the "editor", with the **right mouse button**, allows you to choose the editing program for the help file (xxxxxxx.hlp).



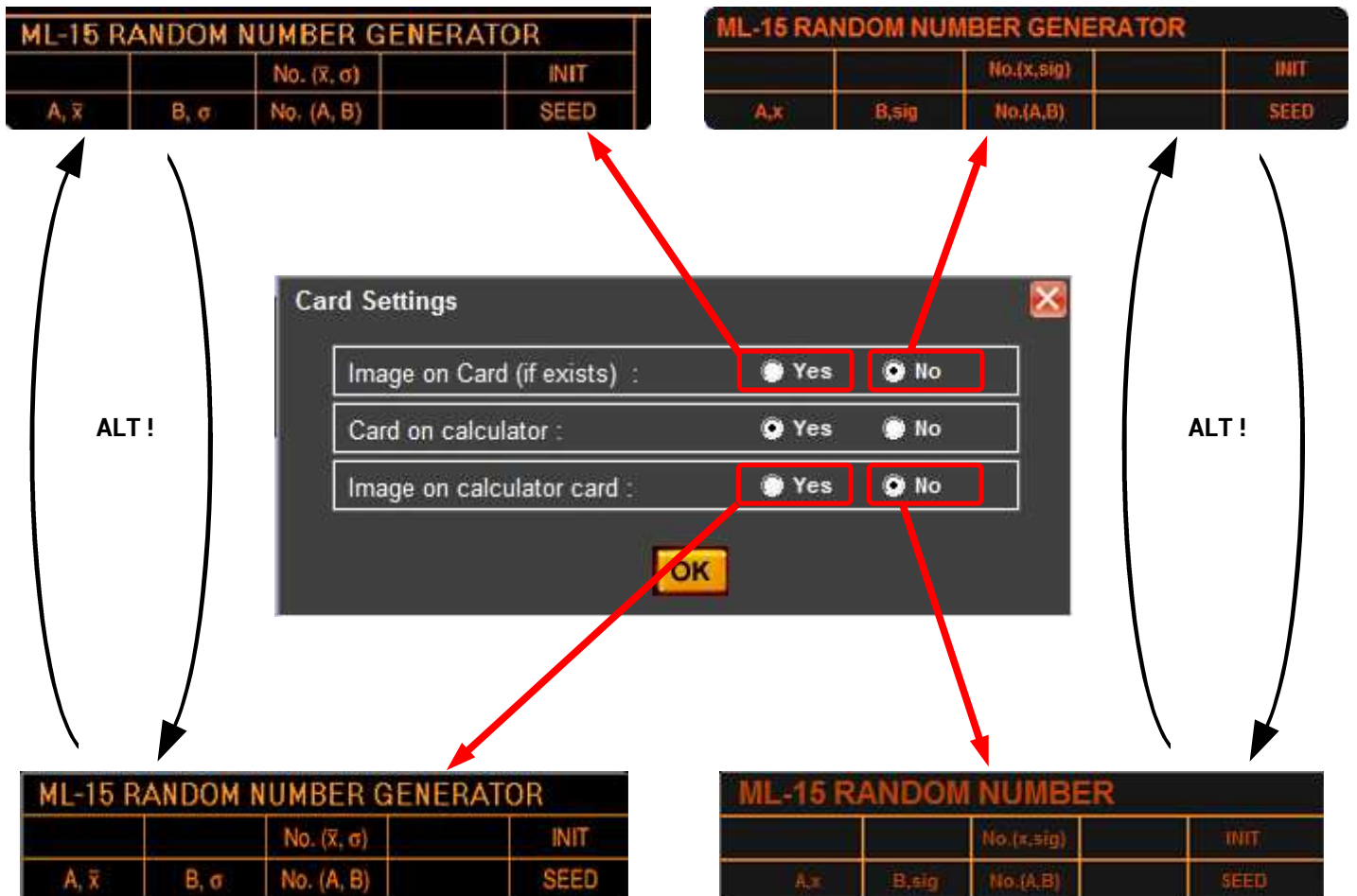
Click on the right card or on the text box shows buttons.



The program card may appear

- To the right of the calculator,
- Either directly on the calculator (if the chosen skin allows it).





The program card is:

- automatically generated from the **.hlp** file corresponding to the program,
- Either from a **.bmp** or **.crd** image file corresponding to the program.

The documentary files of a program are:

(for a program xxxxxxxx.t58 ou xxxxxxxx.t59 ou xxxxxxxx.lst ...)

- xxxxxxxx.hlp for the description of the program, function keys and title,
- xxxxxxxx.bmp for the card outside the calculator,
- xxxxxxxx.crd for the card on the calculator.
- xxxxxxxx.htm for the description of the program in **HTML** format.

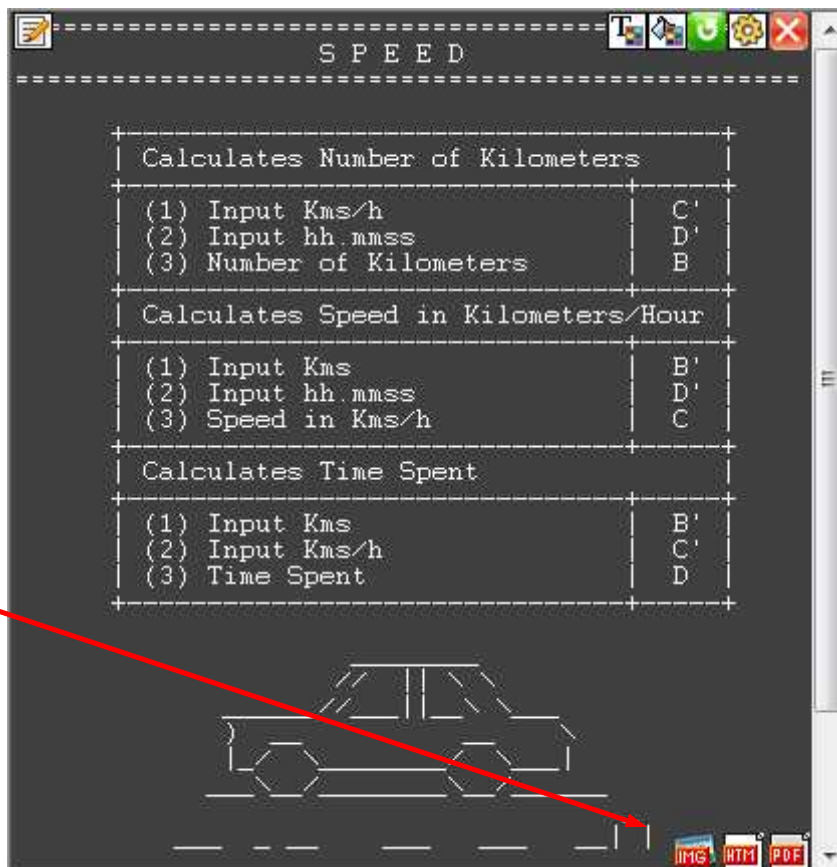
(These files can be created and managed by the **TIGenHlp** utility, see manual)



In addition to the documentary files of the program (xxxxxxx.hlp, xxxxxxxx.bmp, xxxxxxxx.crd), other files can also be associated in the program :

- description of the program in **HTML** (xxxxxxx.htm),
- **PDF** documentation of the program (xxxxxxx.pdf),
- a **PNG, JPG** or **GIF** image (xxxxxxx.png, xxxxxxxx.jpg or xxxxxxxx.gif).

These files can be viewed by clicking on the corresponding icons at the bottom right of the help.

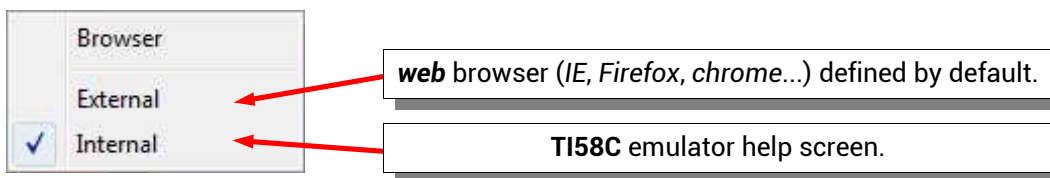


By clicking on the **PDF** icon, the **PDF** file is opened outside of the **TI58C** emulator with the **PDF** reader (Adobe, Foxit, Sumatra...) defined by default in the system.



Clicking on the **HTM** icon with the **left mouse button** allows to open the **HTM** file :

- either outside the **TI58C** emulator with the **web** browser (IE, Firefox, chrome...) defined by default in the system,
- either in the **TI58C** emulator help screen, depending on the choice made by clicking, with the **right mouse button**, on the **HTM** icon.





By clicking on the **IMG** icon, the image file (**PNG, JPG, GIF**) is opened in the help screen of the **TI58C** emulator.

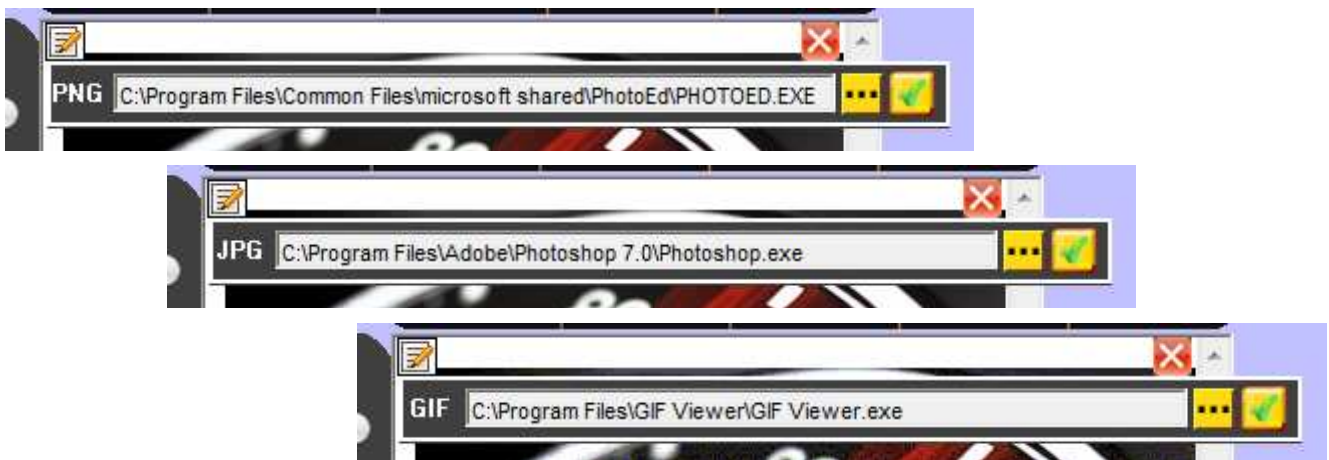


When the image (**PNG, JPG, GIF**) is displayed in the help screen of the **TI58C** emulator, the **"editor"** icon appears at the top left of the image.



Clicking on the **"editor"** icon, with the **left mouse button**, opens the image file (**PNG, JPG** or **GIF**) with the chosen program (**mspaint** by default).

Clicking on the **"editor"**, with the **right mouse button**, allows you to choose the image editing program corresponding to the image type (**PNG, JPG** ou **GIF**).

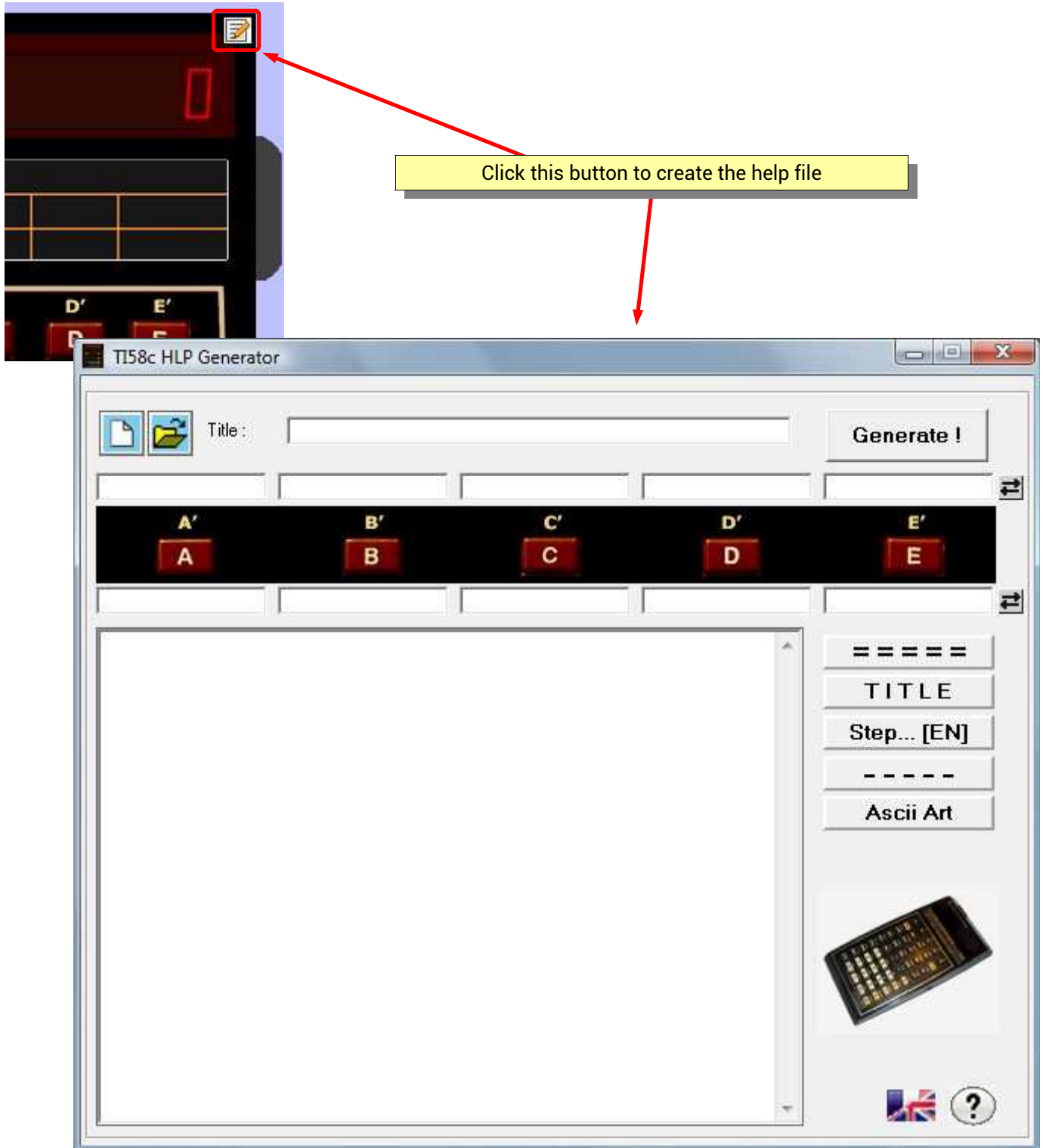


Creating Help program

When the program is loaded, if there is no help file corresponding to this program, an icon may appear at the top right of the calculator.

See, or not see, this icon is optional (See page 88).

When displayed, this icon allows the creation of the help file corresponding to the program, with the help file editing program (See page 21).



Read/Write datas [TI58/TI58C]

The instructions **WRI** et **INV WRI** were not used on the **TI58C** because only the **TI59** had a magnetic card reader.

Nevertheless, the TI58C emulator uses data read/write capabilities of the TI language.

The data registers can be loaded / saved in groups of 25 registers.

1 2nd WRITE records the **first** group (registers 00 to 24) and **1 INV 2nd WRITE** loads the same group.

2 2nd WRITE records the **second** group (registers 25 to 49) and so on for every 25 registers up to 40 groups, because the emulator supports 1000 registers (40 groups of 25).



In "keyboard" mode :

Datas are stored in files with extension **".WRI"**, whose name is : **ti58c_xx.wri** where **xx** is the the number of registers group.

(These files are in the TI58C application directory)

In a program :

Datas manipulated by **2nd WRI** and **INV 2nd WRI** are stored in files whose name prefix is identical to the name of the program **.t59** [ou **.lst**] like : **nnnnnnnn_xx.wri** where **nnnnnnnn** is the program name and **xx** the number of registers group.

Example :

the program **penduFR.t59** use files

penduFR_05.wri to **penduFR_40.wri**

(These files are in the directory of program **.t59** [ou **.lst**])

WRI / INV WRI	
#	MEM.
01	00 / 24
02	25 / 49
03	50 / 74
04	75 / 99
05	100 / 124
06	125 / 149
07	150 / 174
08	175 / 199
09	200 / 224
10	225 / 249
11	250 / 274
12	275 / 299
13	300 / 324
14	325 / 349
15	350 / 374
16	375 / 399
17	400 / 424
18	425 / 449
19	450 / 474
20	475 / 499
21	500 / 524
22	525 / 549
23	550 / 574
24	575 / 599
25	600 / 624
26	625 / 649
27	650 / 674
28	675 / 699
29	700 / 724
30	725 / 749
31	750 / 774
32	775 / 799
33	800 / 824
34	825 / 849
35	850 / 874
36	875 / 899
37	900 / 924
38	925 / 949
39	950 / 974
40	975 / 999



Read/Write datas [TI59]

OP 17 defines the partitions and the context of use of TI58C (**58 OP 17** or **59 OP 17**).

If the emulator is in TI59 mode (**TI59 OP 17**) then the **WRI** and **INV WRI** functions are in accordance with the operation of the TI59 :

① use of 4 data groups of 30 registers :

- **1 2nd WRI** for registers 119 to 90,
- **2 2nd WRI** for registers 89 to 60,
- **3 2nd WRI** for registers 69 to 30,
- **4 2nd WRI** for registers 29 to 0

WRI / INV WRI	
#	MEM.
01	119 / 90
02	89 / 60
03	59 / 30
04	29 / 0

② creation of files `[programe]_01.w59`, `[programe]_02.w59`, `[programe]_03.w59`, `[programe]_04.w59` in the program directory or `TI58C_01.w59`, `TI58C_02.w59`, `TI58C_03.w59`, `TI58C_04.w59` if no program loaded.



In "keyboard" mode :

Datas are stored in files with extension ".W59", whose name is : **ti58c_xx.w59** where **xx** is the the number of registers group.

(These files are in the TI58C application directory)

In a program :

Datas manipulated by **2nd WRI** and **INV 2nd WRI** are stored in files whose name prefix is identical to the name of the program `.t59` [ou `.lst`] like : **nnnnnnn_xx.w59** where **nnnnnnn** is the program name and **xx** the number of registers group.

(These files are in the directory of program `.t59` [ou `.lst`])



The data stored in the files of extension ".WRI" can be loaded / saved at the same time as the programs.

Modify the parameter "**Load / Save with datas**" in the management of the "general parameters" to have access to this feature.



The panel for opening / recording programs will suggest you then to mark the option "**with datas**".



In the case "**Load...**", the program will look for files .wri corresponding to the program loaded, files **nnnnnnnn_xx.wri** where **nnnnnnnn** is the program name and **xx** the number of registers group.

In the case "**Save...**", a screen of selection of the groups of data to be saved is posted. Choose the groups then validate, the corresponding files will be created, files **nnnnnnnn_xx.wri** where **nnnnnnnn** is the program name and **xx** the number of registers group.



Programs list


The most commonly used programs can be referenced in a list allowing easier access.


The access to the program list is by **ALT+L**.

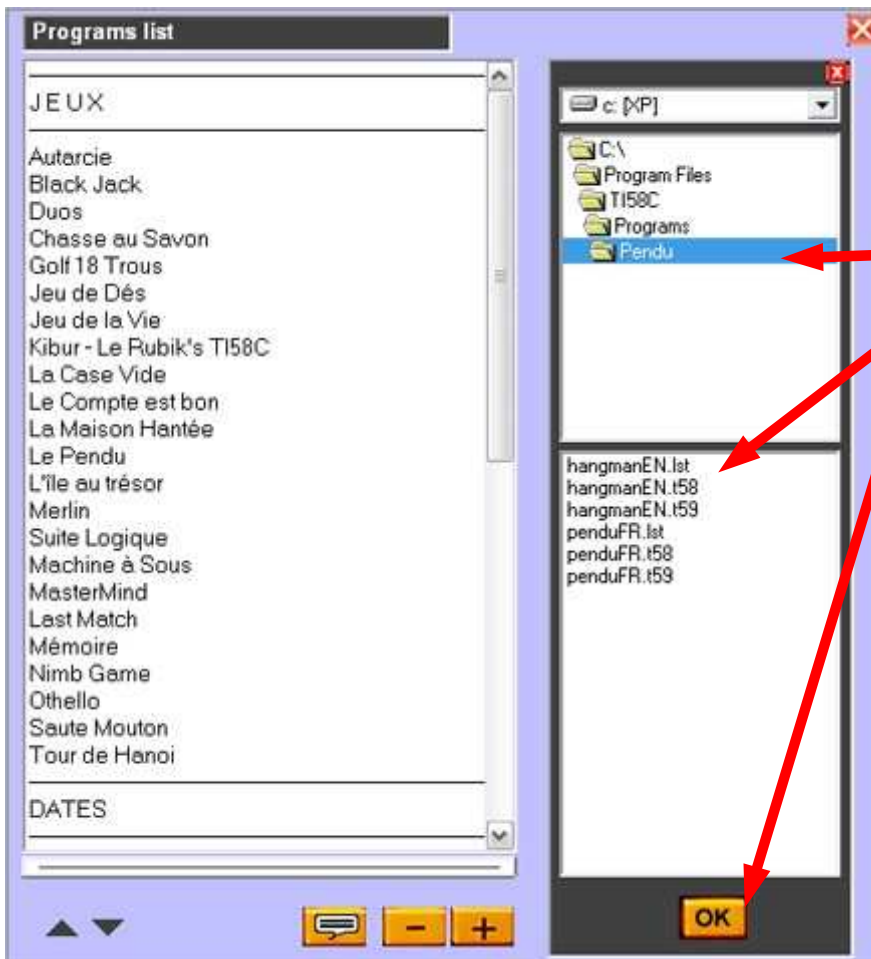
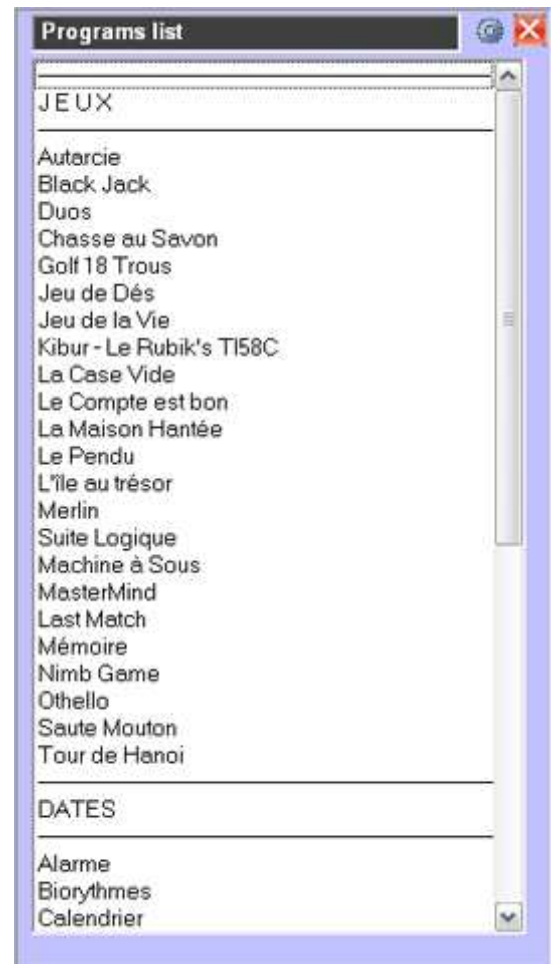
To choose a program, double-click its name.

Click on the icon  to edit the list

To remove a program from the list, select it and click 

To add a program to the list, click 

To add a comment to the list, click 



To add a program :

Find the directory which contains the file **.t59** (ou **.lst**)

Select the program

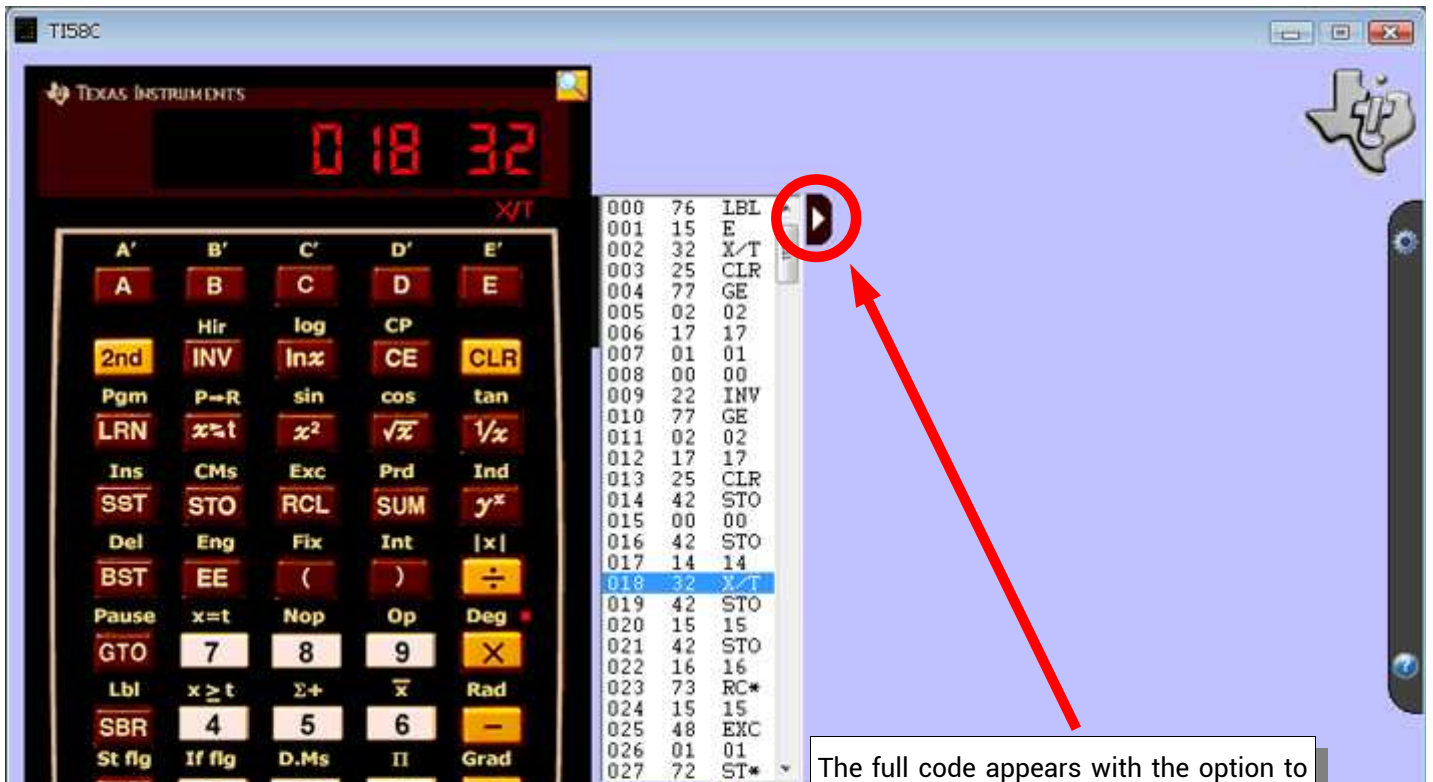
Validate your choice



Programming mode (LRN)

The "LRN" Mode (programming) shows the program step by step for update it.

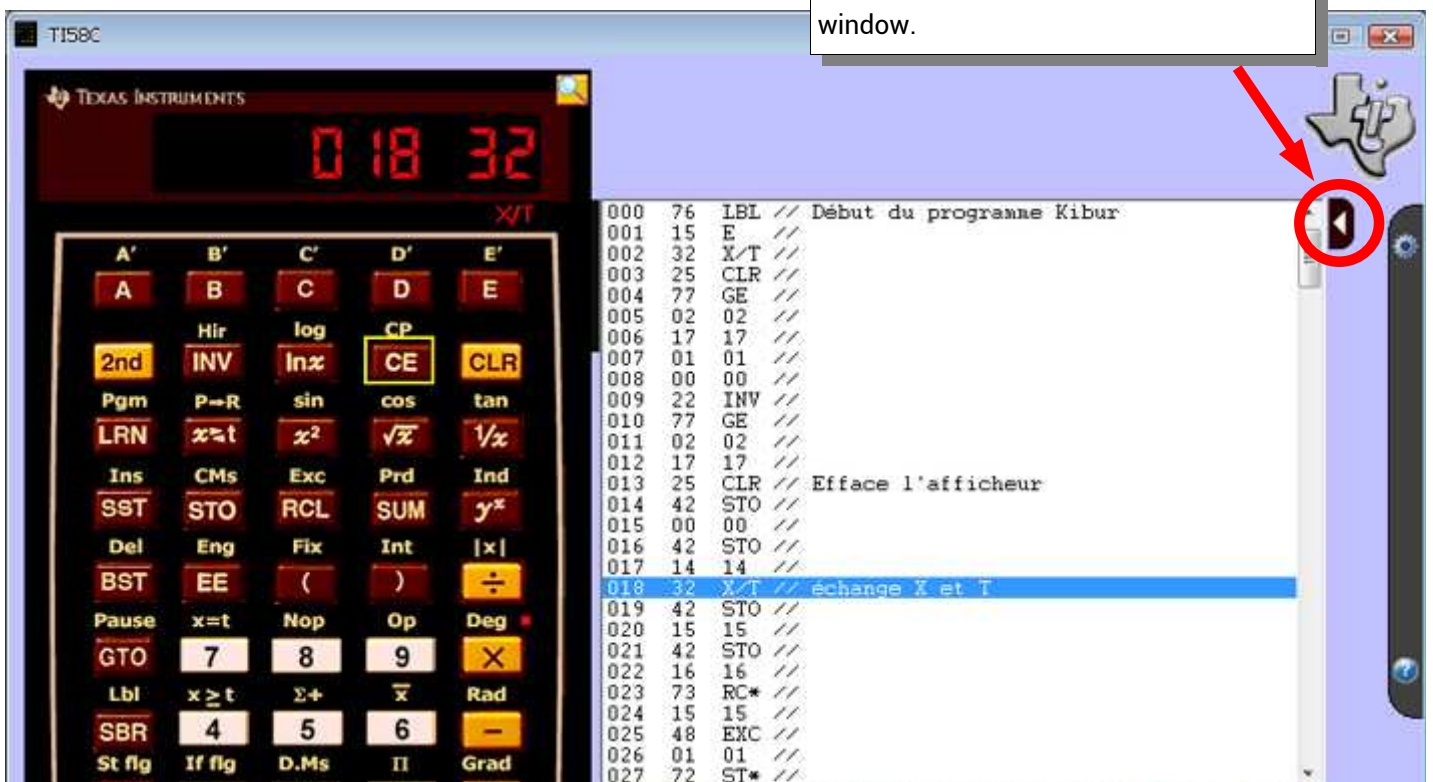
TI58C displays the translation of the instruction code and allows searching instruction across all the program.



The screenshot shows the TI58C programming interface. On the left is a virtual calculator with a red display showing '0 18 32'. The calculator has various function keys labeled A through E, and numeric keys 0-9. On the right is a code window displaying a list of program steps. A red circle highlights a play button icon (a right-pointing triangle) located next to step 018. A red arrow points from this icon towards the text box below.

Step	Code	Label
000	76	LBL
001	15	E
002	32	X/T
003	25	CLR
004	77	GE
005	02	02
006	17	17
007	01	01
008	00	00
009	22	INV
010	77	GE
011	02	02
012	17	17
013	25	CLR
014	42	STO
015	00	00
016	42	STO
017	14	14
018	32	X/T
019	42	STO
020	15	15
021	42	STO
022	16	16
023	73	RC*
024	15	15
025	48	EXC
026	01	01
027	72	ST*

The full code appears with the option to see the comments by clicking on the expansion or reduction tab of the code window.

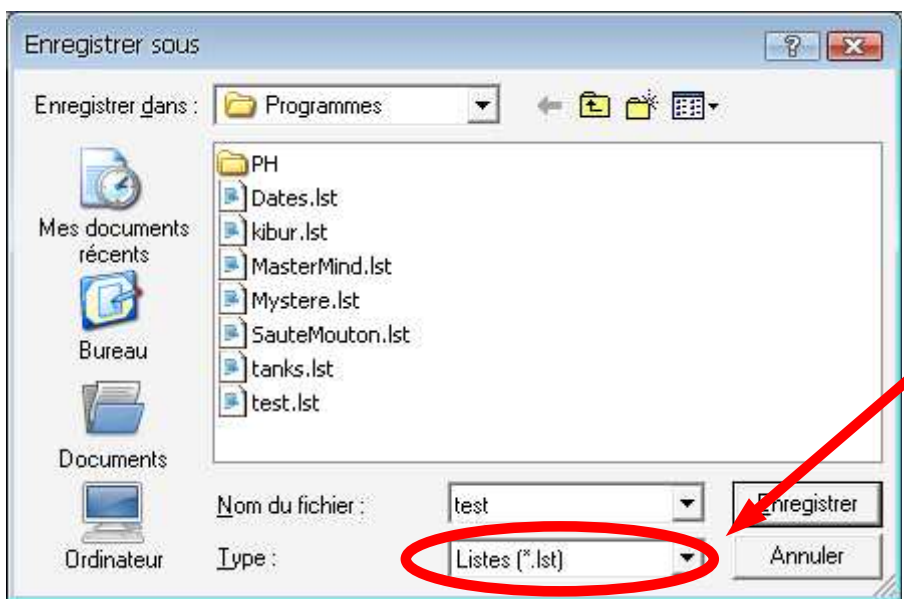
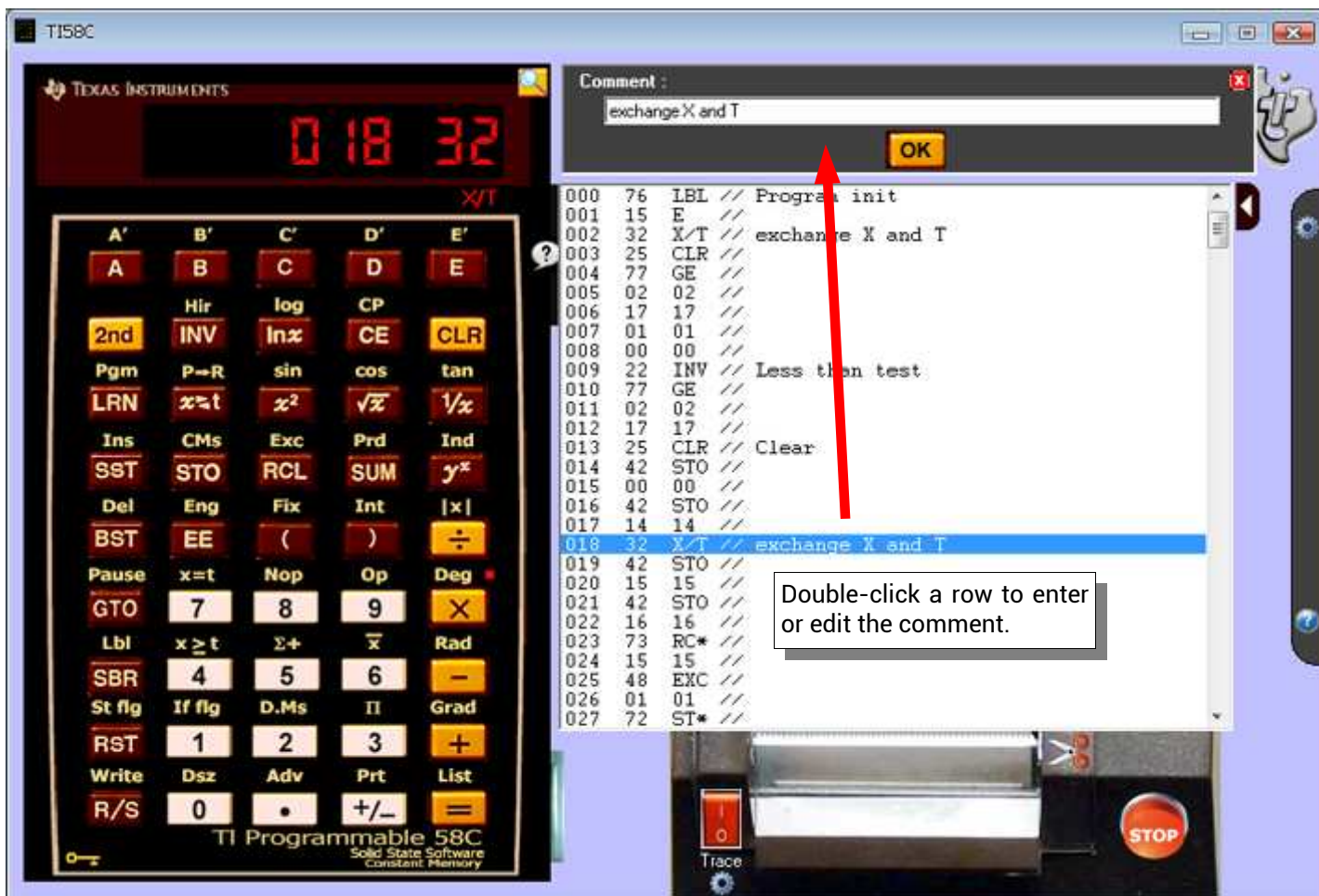


This screenshot shows the same TI58C programming interface as the first image. The calculator display still shows '0 18 32'. The code window now displays the full program code with comments in French. A red circle highlights a play button icon (a right-pointing triangle) located next to step 018. A red arrow points from this icon towards the text box above.

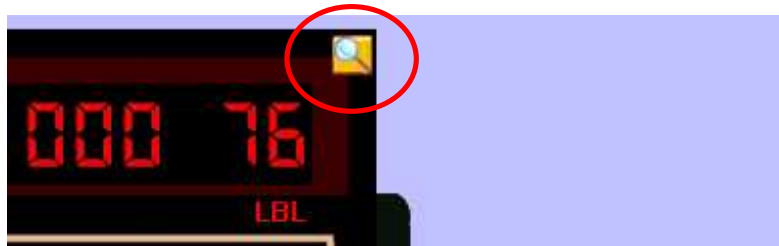
Step	Code	Label	Comment
000	76	LBL	// Début du programme Kibur
001	15	E	//
002	32	X/T	//
003	25	CLR	//
004	77	GE	//
005	02	02	//
006	17	17	//
007	01	01	//
008	00	00	//
009	22	INV	//
010	77	GE	//
011	02	02	//
012	17	17	//
013	25	CLR	// Efface l'afficheur
014	42	STO	//
015	00	00	//
016	42	STO	//
017	14	14	//
018	32	X/T	// échange X et T
019	42	STO	//
020	15	15	//
021	42	STO	//
022	16	16	//
023	73	RC*	//
024	15	15	//
025	48	EXC	//
026	01	01	//
027	72	ST*	//



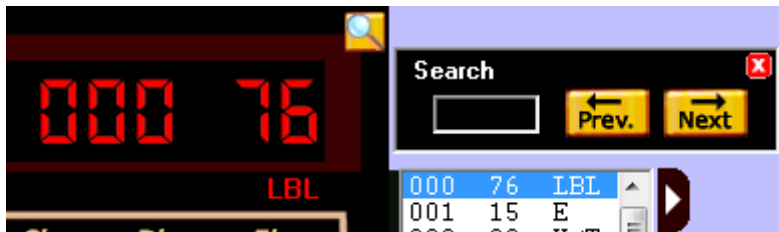
The "LRN" mode especially allows to modify the code but also to manage comments.



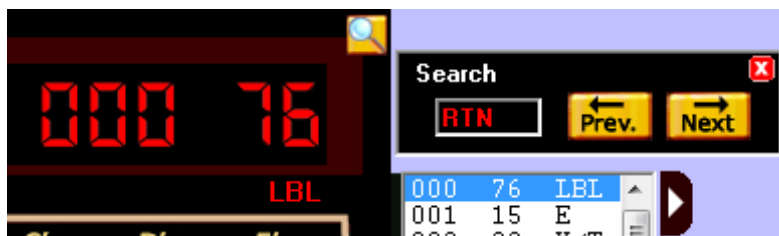
An icon for searching appears in the top right of the display of the calculator.



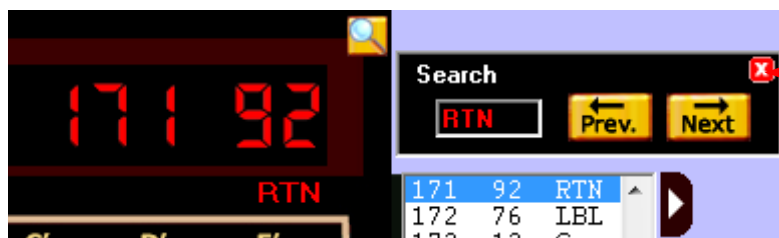
Click the icon to display the search screen.



Type the instruction code to search.

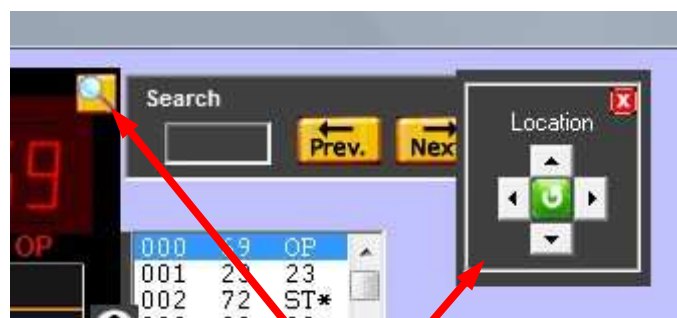


Then click "Next" or "Previous" (or use the keyboard, see page 9)



To change your program, close the search window.

The two search elements ("magnifying glass" button and "Search" panel) can be moved to another location.



Click with the right mouse button on the "Magnifying glass" button displays the displacement tool. (ditto for the "Search" panel)



In the "LRN" mode (programming) the removal or insertion of program steps poses the problem of branch instructions that refer to an address.

TI58C uses cross reference table (see OP 88) to recalculate the connections that refer to an address that has been displaced by INS or DEL.



000	76	LBL	000	68	NOP
001	16	A'	001	68	NOP
002	47	CMS	002	68	NOP
003	01	01	003	76	LBL
004	42	STO	004	16	A'
005	02	02	005	47	CMS
006	42	STO	006	01	01
007	03	03	007	42	STO
008	42	STO	008	02	02
009	04	04	009	42	STO
010	02	02	010	03	03
			011	42	STO

insertion of 3 steps at the beginning of a program...

Cible	Appel
021	038 61 GTO
043	033 77 GE
043	115 61 GTO
043	124 87 IFF
047	054 97 DSZ
071	066 67 EQ
071	086 67 EQ
074	183 71 SBR
089	130 61 GTO
100	121 61 GTO
118	094 67 EQ
124	105 67 EQ
A'	174 16 A'
C'	191 67 EQ
D'	135 19 D'
D'	172 19 D'
D'	180 19 D'
D'	252 19 D'
D'	281 19 D'
E'	173 10 E'
E'	181 10 E'

The cross reference table is modified...

Cible	Appel
024	041 61 GTO
046	036 77 GE
046	118 61 GTO
046	127 87 IFF
050	057 97 DSZ
074	069 67 EQ
074	089 67 EQ
077	186 71 SBR
092	133 61 GTO
103	124 61 GTO
121	097 67 EQ
127	108 67 EQ
A'	177 16 A'
C'	194 67 EQ
D'	138 19 D'
D'	175 19 D'
D'	183 19 D'
D'	255 19 D'
D'	284 19 D'
E'	176 10 E'
E'	184 10 E'

...because the connections are modified !

031	01	01
032	95	=
033	77	GE
034	00	00
035	43	43
036	48	EXC
037	15	15
038	61	GTO
039	00	00
040	21	21
041	76	LBL
042	17	B'

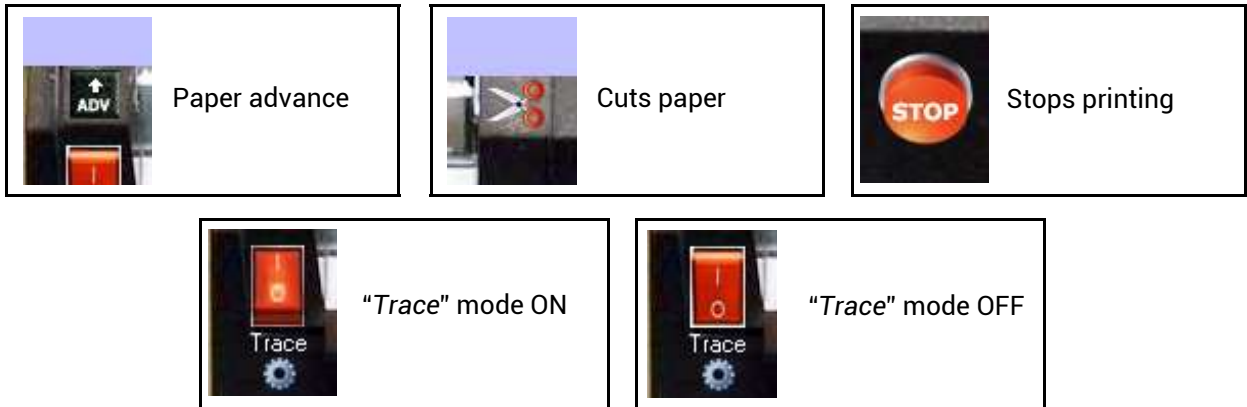
034	01	01
035	95	=
036	77	GE
037	00	00
038	46	46
039	48	EXC
040	15	15
041	61	GTO
042	00	00
043	21	24
044	76	LBL
045	17	B'



Using printer



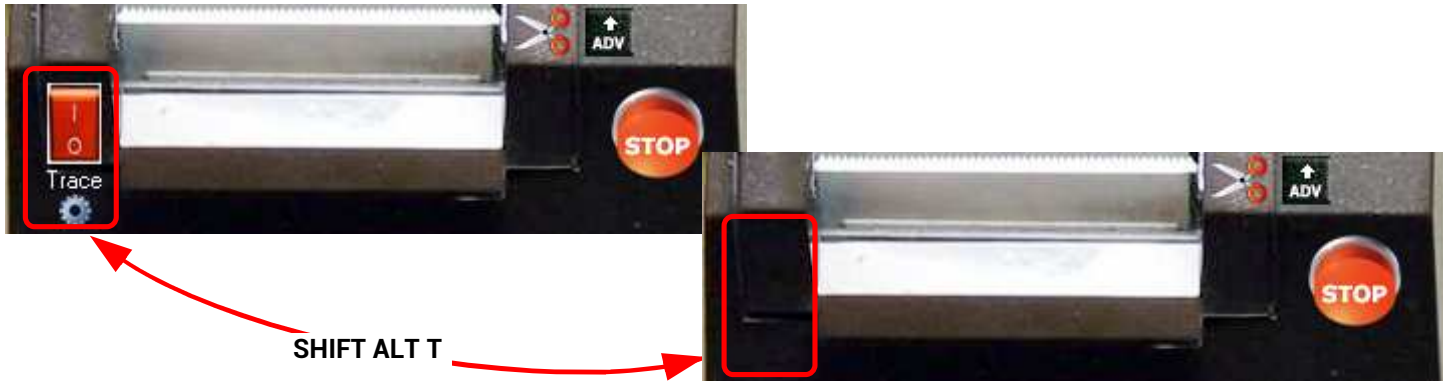
This printer, a bit special, uses the same type of printing that the PC-100 (but uses less paper).
It has different buttons :



The "Paper advance" button can be positioned to the left or right of the printer.
The position changes with the key combination **SHIFT + ALT + A**



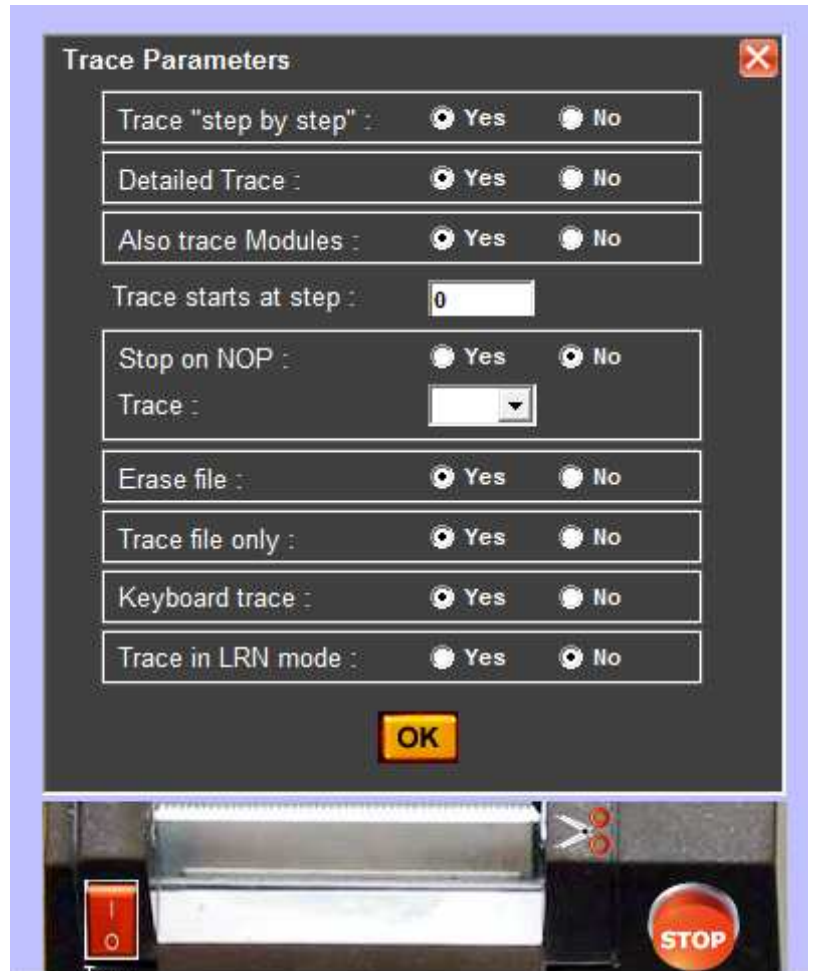
The "Trace" button can be hidden, or re-displayed, with the key combination **SHIFT + ALT + T**



"Trace" mode

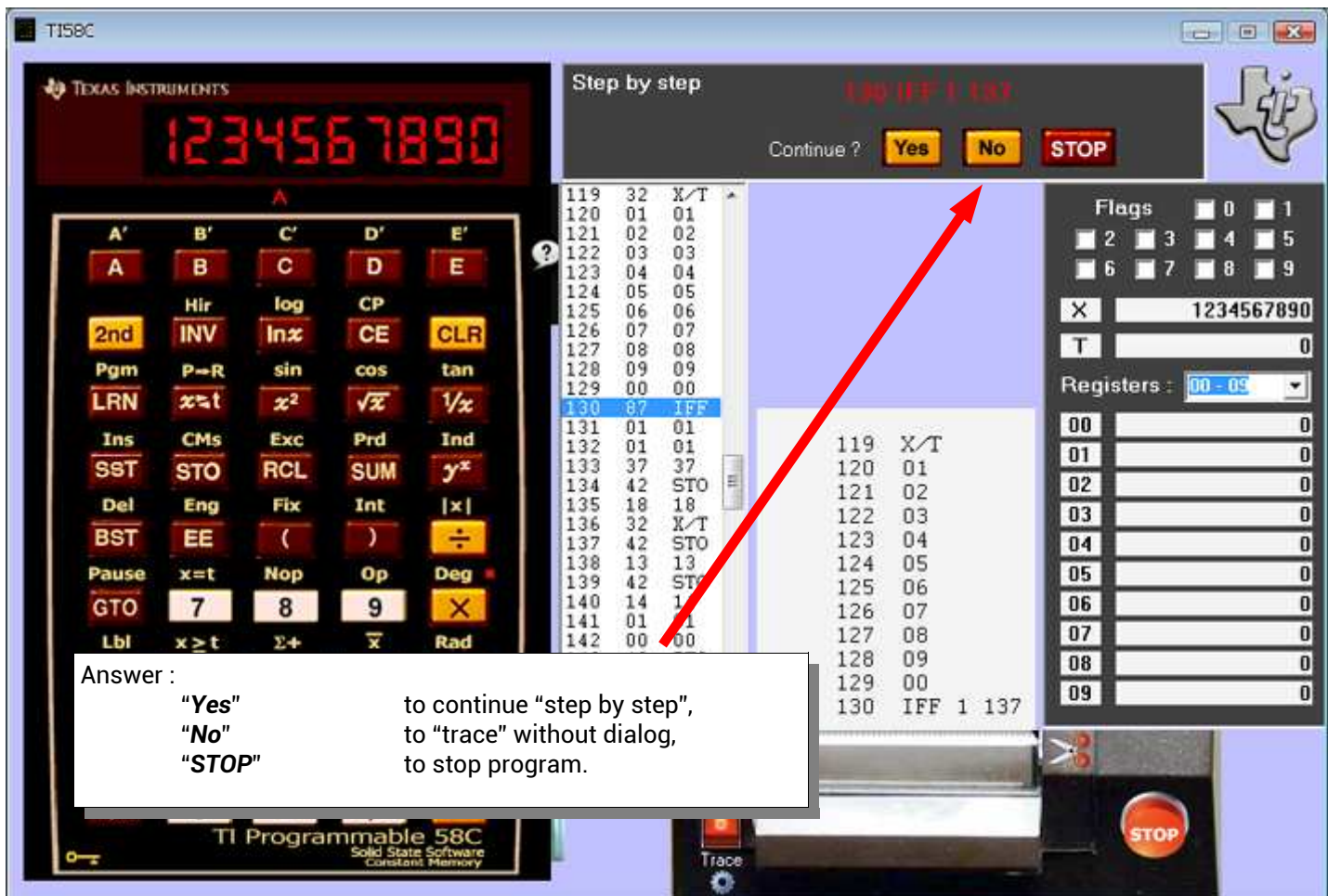


To change "Trace" mode options, click the icon under the switch



The trace of the program is saved in a file ti58c.log

If you choose the trace "step by step", a dialog appears at each step.



Answer :

- "Yes" to continue "step by step",
- "No" to "trace" without dialog,
- "STOP" to stop program.



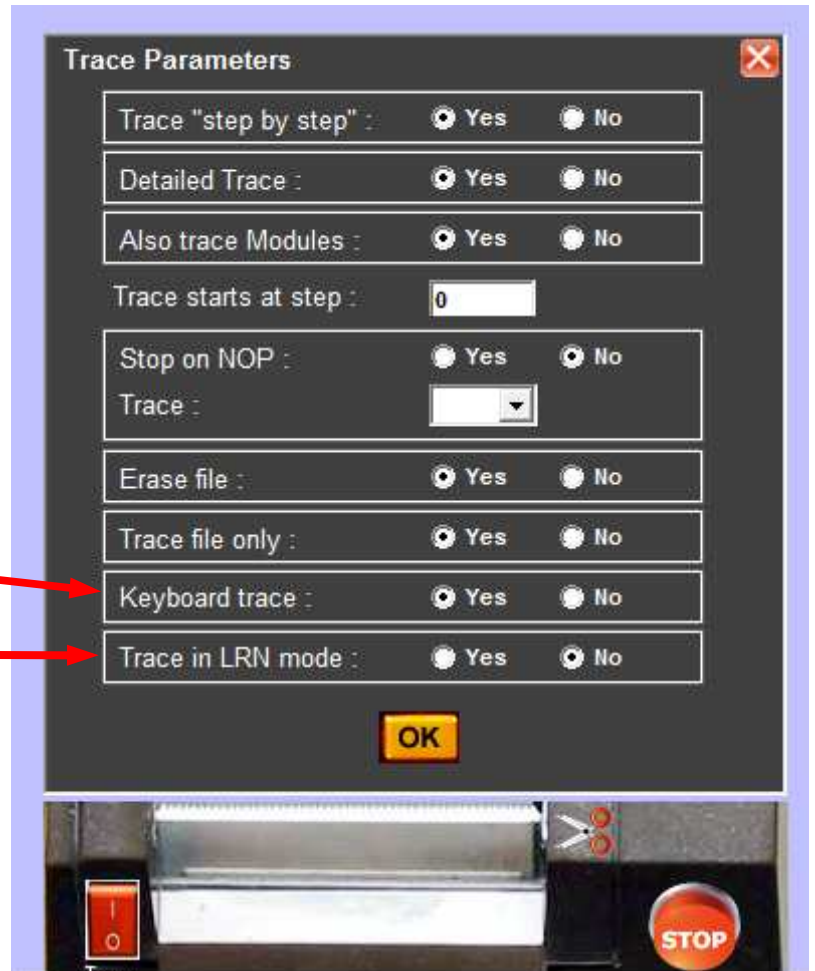
Keyboard "Trace"



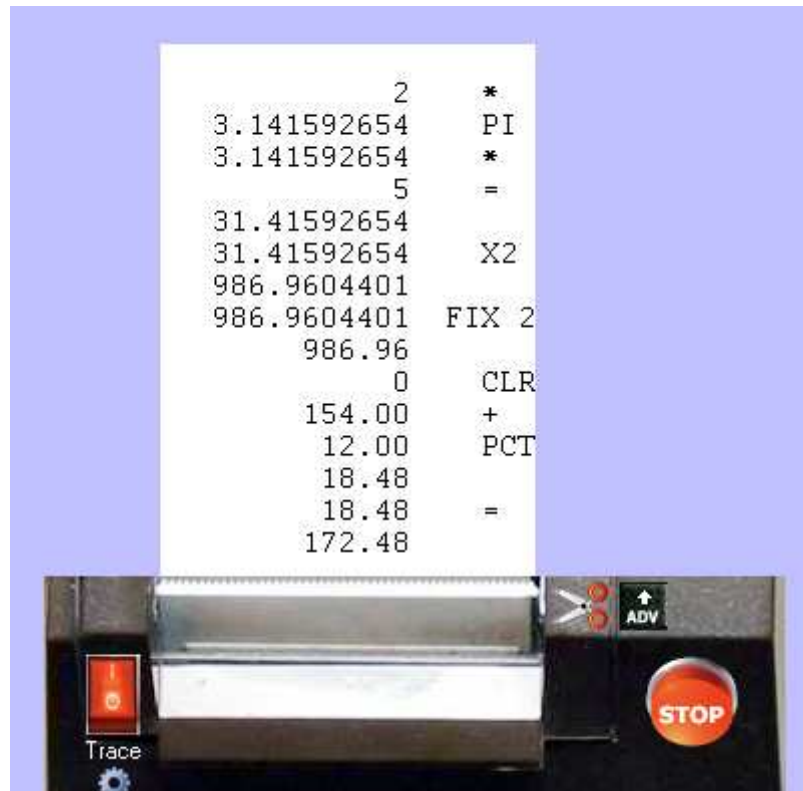
To change "Trace" mode option, click the icon under the switch

Then select "Keyboard trace"

(the "Keyboard trace" can be deactivated for LRN mode)



The keyboard trace is to print the current operations of the calculator on the **PC100** printer as with a desktop printer calculator.



Special Operations (OP)

Standard TI uses a special instruction "OP" to access to specific functions of "service" (alphanumeric printing, curve, error handling,...)

Some (OP 20 and OP 39) may seem unnecessary (redundant with SUM and INV SUM) but allow the economy of memory steps: 01 INV SUM 01 cost 4 steps and OP 31 cost only 2 steps.

Others (OP 11 to 15) supplement to the statistical functions by avoiding calls to programs or modules, thus saving many program steps (and everyone did not buy the MU Math Utilities module nevertheless inescapable !).

The emulator uses this TI58C statement "OP" (41 to 99) by adding features to the calculator, unthinkable in original : multi-curve with colors, alphanumeric display ... this, staying in the spirit of TI.

The following pages describe these additions.

OP	Operation	Original TI	TI58C.exe	Page
00	Clears registers print	Yes	Yes	
01	Loads the printing alphanumeric register #1 (characters 1 to 5)	Yes	Yes	
02	Loads the printing alphanumeric register #2 (characters 6 à 10)	Yes	Yes	
03	Loads the printing alphanumeric register #3 (characters 11 à 15)	Yes	Yes	
04	Loads the printing alphanumeric register #4 (characters 16 à 20)	Yes	Yes	
05	Print the alphanumeric registers (20 characters)	Yes	Yes	
06	Print display + 4 alphanumeric characters	Yes	Yes	
07	Draws a curve on 20 columns (character *)	Yes	Yes	
08	List of program labels	Yes	Yes	
09	Transfers the program of module in program memory.	Yes	Yes	
10	Sign indicator	Yes	Yes	
11	Calculation of variance	Yes	Yes	
12	Statistics	Yes	Yes	
13	Statistics	Yes	Yes	
14	Statistics	Yes	Yes	
15	Statistics	Yes	Yes	
16	Displays the memory partition	Yes	Yes	
17	Changes the memory partition	Yes	Yes	42
18	Raises flag 7, if error	Yes	Yes	
19	Raises flag 7, if no error	Yes	Yes	
2n	Increments memories (1 to 9) from 1	Yes	Yes	
3n	Decrements memories (1 to 9) from 1	Yes	Yes	
40	Raises flag 7, if printer is connected	Yes	Yes	
41	Shows the columns indicator above the display	No	Yes	43
42	Clears the columns indicator above the display	No	Yes	43
43	Show/Hide function keys (A,B,C,D,E)	No	Yes	44
50	System Date and time	No	Yes	45
51	Random number generator	No	Yes	46
52	Displays the value of the offset registers	No	Yes	47
53	Sets the value of the offset registers	No	Yes	47
55	Alphanumeric display from registers OP 03 et OP 04	No	Yes	48
56	Idem OP 55 with expectation of seizure of a figure	No	Yes	50
57	Using sound file	No	Yes	51
58	3D printing banner (AsciiArt)	No	Yes	52
59	Cut the paper	No	Yes	52
69	Change Library Module	No	Yes	53



OP	Operation	Original TI	TI58C.exe	Page
70	Number of curves (1 to 5) to trace width OP 79	No	Yes	54
71	Trace Register for curve #1	No	Yes	54
72	Trace Register for curve #2	No	Yes	54
73	Trace Register for curve #3	No	Yes	54
74	Trace Register for curve #4	No	Yes	54
75	Trace Register for curve #5	No	Yes	54
77	Draws one curve on 100 columns (black dot) from X register	No	Yes	55
78	Draws two curves on 100 columns from X and T registers	No	Yes	55
79	Draws 1 to 5 colored curves from trace registers	No	Yes	55
80	Clear the Alpha register	No	Yes	56
81	Loads the Alpha register into print registers 1 and 2	No	Yes	56
82	Loads the Alpha register into print registers 2 and 3	No	Yes	56
83	Loads the Alpha register into print registers 3 and 4	No	Yes	56
84	Loads the Alpha register into print registers 4 and 1	No	Yes	56
85	Alpha register alphanumeric display	No	Yes	57
86	Prints the X register followed by the first 5 characters of the Alpha register	No	Yes	58
88	Prints cross reference table	No	Yes	59
91	Recall the printing alphanumeric register #1 in the register X	No	Yes	
92	Recall the printing alphanumeric register #2 in the register X	No	Yes	
93	Recall the printing alphanumeric register #3 in the register X	No	Yes	
94	Recall the printing alphanumeric register #4 in the register X	No	Yes	
98	Prints contextual information.	No	Yes	60
99	Prints information documentaries.	No	Yes	61



OP 17 Change the memory partition

The TI58C program offers, as standard, 989 program steps and 999 registers.

The original calculators had 480 maximum program steps and 50 maximum registers for TI58/TI58C and 960 maximum program steps and 100 maximum registers for TI59.

These values depended on the partition chosen according to the choice made with **OP 17**.

OP 17	TI59		TI58/TI58C	
	Step	Reg.	Step	Reg.
0	960	0	480	0
1	880	10	400	10
2	800	20	320	20
3	720	30	240	30
4	640	40	160	40
5	560	50	80	50
6	480	60	0	60
7	400	70		
8	320	80		
9	240	90		
10	160	100		

With the TI58C program, two choices are available for managing the memory partition :

- simulation of **TI58/TI58C** partitions initiated with **58 OP 17**
- simulation of **TI59** partitions initiated with **59 OP 17**

```

+-----+-----+-----+
| VAL. | STEPS | REG |
+-----+-----+-----+
| 0 | 959 | 0 |
| 1 | 879 | 9 |
| 2 | 799 | 19 |
| 3 | 719 | 29 |
| 4 | 639 | 39 |
| 5 | 559 | 49 |
| 6 | 479 | 59 |
| 7 | 399 | 69 |
| 8 | 319 | 79 |
| 9 | 239 | 89 |
| 10 | 159 | 99 |
| 11 | 79 | 109 |
| 12 | 0 | 119 |
| 13 | 989 | 999 |
+-----+-----+-----+
TI59
    
```

```

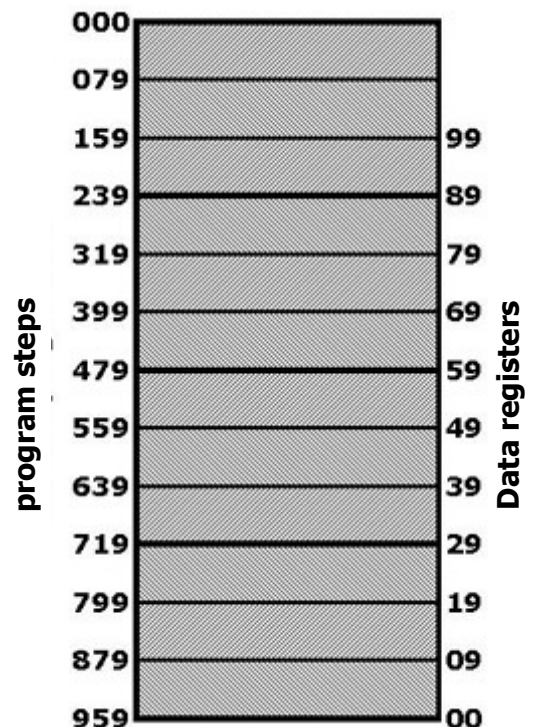
+-----+-----+-----+
| VAL. | STEPS | REG |
+-----+-----+-----+
| 0 | 479 | 0 |
| 1 | 399 | 9 |
| 2 | 319 | 19 |
| 3 | 239 | 29 |
| 4 | 159 | 39 |
| 5 | 79 | 49 |
| 6 | 0 | 59 |
| 7 | 989 | 999 |
+-----+-----+-----+
TI58/TI58C
    
```

Warning !

Changing partitions can alter the data or programs since the registers correspond to ranges of program steps.

For example, on the TI59, the register 0 corresponds to steps 959 to 952...

Reg	0	Mantissa								Exp	S
Step	959	958	957	956	955	954	953	952			



OP 41 / OP 42 Shows / Clears the columns indicator above the display

Sometimes, in certain games, it would be useful to have a reference number column above the display rather than to have to count characters. TI58C proposes to display the numbering of the columns manually (click button) or by program.

The instruction "n OP 41" displays the columns indicator above the display from n-10 to n.

The instruction "OP 42" clears the columns indicator above the display.

10 OP 41



Kibur - Le Rubi
Init. Gén

9 OP 41



Saute Mouton
Init. Je

Manually, click on "Texas" to show or hide the columns indicator above the display.



OP 43 or FNC Show/Hide function keys (A,B,C,D,E)

OP 43 / FNC allows to show or hide functions keys :

xx OP 43 ou xx FNC			
xx	key(s)	Show	Hide
0	A B C D E	Yes	
99	A B C D E		Yes
1	A	Yes	
2	B	Yes	
3	C	Yes	
4	D	Yes	
5	E	Yes	
11	A		Yes
12	B		Yes
13	C		Yes
14	D		Yes
15	E		Yes



OP 50 or NOW System Date and Time

OP 50 / NOW returns system date or system time in a format depending of value stored in the display register X.

Date	
X	Format
10	yyyy
11	yyyymm
12	yyyy.mm
13	yyyymmdd
14	yyyymm.dd
15	yyyy.mmdd
16	mmddyyyy
17	mmdd.yyyy
18	ddmmyyyy
19	ddmm.yyyy

Time	
X	Format
20	hh
21	mm
22	ss
23	hhmm
24	hh.mm
25	hhmmss
26	hhmm.ss
27	hh.mmss

if X<10 ou X>27 OP 50 / NOW returns the seconds since January 1, 1970 00:00:00.

In addition, 99 OP 50 / NOW prints the list of possible formats.



OP 51 or RND Random number generator

The TI offers, as standard, a random number generator using the program ML-15 module "Master Library".

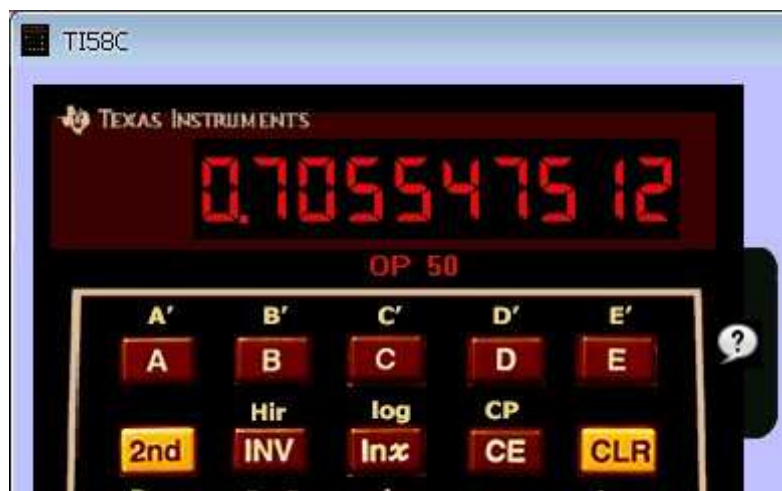
OP 51 returns a number between 0 and 1 in the display register X.

if the display register X = 0

RND returns a number between 0 and 1 in the display register X.

else

RND returns a number between the value of the register T (minimum) and the value of the register X (maximum) in the display register X.



OP 52 / OP 53 Displays / sets the value of the registers offset

The *offset* record is an adjustment for addressing all the memory registers: when the *offset* is set to a value n , all the registers are addressed shifted n .

The goal is to minimize registers conflict when a program calls a library program.

For example, if your program calls two library programs using records from 01 to 06, just change the *offset* before calling of either of the two to get them to use different registers.

You can also use it to provide more flexibility for your own use of registers:

1) if your program uses registers from 00 to 09, and you call a library routine that uses these same registers, just add 10 to the *offset* before calling, then subtract 10 after return. In this way, your own code uses registers from 00 to 09 without conflict.

2) if you want to use registers more than 100, put 100 in the *offset* allows you to use the registers 100 to 199 instructions with STO, RCL, EXC ... without using indirect addressing.

Example: `1 0 0 OP 53 1 STO 00 0 OP 53` puts the value 1 in the register 100

OP 52 displaying the value of the *offset*, you can change it in relative terms by **OP 52 + n OP 53** and then return to the previous value by **OP 52 - n OP 53**.

This adjustment was made for compatibility with the emulator Android T15x of Lawrence d'Oliveiro who had this great idea.



OP 55 Alphanumeric display from registers OP 03 et OP 04

The instruction "OP 55" works as the instruction "OP 05" but only prints alphanumeric registers 3 and 4 to display up to 10 characters.

The printing table is limited to letters and numbers and a few other characters.

	0	1	2	3	4	5	6	7
0		0	1	2	3	4	5	6
1	7	8	9	A	B	C	D	E
2	-	F	G	H	I	J	K	L
3	M	N	O	P	Q	R	S	T
4	.	U	V	W	X	Y	Z	+
5	/	*	\$	@	/	()	/
6	\	%	/	=	/	#		
7	/	?	:	!	/	^	{	}



W I N N E R !

04 03 02 04 03 01 03 01 OP 03 01 07 03 05 00 00 07 03 00 00 OP 04 OP 55



Init.	Play			
-------	------	--	--	--

000 76 LBL	059 08 08	118 22 INV	177 16 A'	236 92 RTN	295 69 OP
001 16 A'	060 42 STO	119 44 SUM	178 99 PRT	237 76 LBL	296 04 04
002 47 CMS	061 11 11	120 14 14	179 91 R/S	238 18 C'	297 69 OP
003 01 01	062 32 X/T	121 61 GTO	180 76 LBL	239 19 D'	298 55 55
004 42 STO	063 43 RCL	122 01 01	181 12 B	240 69 OP	299 66 PAU
005 02 02	064 15 15	123 00 00	182 32 X/T	241 00 00	300 66 PAU
006 42 STO	065 22 INV	124 87 IFF	183 19 D'	242 02 02	301 25 CLR
007 03 03	066 67 EQ	125 01 01	184 32 X/T	243 02 02	302 03 03
008 42 STO	067 00 00	126 00 00	185 71 SBR	244 01 01	303 00 00
009 04 04	068 71 71	127 43 43	186 00 00	245 03 03	304 03 03
010 02 02	069 69 OP	128 86 STF	187 74 74	246 02 02	305 02 02
011 42 STO	070 42 42	129 01 01	188 32 X/T	247 02 02	306 04 04
012 06 06	071 43 RCL	130 61 GTO	189 43 RCL	248 03 03	307 01 01
013 42 STO	072 11 11	131 00 00	190 15 15	249 01 01	308 69 OP
014 07 07	073 92 RTN	132 89 89	191 32 X/T	250 01 01	309 03 03
015 42 STO	074 22 INV	133 76 LBL	192 99 PRT	251 07 07	310 03 03
016 08 08	075 58 FIX	134 11 A	193 67 EQ	252 69 OP	311 07 07
017 01 01	076 22 INV	135 14 D	194 18 C'	253 03 03	312 03 03
018 00 00	077 86 STF	136 19 D'	195 91 R/S	254 00 00	313 02 02
019 32 X/T	078 01 01	137 69 OP	196 76 LBL	255 00 00	314 03 03
020 00 00	079 42 STO	138 00 00	197 19 D'	256 07 07	315 01 01
021 65 *	080 14 14	139 03 03	198 69 OP	257 03 03	316 00 00
022 93 .	081 42 STO	140 06 06	199 00 00	258 00 00	317 00 00
023 01 01	082 12 12	141 01 01	200 02 02	259 00 00	318 00 00
024 85 +	083 29 CP	142 03 03	201 00 00	260 00 00	319 00 00
025 73 RC*	084 73 RC*	143 04 04	202 02 02	261 00 00	320 69 OP
026 15 15	085 14 14	144 01 01	203 00 00	262 00 00	321 04 04
027 95 =	086 67 EQ	145 69 OP	204 02 02	263 00 00	322 69 OP
028 48 EXC	087 00 00	146 02 02	205 00 00	264 69 OP	323 55 55
029 15 15	088 71 71	147 03 03	206 02 02	265 04 04	324 66 PAU
030 85 +	089 73 RC*	148 07 07	207 00 00	266 69 OP	325 66 PAU
031 01 01	090 12 12	149 01 01	208 69 OP	267 05 05	326 92 RTN
032 95 =	091 32 X/T	150 07 07	209 02 02	268 19 D'	327 76 LBL
033 77 GE	092 01 01	151 00 00	210 02 02	269 43 RCL	328 15 E
034 00 00	093 22 INV	152 00 00	211 00 00	270 15 15	329 69 OP
035 43 43	094 67 EQ	153 03 03	212 02 02	271 15 E	330 00 00
036 48 EXC	095 01 01	154 00 00	213 00 00	272 91 R/S	331 02 02
037 15 15	096 18 18	155 03 03	214 02 02	273 76 LBL	332 02 02
038 61 GTO	097 01 01	156 02 02	215 00 00	274 14 D	333 01 01
039 00 00	098 44 SUM	157 69 OP	216 02 02	275 69 OP	334 03 03
040 21 21	099 14 14	158 03 03	217 00 00	276 00 00	335 02 02
041 76 LBL	100 00 00	159 04 04	218 02 02	277 03 03	336 02 02
042 17 B'	101 32 X/T	160 01 01	219 00 00	278 06 06	337 69 OP
043 08 08	102 73 RC*	161 03 03	220 69 OP	279 01 01	338 03 03
044 42 STO	103 14 14	162 07 07	221 03 03	280 03 03	339 03 03
045 14 14	104 22 INV	163 03 03	222 02 02	281 04 04	340 01 01
046 00 00	105 67 EQ	164 02 02	223 00 00	282 01 01	341 01 01
047 65 *	106 01 01	165 03 03	224 02 02	283 69 OP	342 07 07
048 93 .	107 24 24	166 01 01	225 00 00	284 03 03	343 00 00
049 01 01	108 73 RC*	167 00 00	226 02 02	285 03 03	344 00 00
050 85 +	109 12 12	168 00 00	227 00 00	286 07 07	345 07 07
051 73 RC*	110 72 ST*	169 69 OP	228 02 02	287 01 01	346 03 03
052 14 14	111 14 14	170 04 04	229 00 00	288 07 07	347 00 00
053 95 =	112 00 00	171 69 OP	230 02 02	289 00 00	348 00 00
054 97 DSZ	113 72 ST*	172 05 05	231 00 00	290 00 00	349 69 OP
055 14 14	114 12 12	173 19 D'	232 69 OP	291 00 00	350 04 04
056 00 00	115 61 GTO	174 09 09	233 04 04	292 00 00	351 69 OP
057 47 47	116 00 00	175 69 OP	234 69 OP	293 00 00	352 55 55
058 58 FIX	117 43 43	176 41 41	235 05 05	294 00 00	353 91 R/S



OP 56 or KEY Alphanumeric display from registers OP 03 et OP 04 with expectation of seizure of a figure

The command OP 56 / **KEY** works like the OP 55 but the message displayed is a message waiting to enter a figure (0-9).

After entering the number the execution of the program continues in sequence.

000	76	LBL	
001	11	A	
002	01	1	C
003	05	5	
004	02	2	H
005	03	3	
006	02	2	I
007	04	4	
008	02	2	F
009	01	1	
010	02	2	F
011	01	1	
012	69	OP	
013	03	03	
014	03	3	
015	05	5	R
016	01	1	
017	07	7	E
018	00	0	
019	00	0	
020	07	7	
021	01	1	?
022	00	0	
023	00	0	
024	69	OP	
025	04	04	
026	69	OP	
027	56	56	
028	29	CP	
029	67	EQ	
030	12	B	
031	99	PRT	
032	61	GTO	
033	11	A	
034	76	LBL	
035	12	B	
036	91	R/S	

display **CHIFFRE ?** and puts the program on hold.

As soon as a figure is entered the program continues in sequence at the step 28

Only keys of TI58C keyboard **R/S**, **RST**, **LRN**, **CLR** and function keys (**A**, **B**, **C**...) interrupt pending program.



OP 57 or SND Using sound file

With the instruction **OP 57 / SND**, you can use a sound file (**.wav**).

Registers **X** and **T** are used:

X for the **.wav** file name and **T** for the delay (after playing the sound)

Example : *Au clair de la lune.*

D D D E F E D F E E D
fa fa fa sol la sol fa la sol sol fa

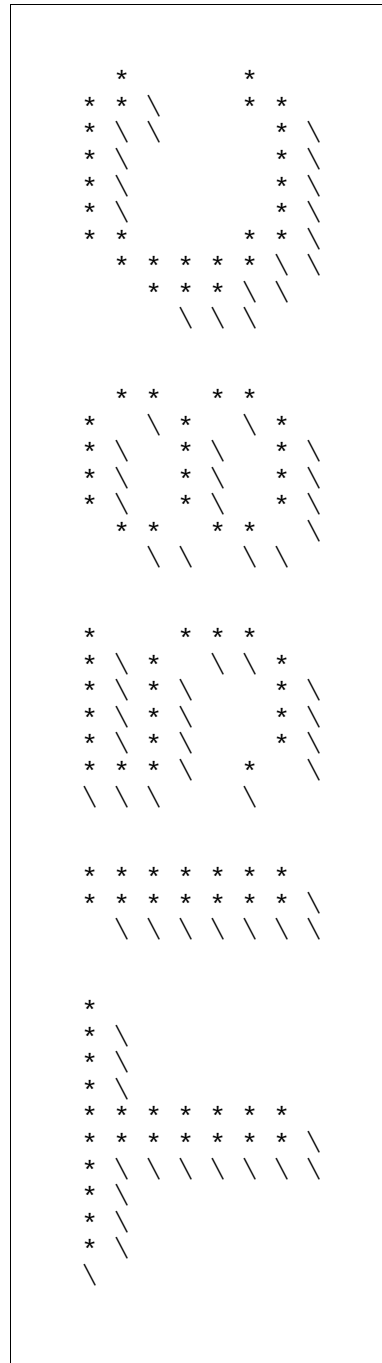
000	76	LBL	
001	11	A	
002	02	2	
003	93	.	
004	05	5	
005	32	X/T	
006	01	1	play the file d.wav
007	06	6	
008	69	OP	
009	57	57	
010	01	1	
011	06	6	
012	69	OP	
013	57	57	
014	01	1	
015	06	6	
016	69	OP	
017	57	57	play the file e.wav
018	01	1	
019	07	7	
020	69	OP	
021	57	57	
022	02	2	
023	01	1	
024	69	OP	
025	57	57	
026	01	1	
027	07	7	
028	69	OP	
029	57	57	
030	01	1	
031	06	6	
032	69	OP	
033	57	57	
034	02	2	
035	01	1	
036	69	OP	
037	57	57	
038	01	1	
039	07	7	
040	69	OP	
041	57	57	
042	01	1	
043	07	7	
044	69	OP	
045	57	57	
046	01	1	
047	06	6	
048	69	OP	
049	57	57	
050	25	CLR	



OP 58 3D printing banner (AsciiArt)

The instruction **OP 58** works as the **OP 05** with the printing registers 1 to 4 to print a vertical banner of 20 characters.

```
000 76 LBL
001 11 A
002 69 OP
003 00 00
004 03 03
005 07 07
006 02 02
007 04 04
008 00 00
009 06 06
010 01 01
011 01 01
012 01 01
013 05 05
014 69 OP
015 04 04
016 69 OP
017 58 58
018 92 RTN
```



OP 59 Cut the paper

The instruction **OP 59** only cut the paper...



OP 69 or LIB Change Library Module

Each module for TI, in addition to its identifying code (ML, MU, SY ...), has a number (two characters) that can be known by loading the first program module (PGM 01) and introducing diagnosis sequence (SBR 2nd R / S) which returns the module number.

If in the original calculator, libraries are physically small modules that fit into the hatch at the bottom rear of the machine, these libraries are directories for TI58C therefore easily interchangeable.

The instruction OP 69 / LIB allows therefore to change the module loaded.

Syntax : **xx OP 69** or **xx LIB**, xx is the number of the module to be loaded. (see list of modules page 36)

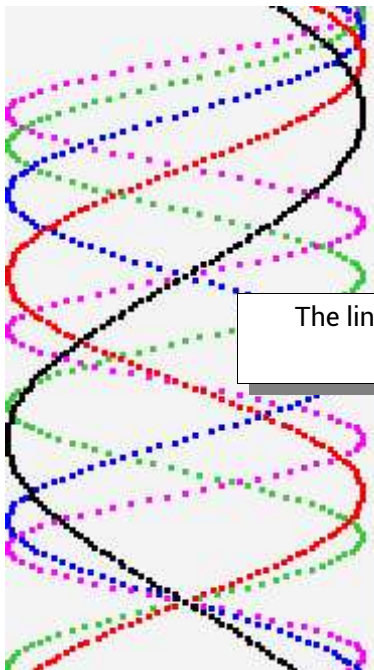


OP 70 à OP 75

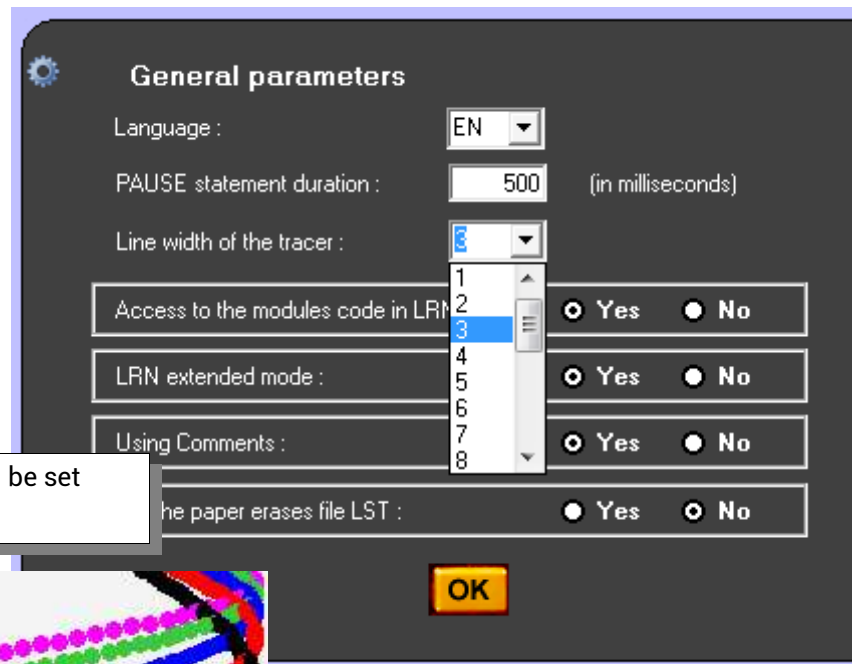
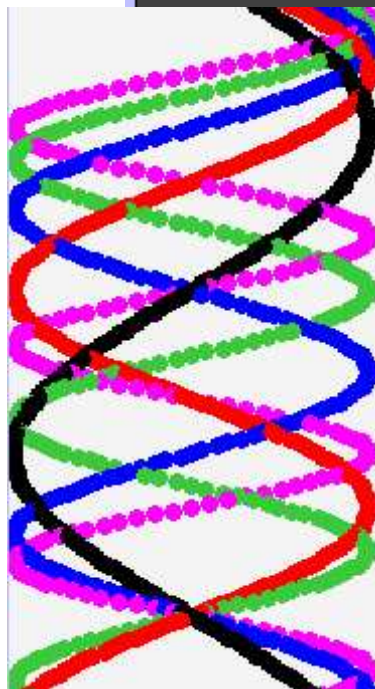
OP 79

Drawing from 1 to 5 simultaneous curves

- **70** Number of curves (1 to 5) to trace width OP 79
- **71** Trace Register for curve #1
- **72** Trace Register for curve #2
- **73** Trace Register for curve #3
- **74** Trace Register for curve #4
- **75** Trace Register for curve #5
- **79** Draws 1 to 5 colored curves from trace registers



The line width can be set
(1 to 20)

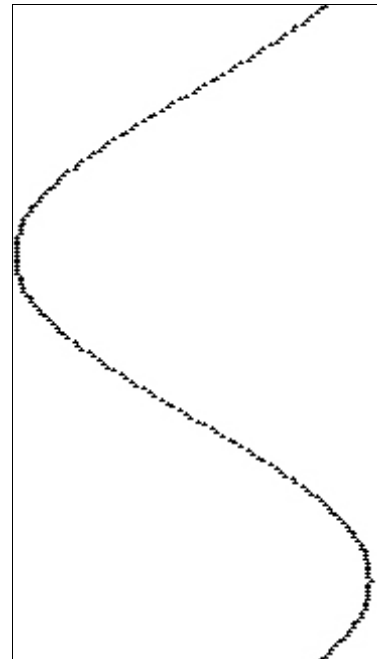


OP 77 / OP 78 Curve(s) on 100 columns from X (and T) register(s)

- The instruction **OP 77** prints a point in one of the columns from 0 to 100 according to the value contained in the display register (X). Values outside the range of 0 to 100 are not visible (not on paper). Only the integer value is taken into consideration

```

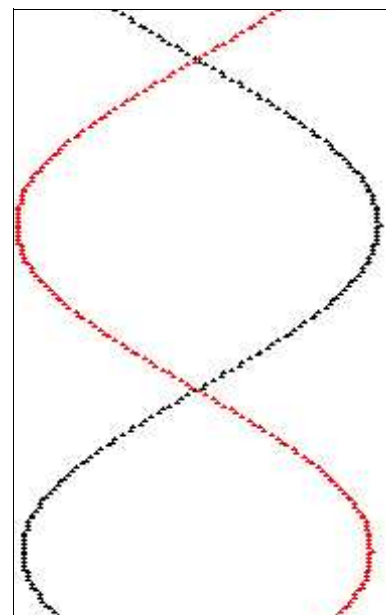
000 76 LBL
001 11 A
002 43 RCL
003 01 01
004 38 SIN
005 85 +
006 01 01
007 95 =
008 65 *
009 04 04
010 09 09
011 95 =
012 69 OP
013 77 77
014 02 02
015 44 SUM
016 01 01
017 61 GTO
018 11 A
019 92 RTN
    
```



The instruction **OP 78** prints a black dot in one of the columns from 0 to 100 according to the value contained in the display register (X) and a red dot in a column from 0 to 100 according to the value contained in the exchange register (T). Values outside the range of 0 to 100 are not visible (not on paper). Only integer values are considered.

```

000 76 LBL
001 11 A
002 43 RCL
003 01 01
004 38 SIN
005 85 +
006 01 01
007 95 =
008 65 *
009 04 04
010 09 09
011 95 =
012 32 X/T
013 43 RCL
014 01 01
015 38 SIN
016 85 +
017 01 01
018 95 =
019 65 *
020 04 04
021 09 09
022 95 =
023 75 -
024 01 01
025 00 00
026 00 00
027 95 =
028 50 IXI
029 69 OP
030 78 78
031 02 02
032 44 SUM
033 01 01
034 61 GTO
035 11 A
036 92 RTN
    
```



OP 80 Clear the Alpha register

OP 81 Loads the Alpha register into print registers 1 and 2

OP 82 Loads the Alpha register into print registers 2 and 3

OP 83 Loads the Alpha register into print registers 3 and 4

OP 84 Loads the Alpha register into print registers 4 and 1

the instructions **OP 81** to **84** allow the transfer of the 10 characters of the Alpha register in two print registers : first 5 characters of the first chosen register, last 5 characters of the second chosen register. Then standard print **OP** functions can be used.

Example : printing the first 20 letters of the alphabet.



000	01	1	026	02	2
001	03	3	027	07	7
002	01	1	028	03	3
003	04	4	029	00	0
004	01	1	030	03	3
005	05	5	031	01	1
006	01	1	032	03	3
007	06	6	033	02	2
008	01	1	034	69	OP
009	07	7	035	03	03
010	69	OP	036	03	3
011	01	01	037	03	3
012	02	2	038	03	3
013	01	1	039	04	4
014	02	2	040	03	3
015	02	2	041	05	5
016	02	2	042	03	3
017	03	3	043	06	6
018	02	2	044	03	3
019	04	4	045	07	7
020	02	2	046	69	OP
021	05	5	047	04	04
022	69	OP	048	69	OP
023	02	02	049	05	05
024	02	2	050	91	R/S
025	06	6			

000	AB	~AB
001	CD	~CD
002	EF	~EF
003	GH	~GH
004	IJ	~IJ
005	69	OP
006	81	81
007	KL	~KL
008	MN	~MN
009	OP	~OP
010	QR	~QR
011	ST	~ST
012	69	OP
013	83	83
014	69	OP
015	05	05
016	91	R/S

"Alpha" method : 16 steps (+ R/S)
and better readability

Conventional method : 50 steps (+ R/S)



OP 85 Alpha register alphanumeric display

the **OP 85** instruction allows the display of the 10 characters of the Alpha register.
Same as **OP 55** but without using print registers 3 and 4.

Example : display of the first 10 letters of the alphabet.



000	01	1
001	03	3
002	01	1
003	04	4
004	01	1
005	05	5
006	01	1
007	06	6
008	01	1
009	07	7
010	69	OP
011	03	03
012	02	2
013	01	1
014	02	2
015	02	2
016	02	2
017	03	3
018	02	2
019	04	4
020	02	2
021	05	5
022	69	OP
023	04	04
024	69	OP
025	55	55
026	91	R/S

000	AB	~AB
001	CD	~CD
002	EF	~EF
003	GH	~GH
004	IJ	~IJ
005	69	OP
006	85	85
007	91	R/S

"Alpha" method : 7 steps (+ R/S)
and better readability

Conventional method : 26 steps (+ R/S)

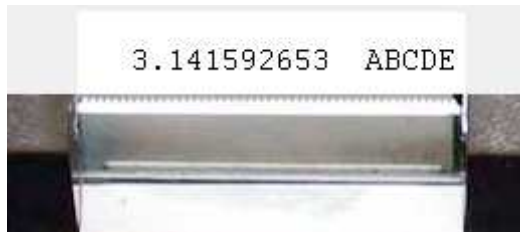


OP 86 Prints the X register followed by the first 5 characters of the Alpha register

the **OP 86** instruction prints the number present on the display (X register) followed by the first 5 alphanumeric characters from the Alpha register.

Same as **OP 06** but without using print register 4.

Example : printing of **PI** followed by the first 5 letters of the alphabet.



000	01	1
001	03	3
002	01	1
003	04	4
004	01	1
005	05	5
006	01	1
007	06	6
008	01	1
009	07	7
010	69	OP
011	04	04
012	89	PI
013	69	OP
014	06	06
015	91	R/S

Conventional method : 15 steps (+ R/S)

000	89	PI
001	AB	~AB
002	CD	~CD
003	E_	~E_
004	69	OP
005	86	86
006	91	R/S

"Alpha" method : 6 steps (+ R/S)
and better readability



OP 88 Prints cross reference table

- Standardly, the instruction **OP 08** prints the list of labels of the program in memory. With the instruction **OP 88** you can now print a list of addresses and labels called by branch instructions (**GTO, SBR, EQ, GE, IFF, DSZ**)

Cible	Appel
021	038 61 GTO
043	033 77 GE
043	115 61 GTO
043	124 87 IFF
047	054 97 DSZ
071	066 67 EQ
071	086 67 EQ
074	183 71 SBR
089	130 61 GTO
100	121 61 GTO
118	094 67 EQ
124	105 67 EQ
A'	174 16 A'
C'	191 67 EQ
D'	135 19 D'
D'	172 19 D'
D'	180 19 D'
D'	252 19 D'
D'	281 19 D'
E'	173 10 E'
E'	181 10 E'



OP 98 Prints contextual information.

The value entered before the OP code defines the type of report :

- **0 OP 98** flags values.
- **1 OP 98** contents of alphanumeric print registers
- **2 OP 98** contents of HIR registers

```
+=====+
|           OP 98           |
+=====+
| 0 | Flags                 |
| 1 | OP values            |
| 2 | HIR values           |
+=====+
```

- The instruction **0 OP 98** prints the flags used by **STF (86)** and **IFF (87)**.

```
-----
Flag 0: 1 (On)
Flag 1: 1 (On)
Flag 2: 0 (Off)
Flag 3: 0 (Off)
Flag 4: 0 (Off)
Flag 5: 1 (On)
Flag 6: 0 (Off)
Flag 7: 0 (Off)
Flag 8: 0 (Off)
Flag 9: 0 (Off)
-----
```

- The instruction **1 OP 98** prints the alphanumeric print registers.

```
-----
0064646464   OP 1
  = = = =
6464646464   OP 2
  = = = =
5225131526   OP 3
  $ J A C K
3332375200   OP 4
  P O T $
-----
```

- The instruction **2 OP 98** prints the HIR registers.

```
-----
3.1415987   HIR 0
           0   HIR 1
3.141592653 HIR 2
           0   HIR 3
0.314159265 HIR 4
           0   HIR 5
           0   HIR 6
           0   HIR 7
           0   HIR 8
           0   HIR 9
-----
```



OP 99 Prints information documentaries.

The value entered before the **OP** code defines the type of report :

99 OP 99 print the table of different x values used with **OP 99**.

```

+=====+
| H E L P   D O C |
+=====+
0 OP 99 Char codes
1 OP 99 TI Codes
2 OP 99 WRI codes
3 OP 99 HIR codes
8 OP 99 Let. codes
9 OP 99 Num. codes
1x OP 99 OP codes
43 OP 99 OP43 doc.
50 OP 99 OP50 doc.
+=====+
|99 OP 99 Help doc.|
+=====+

```

Example : the instruction 1 **OP 99** prints the list of keyboard commands used.

CODE	FONCT	PC						
00	0	0	34	SQR	SQR	71	SBR	SBR
01	1	1	35	1/X	X1	72	ST*	ST*
02	2	2	36	PGM	PGM	73	RC*	RC*
03	3	3	37	P/R	P/R P>R	74	SM*	SM*
04	4	4	38	SIN	SIN	75	-	-
05	5	5	39	COS	COS	76	LBL	LBL
06	6	6	40	IND	IND	77	GE	GE X>T
07	7	7	41	SST	SST	78	STA	STA SIG
08	8	8	42	STO	STO	79	AVR	AVR AVG
09	9	9	43	RCL	RCL	80	GRD	GRD
10	E'	F10	44	SUM	SUM	81	RST	RST
11	A	F1	45	YX	YX Y^X	82	HIR	HIR
12	B	F2	46	INS	INS	83	GO*	GT* GO*
13	C	F3	47	CMS	CMS	84	OP*	OP*
14	D	F4	48	EXC	EXC	85	+	+
15	E	F5	49	PRD	PRD	86	STF	STF
16	A'	F6	50	IXI	ABS	87	IFF	IFF
17	B'	F7	51	BST	BST	88	DMS	DMS
18	C'	F8	52	EE	EE	89	PI	PI
19	D'	F9	53	((90	LST	LST
20	PCT	PCT %	54))	91	R/S	R/S
21	2nd		55	/	/	92	RTN	RTN
22	INV	INV	56	DEL	DEL	93	.	.
23	LNx	LNx	57	ENG	ENG	94	+/-	+/- CHS
24	CE	CE	58	FIX	FIX	95	=	=
25	CLR	CLR	59	INT	INT	96	WRI	WRI
26	SB*	SB*	60	DEG	DEG	97	DSZ	DSZ
27	INV	INV	61	GTO	GTO	98	ADV	ADV
28	LOG	LOG	62	PG*	PG*	99	PRT	PRT
29	CP	CP	63	EX*	EX*			
30	TAN	TAN	64	PD*	PD* PR*			
31	LRN	LRN	65	*	*			
32	X/T	X/T X%T	66	PAU	PAU			
33	X2	X2 X^2	67	EQ	EQ X=T			
			68	NOP	NOP			
			69	OP	OP			
			70	RAD	RAD			



- the instruction 2 OP 99 print the codes table for tht instruction Write (**WRI**).

- in **TI58/TI58C** mode :

WRI / INV WRI		
#	MEM.	
01	00	24
02	25	49
03	50	74
04	75	99
05	100	124
06	125	149
07	150	174
08	175	199
09	200	224
10	225	249
11	250	274
12	275	299
13	300	324
14	325	349
15	350	374
16	375	399
17	400	424
18	425	449
19	450	474
20	475	499
21	500	524
22	525	549
23	550	574
24	575	599
25	600	624
26	625	649
27	650	674
28	675	699
29	700	724
30	725	749
31	750	774
32	775	799
33	800	824
34	825	849
35	850	874
36	875	899
37	900	924
38	925	949
39	950	974
40	975	999

(see pages 28 and 42)

- in **TI59** mode :

WRI / INV WRI		
#	MEM.	
01	119	90
02	89	60
03	59	30
04	29	0

(see pages 29 and 42)

- the instruction 3 OP 99 print HIR codes table.

HIR	
0x	STO
1x	RCL
3x	SUM
4x	PRD
5x	INV SUM
6x	INV PRD



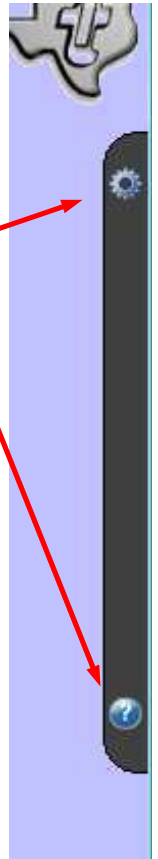
To the right of the screen a tab permit to access

- either a screen for management of TI58C generals settings,
- either the information screen about version of the software.

Click the icon for the option chosen :

Generals settings

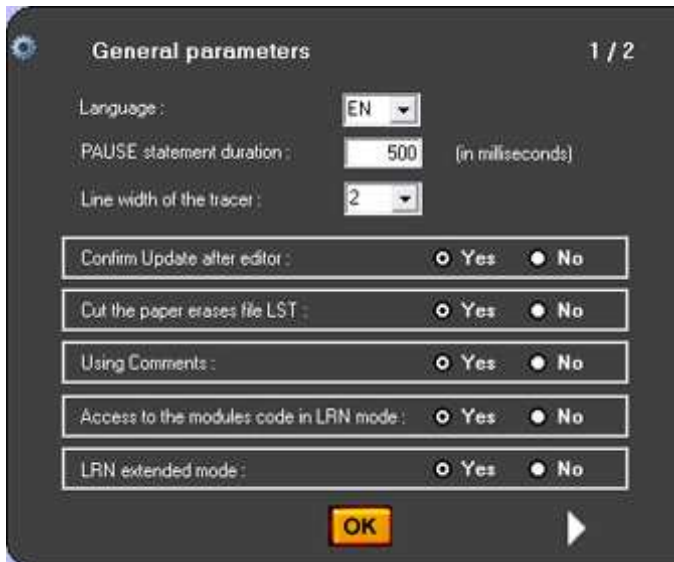
About TI58C



Generals settings

You can set :

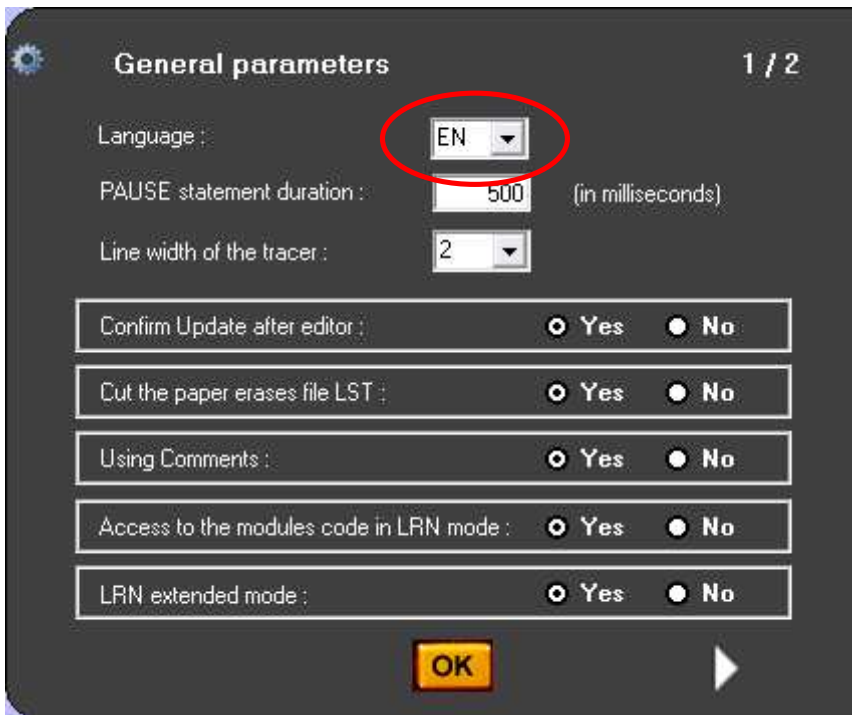
- the language of TI58C,
- the waiting time of the PAUSE statement in milliseconds,
- the ability to access the code of module loaded by the PGM instruction,
- .../...



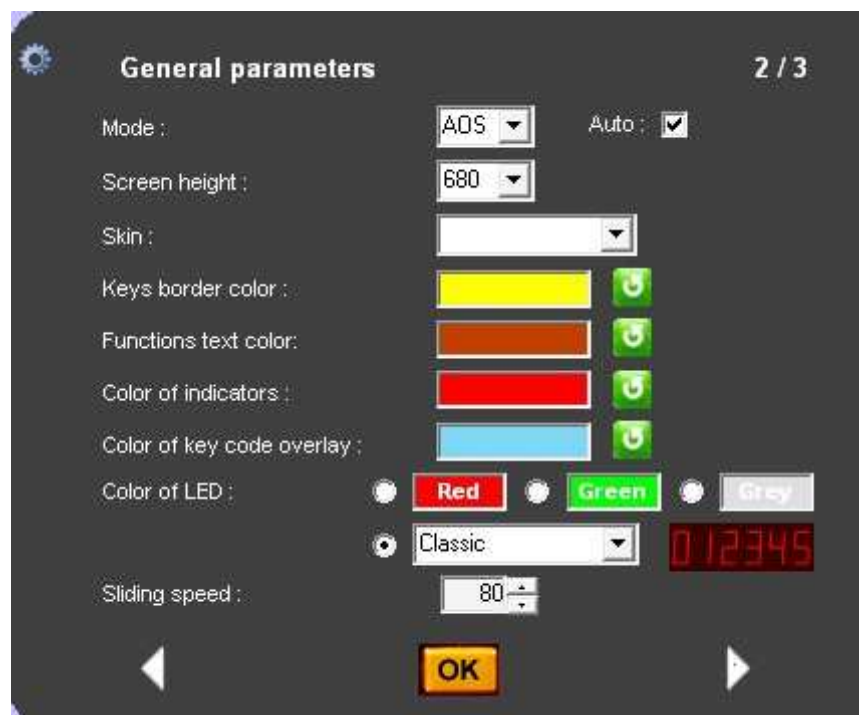
This option will give you access, in "LRN" mode (programming), to the code of module loaded and allows you to list the module on the printer with the LST command.



The default language of TI58C emulator is French, but you can use an other language (English, Italian, Czech, German, Brazilian, Spanish...)

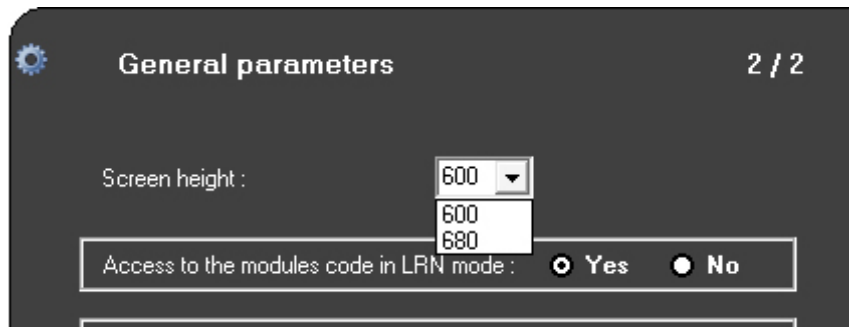


You can also parametrize the ergonomics of your calculator.

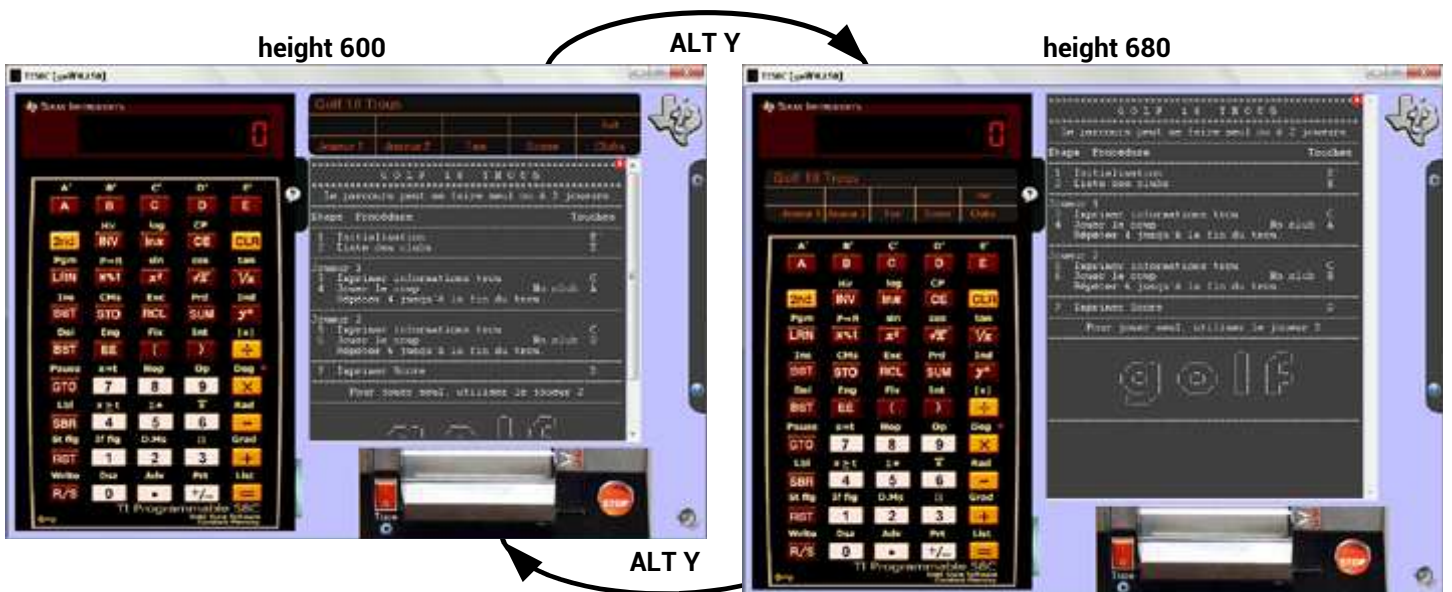


Screen size

Two screen heights are available : 600 and 680.



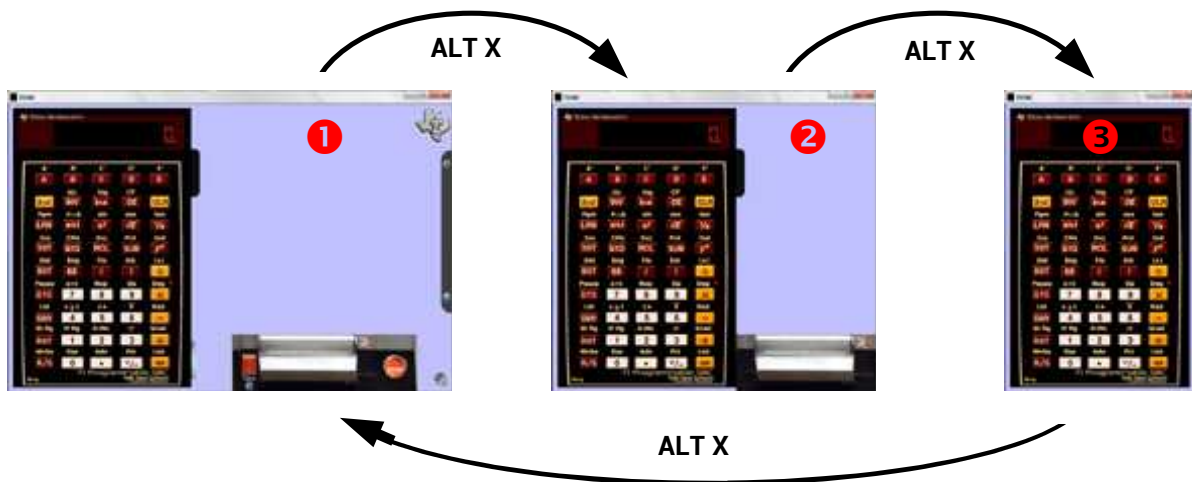
Depending on the setting chosen, the TI will not have the same representation



The width could be also changed by the combination of ALT X

3 different widths are possible :

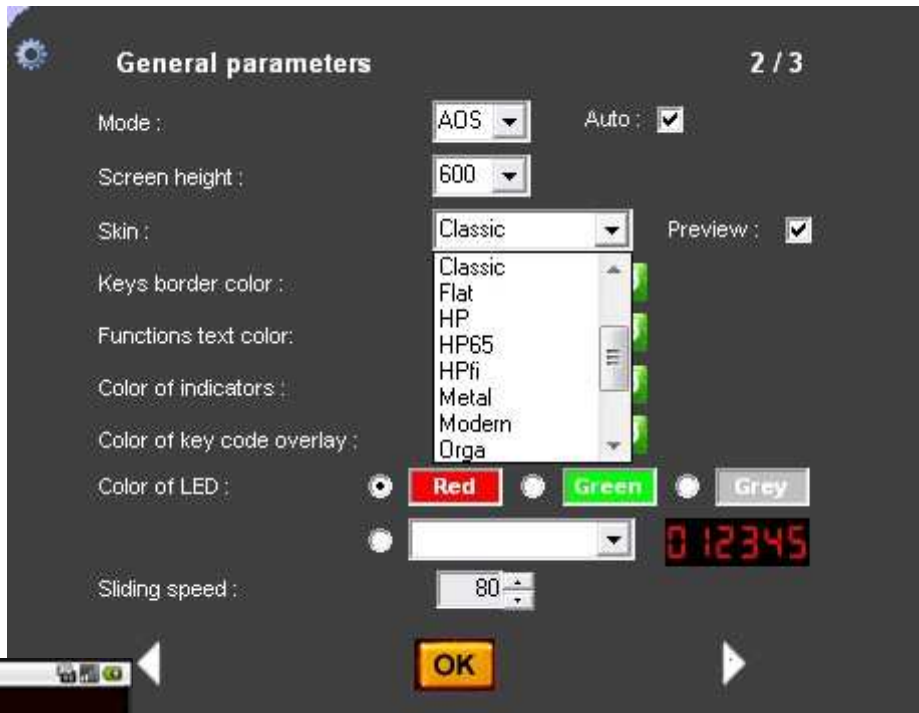
- full functionality ①,
- calculator and printer ②,
- calculator only ③.



Skins

1 - Calculator skins

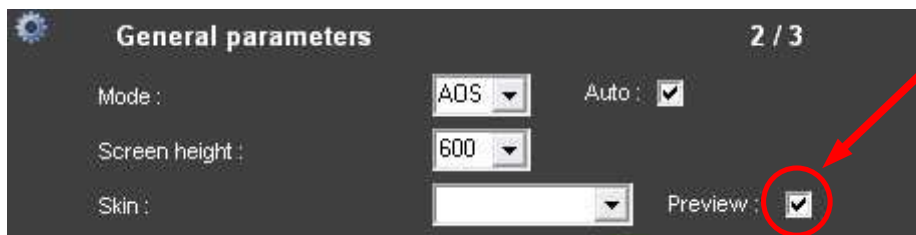
The appearance of the calculator is customizable with "skins".



(The "skins" must be in the subdirectory "Skins".)



You can also change the "skin" with the key combination **ALT Z** and you can create a list of favorites "skins". The skins can be selected directly as a list or be displayed in a preview screen of skins, according to the **"Preview"** parameter.



Skins in list



- Click the left button to switch to the list of favorites "skins"
- Click with the right mouse button to manage favorites.



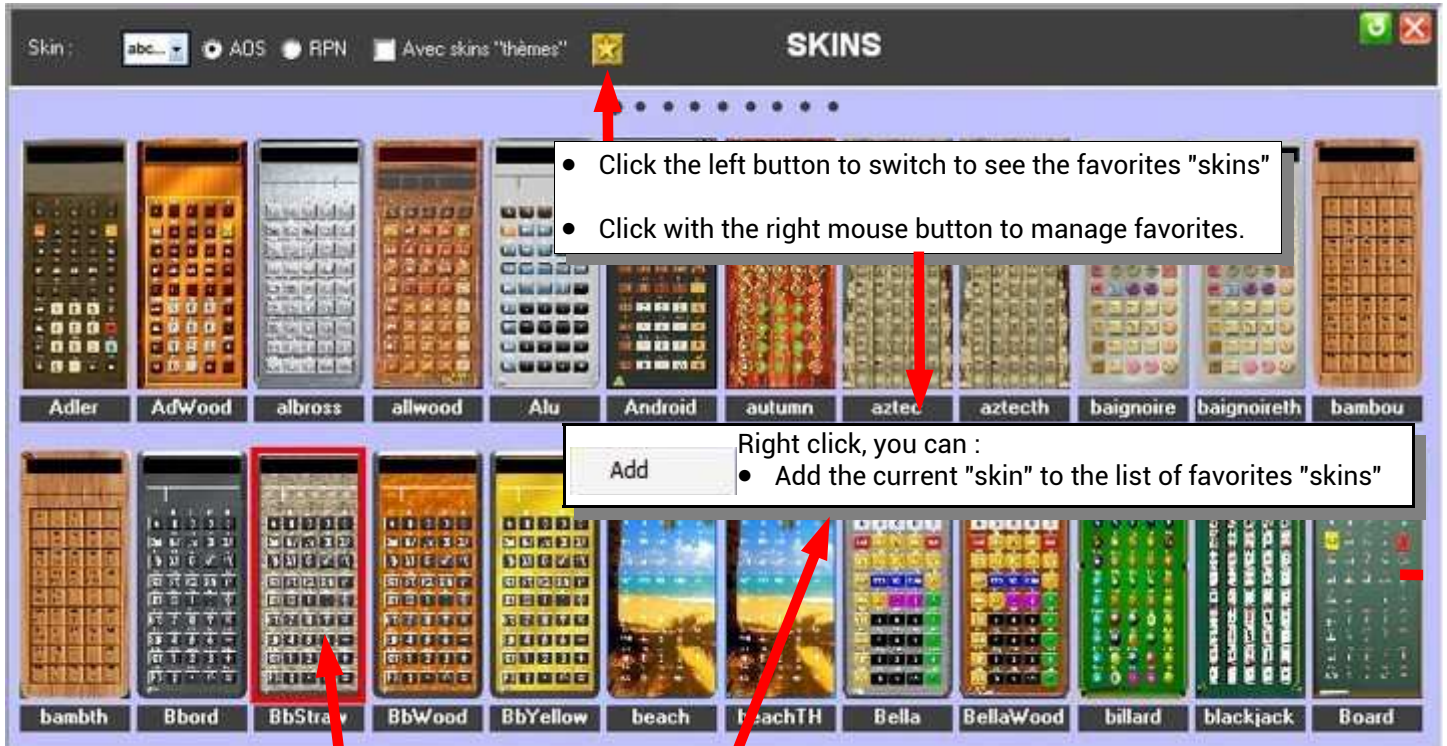
- You can :
- Add the current "skin" to the list of favorites "skins"
 - Remove the current "skin" from the list of favorites "skins"



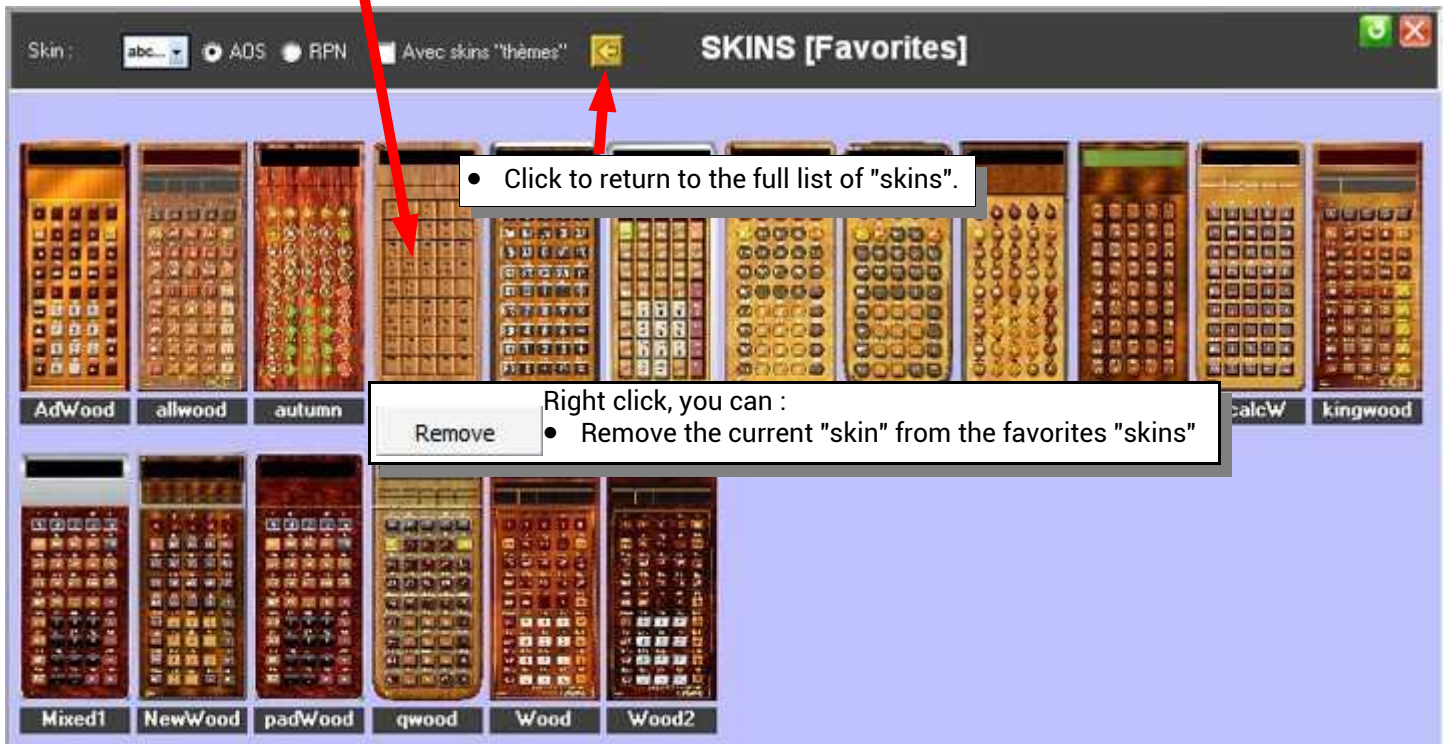
- Click to return to the complete list of "skins".

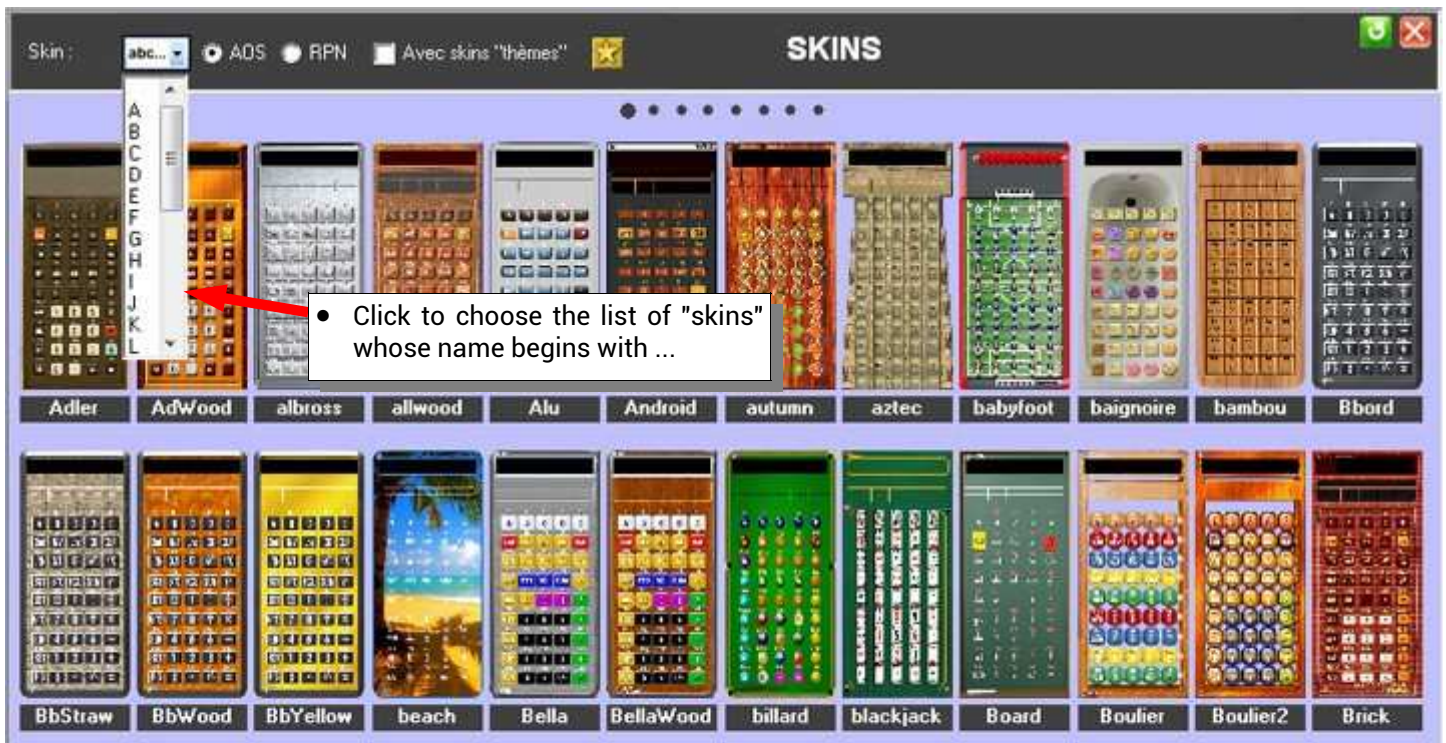
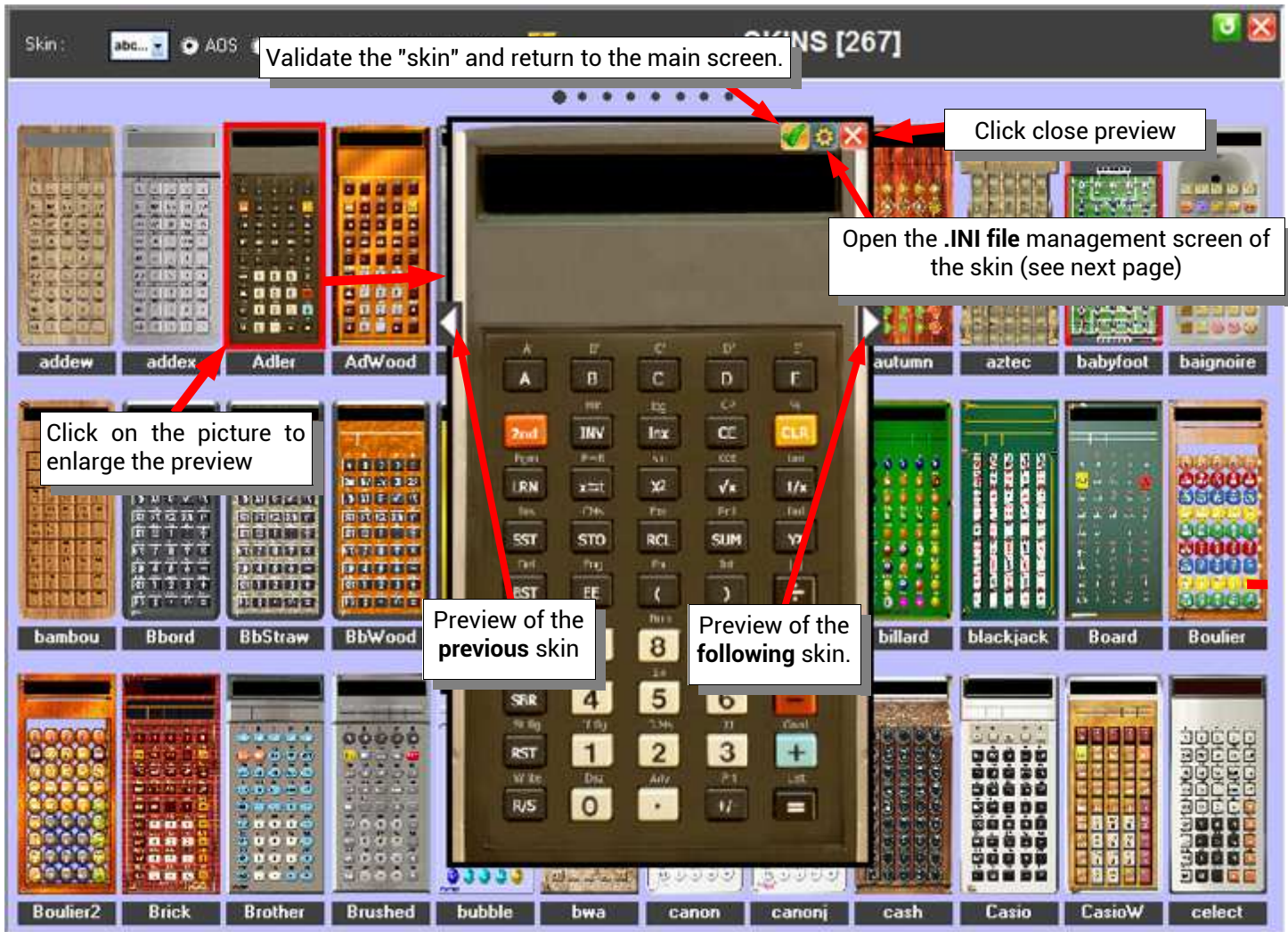


Skins in a preview screen



- Click with the left mouse button to select the "skin".
- Click with the right mouse button to manage favorites.
- Double-click to validate the "skin" and return to the main screen.





Skin settings (.ini file)

Classic.ini 1 / 3


Mode:

Color of indicators:


Color of key code overlay:

Outline of keys

Visible:



Location



Size

Thickness:

Color of outline of keys:

Labels of functions active:

←

→

Color of indicators

Color of key code overlay

Visibility of outline of keys


Position and size of outline of keys

Thickness of outline of keys

Color of outline of keys

The labels of the "2nd" function keys become active as keys

addew.ini 2 / 3



Click on the column indicators to appear or disappear the vertical position adjustment bar of these indicators.

Click on the code indicators to appear or disappear the vertical position adjustment bar of these indicators.

Location: Size:

Color of LED: Red Green Grey

Digit

Visible labels:

Color of labels of functions:

←

→

Click on the column indicators to appear or disappear the vertical position adjustment bar of these indicators.

Click on the code indicators to appear or disappear the vertical position adjustment bar of these indicators.

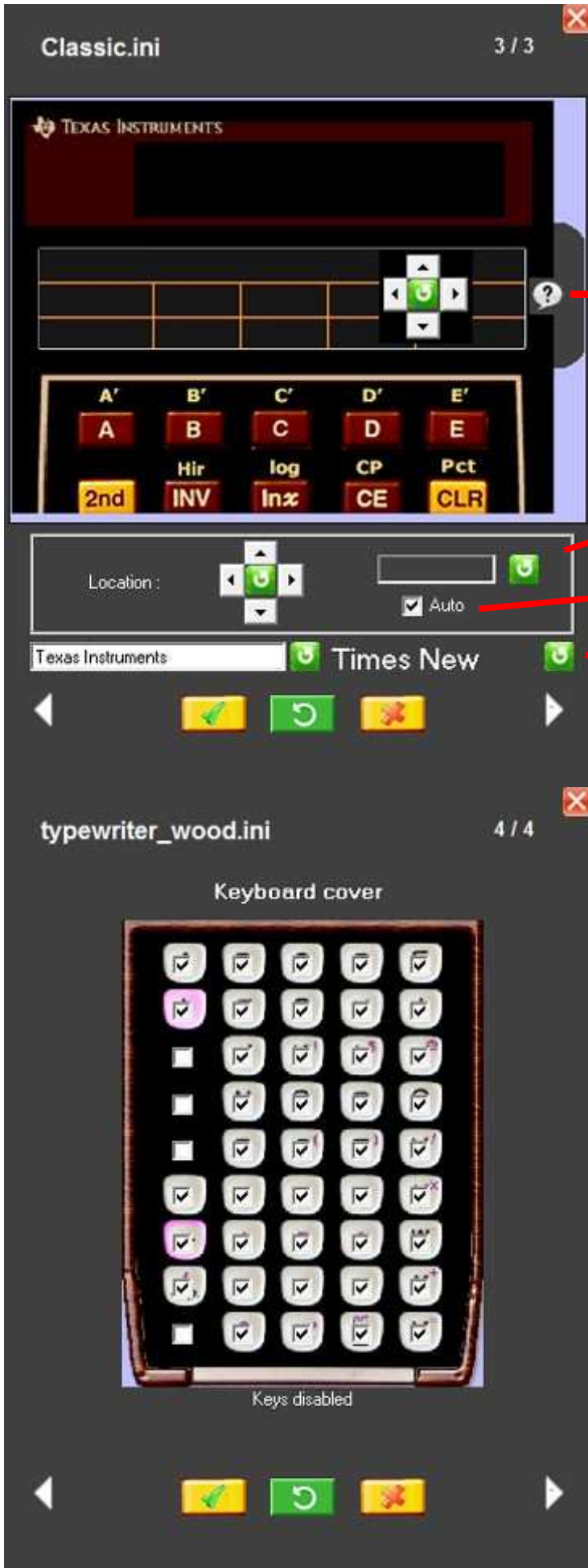
Location and size of the display

Color of LED or font of the display

Visibility of functions labels

Color of functions labels





Skin settings (.ini file)

Page 3 of the skin parameters concerns the "Reader" banner: its color, position, text but also the position of the help button

Clicking on the button brings up the move tool allowing you to change its position.

The position of the "Reader" banner and its color can be modified.

For programs with a card image, the background color of the card can be used by the "Reader" banner. (see next page)

The text on the "Reader" banner can be changed as well as its color and font.

For skins with a keyboard cover (or "alternative skin") it is possible to check the operational keys with this cover.

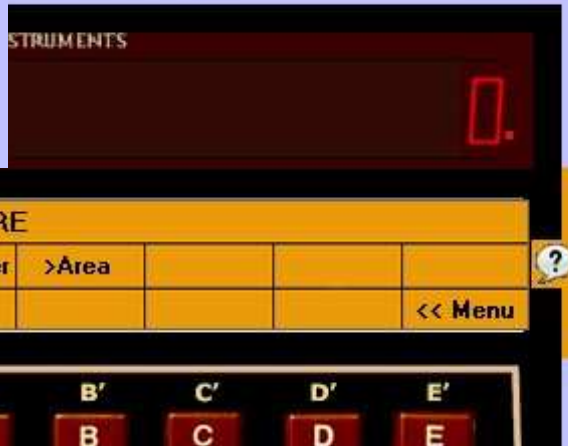
(see page 95)





For programs with a card image, the background color of the card can be used by the "Reader" banner.

[geomEN01.t58]



TI58C [TI59] [geomEN02]



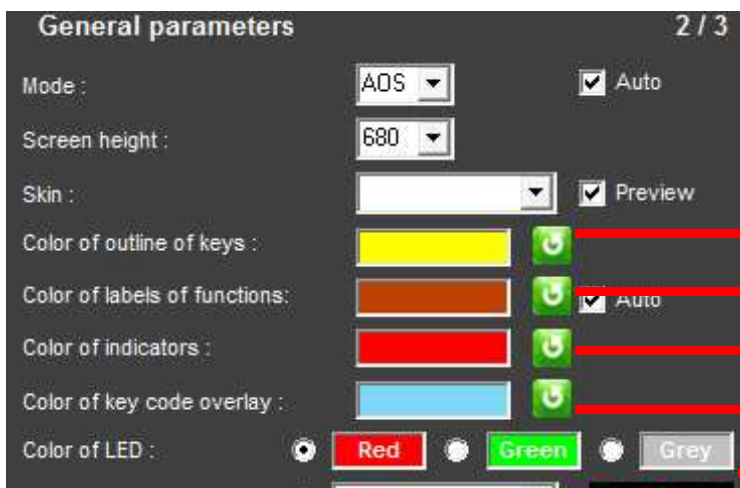
TI58C [TI59] [geomEN03]



[geomEN04.t58]



In addition to "skins", you can change punctually the appearance of your calculator using the general color settings.



- ① Keys outline color
- ② Functions text color
- ③ Color of indicators
- ④ Color of key code overlay
- ⑤ Color of LED



- ③ Color of indicators
- ⑤ Color of LED
- ② Functions text color
- ① Keys border color
- ④ Color of key code overlay
- ③ Color of indicators



To modify a color, click the rectangle of color to obtain the screen of choice of color.

Click the green button to return to the value by default.



2 - Printer skins

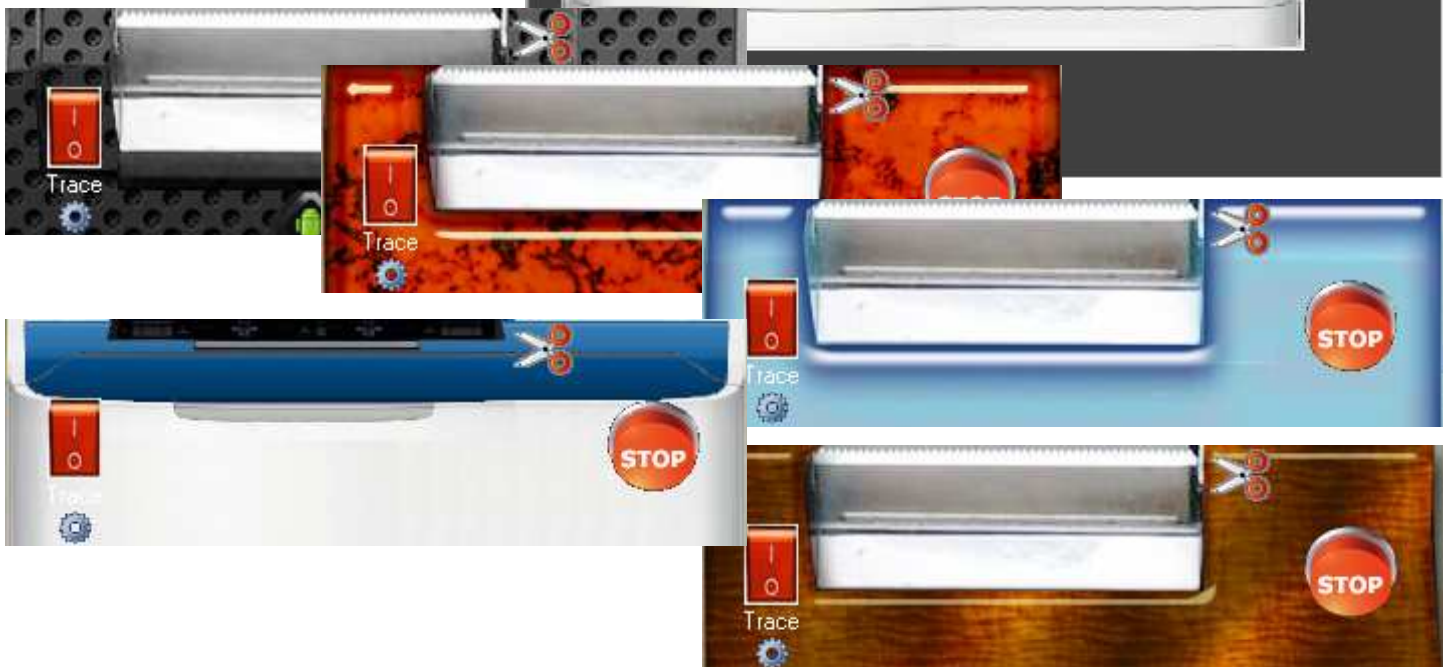
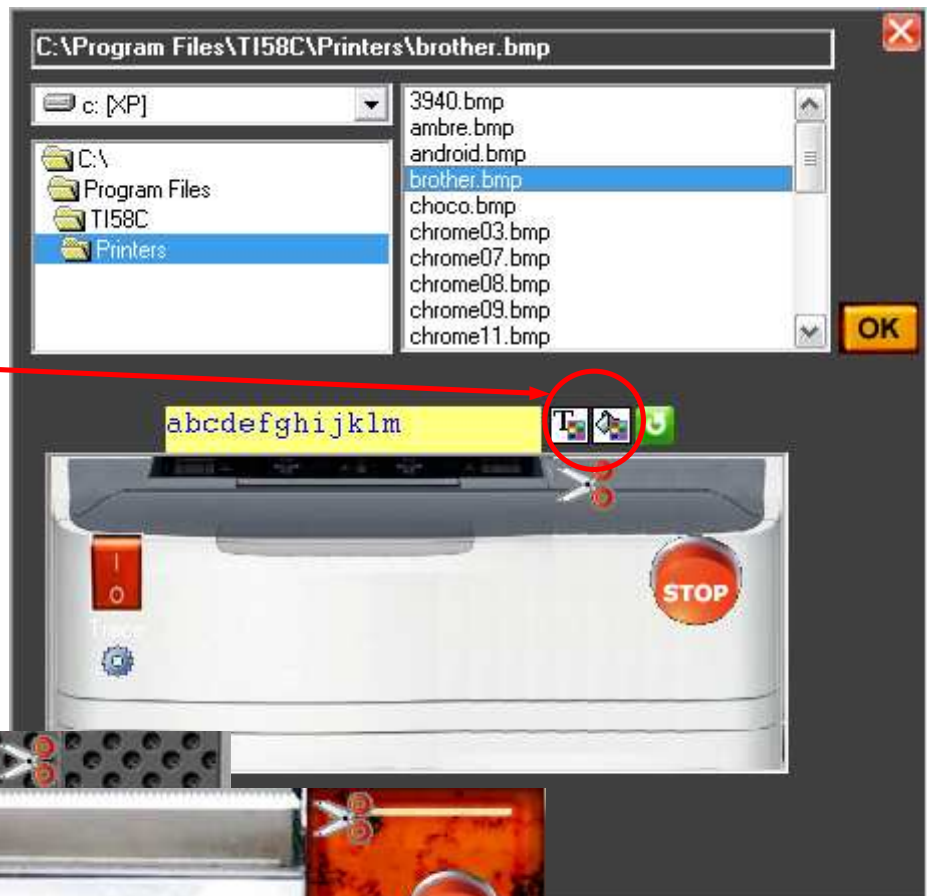
The appearance of the printer is customizable with "skins".

Click the upper right corner of the printer : the printer icon appears.



Choose the skin of the printer...

You can also change the color of the ink and the paper color !



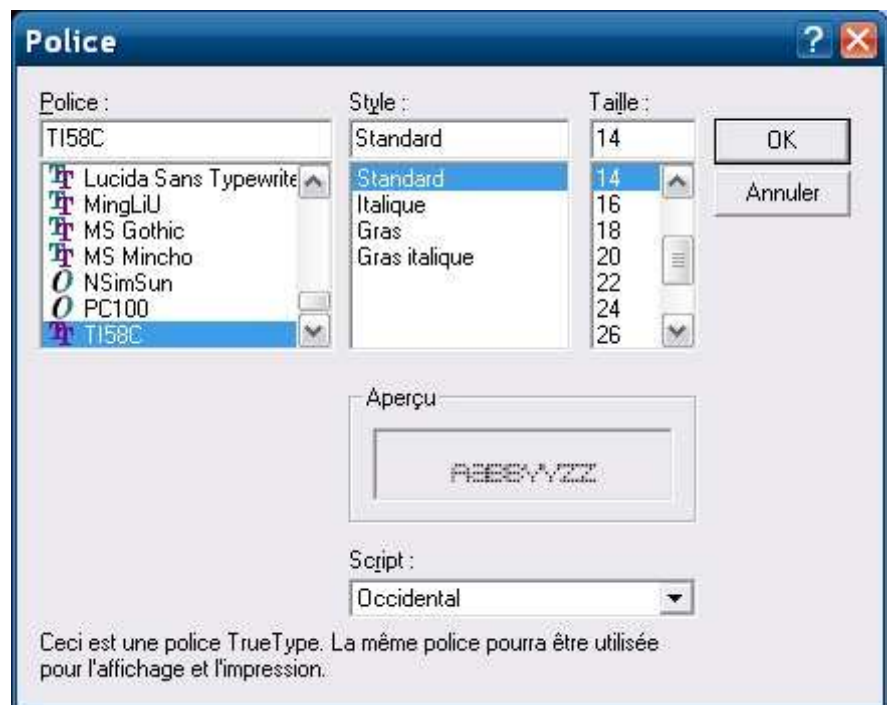
You can also choose the printer font.

Click the upper right corner of the printer : the font icon appears.



Choose the printer font...

Fonts that are offered are the non-proportional fonts (monospace) installed on your system.



PC100 13

0	1	2	3	4	5	6
7	8	9	A	B	C	D
E	F	G	H	I	J	K
L	M	N	O	P	Q	R
S	T	U	V	W	X	Y
Z	+	,	;	'	^	{
?	!	~	^	{	}	}

TI58C 14

0	1	2	3	4	5	6	7
8	9	A	B	C	D	E	F
G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V
W	X	Y	Z	+	,	;	'
^	{	}	}	}	}	}	}

Consolas 12

0	1	2	3	4	5	6	7
8	9	A	B	C	D	E	F
G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V
W	X	Y	Z	+	,	;	'
^	{	}	}	}	}	}	}

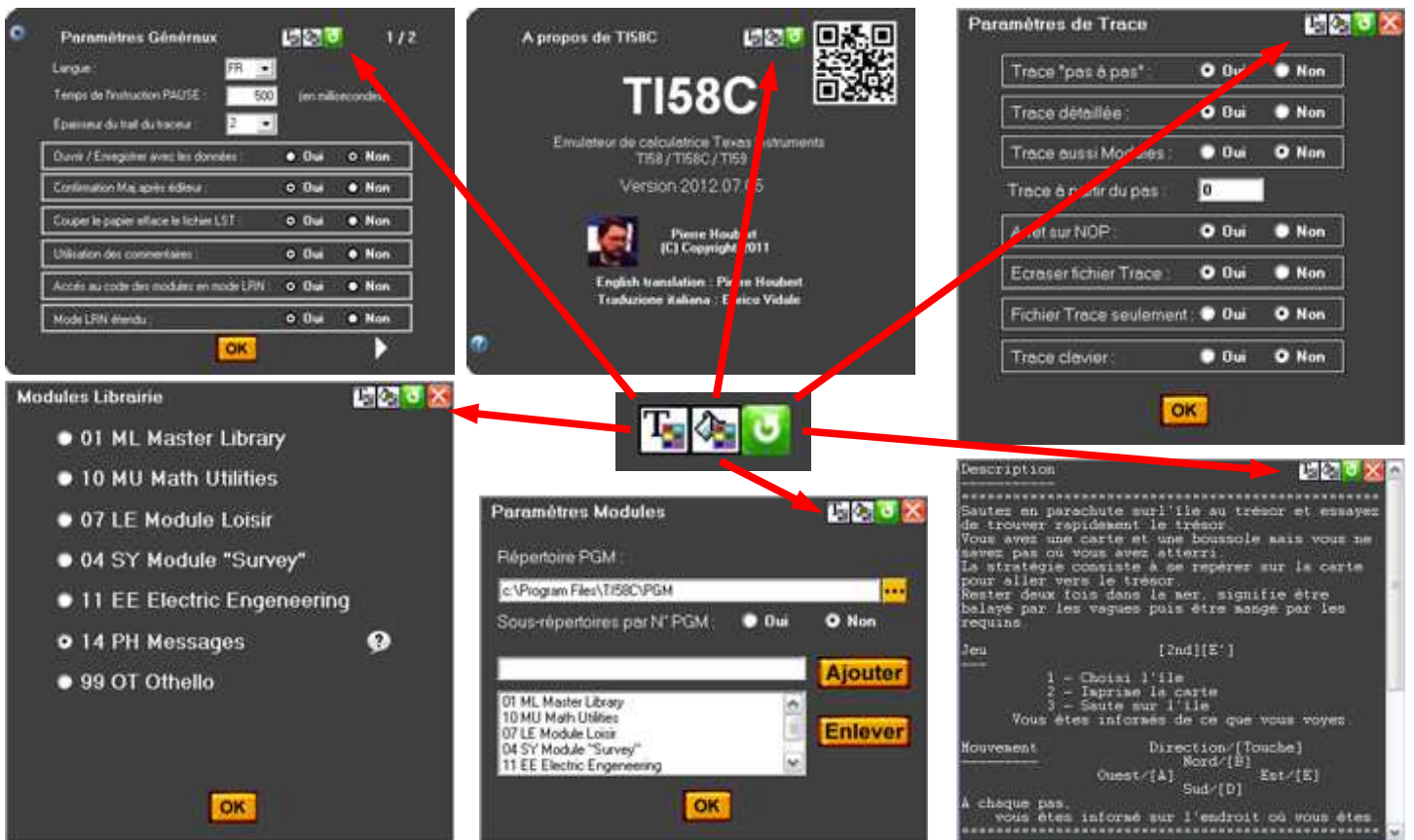


Customization




The colors of the main elements of software can be chosen :

- General settings, library modules and modules settings, trace settings...
- program help card
- screen back color

Colors of the parameters screens and the other "pop-up" screens



On every concerned popup screen, click anywhere in the window to display / hide the icons of colors management.





-  to choose the text color of the window.
-  to choose the back color of the window.
-  to restore default colors.



Colors of the program help card

L'ILE AU TRESOR				
		Encore		Jeu
Ouest	Nord	(Plan)	Sud	Est

Click on the card title to display / hide the icons of color management.

-  to choose the text color of the card.
-  to choose the color of the card lines.
-  to choose the back color of the card.
-  to restore default colors.

L'ILE AU TRESOR				
		Encore		Jeu
Ouest	Nord	(Plan)	Sud	Est

L'ILE AU TRESOR				
		Encore		Jeu
Ouest	Nord	(Plan)	Sud	Est

L'ILE AU TRESOR				
		Encore		Jeu
Ouest	Nord	(Plan)	Sud	Est

L'ILE AU TRESOR				
		Encore		Jeu
Ouest	Nord	(Plan)	Sud	Est



Screen back color

TI58C

TEXAS INSTRUMENTS

Click on the screen to display / hide the icons of color management.

- to choose the backcolor.
- to choose a wallpaper.
- to restore default color.

TI Programmable 58C
Solid State Software
Constant Memory

TI58C [Win-IFR 159]

TEXAS INSTRUMENTS

TI Programmable 58C
Solid State Software
Constant Memory


TI58C [Win-IFR 159]

TEXAS INSTRUMENTS

TI Programmable 58C
Solid State Software
Constant Memory



Wallpaper

 allows to choose a wallpaper.

This picture must be a BMP file with a resolution of 890 x 680 pixels.

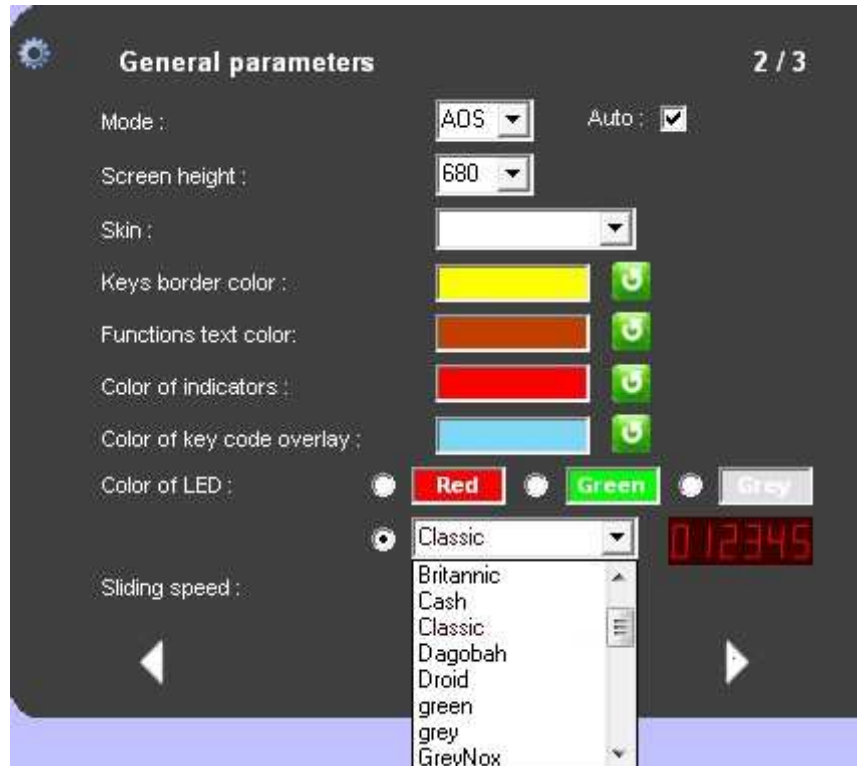
Find your picture then validate with OK



Display fonts

You can choose the display font, either in the three basic choices, either from sets of downloadable fonts.

(installed in the subdirectory */Fonts* of the directory of the application)

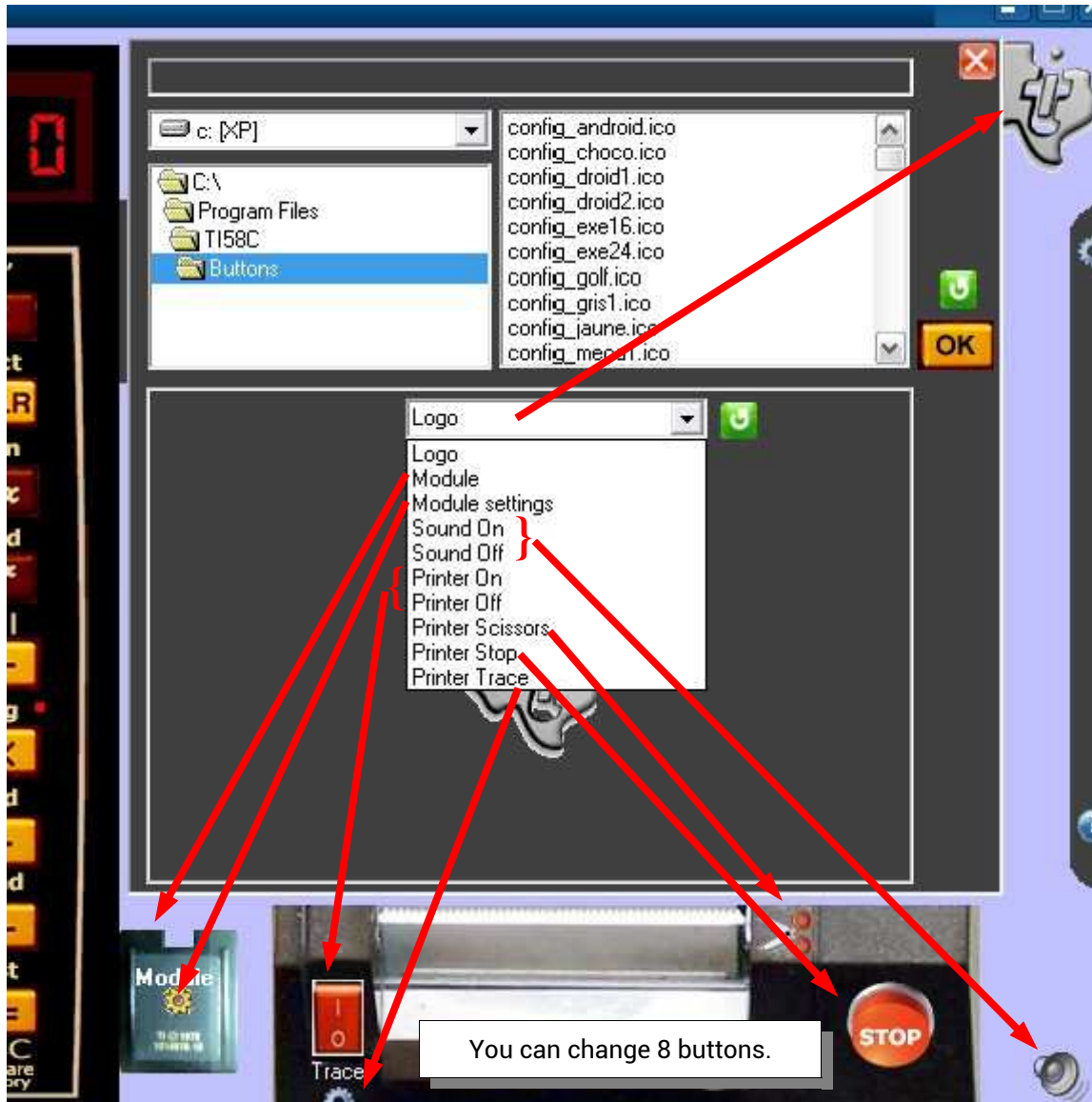
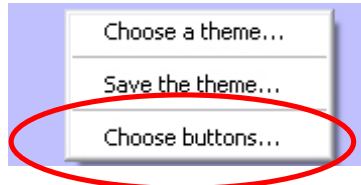


Choice of buttons

Some buttons of the program can be changed.

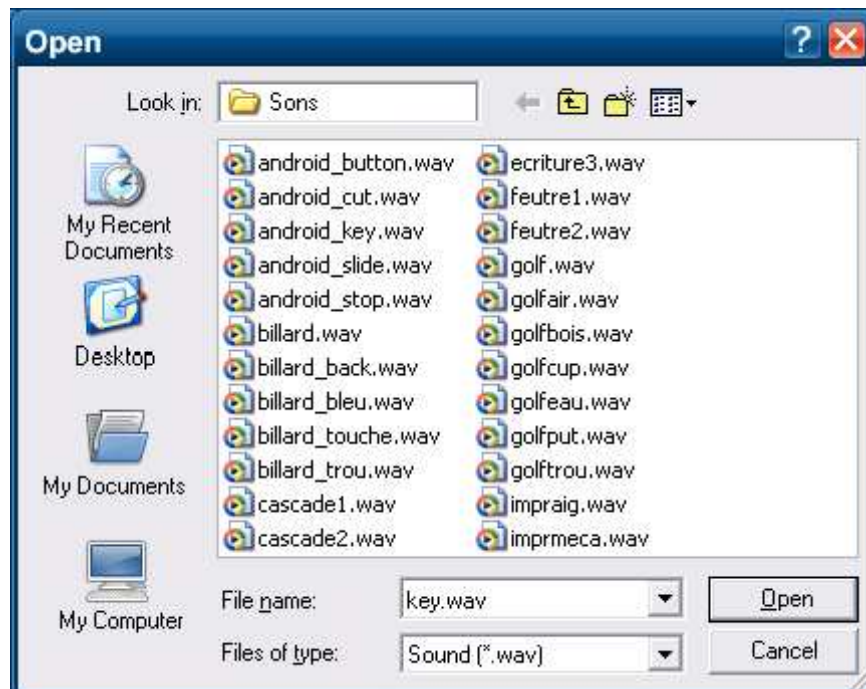
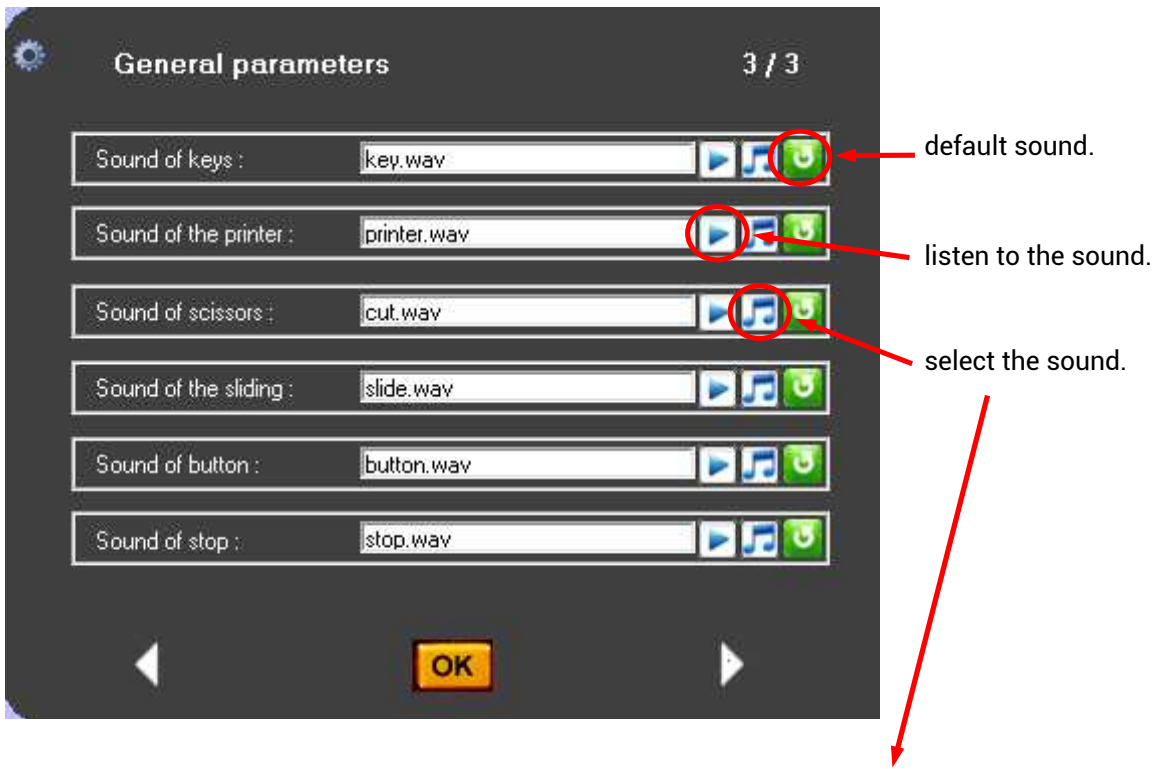
Click the upper right icon "Texas Instruments" of the screen

So the pop-up menu appears...



Choice of sounds

The sounds of the calculator (keyboard, printer, card ...) can also be customized.



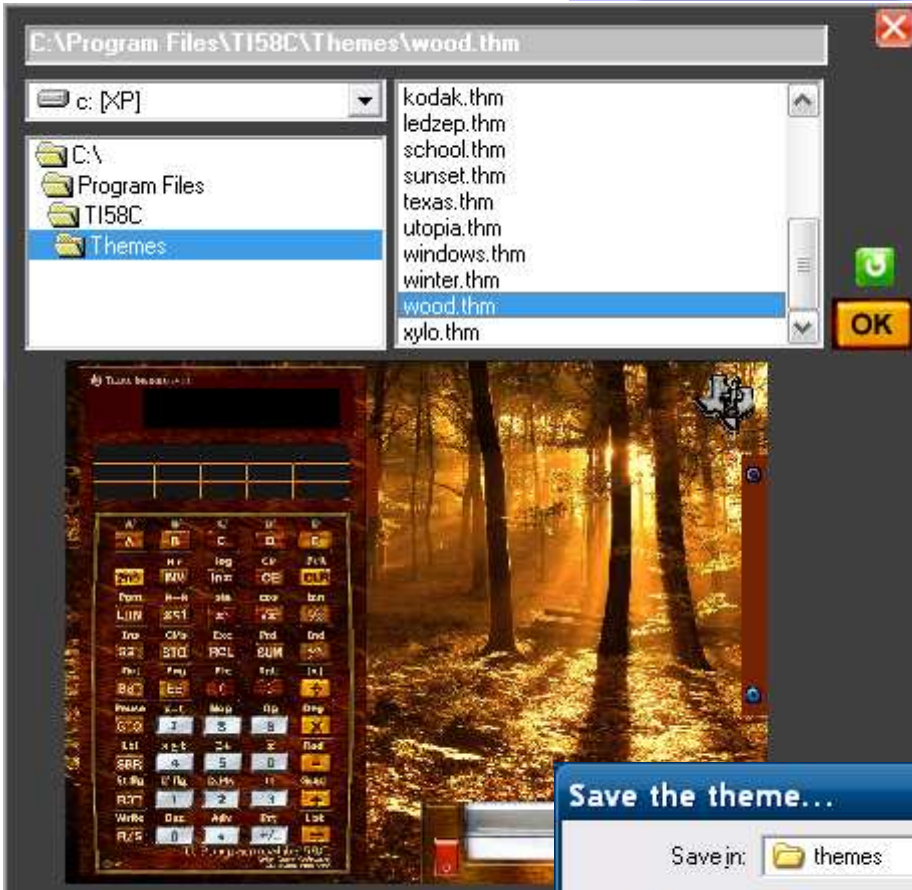
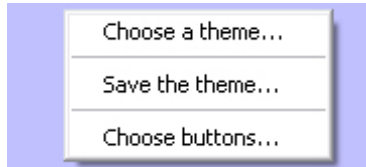
Themes

The information of customization (skin, colors, wallpaper) can be stored in the form of themes.

Click the upper right icon "Texas Instruments" of the screen

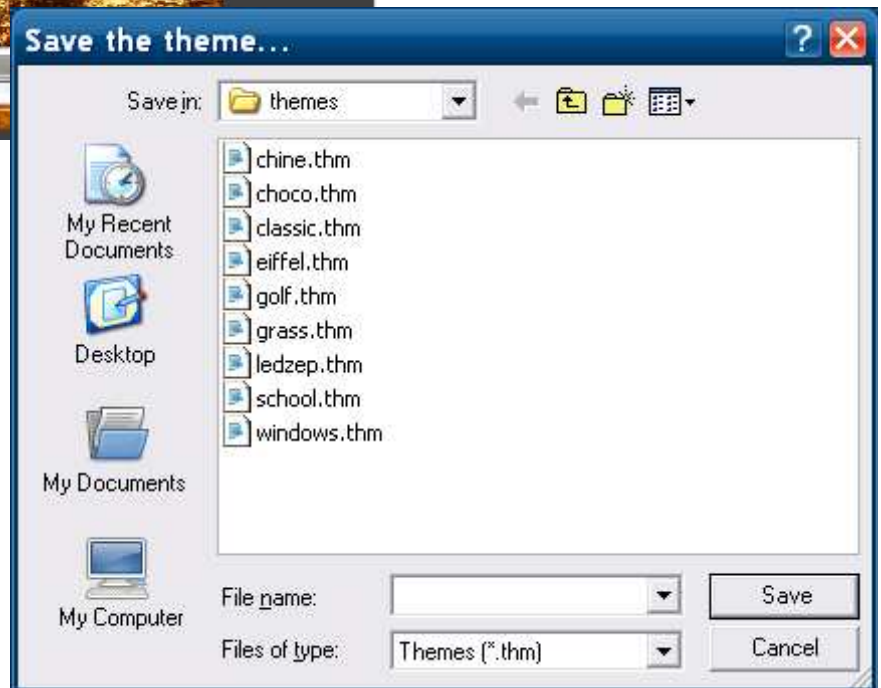


So the pop-up menu appears...



You can load a theme to change the skin of the calculator, the colors and the wallpaper.

Or you can save the skin of the calculator, the colors and the wallpaper in the form of a theme.

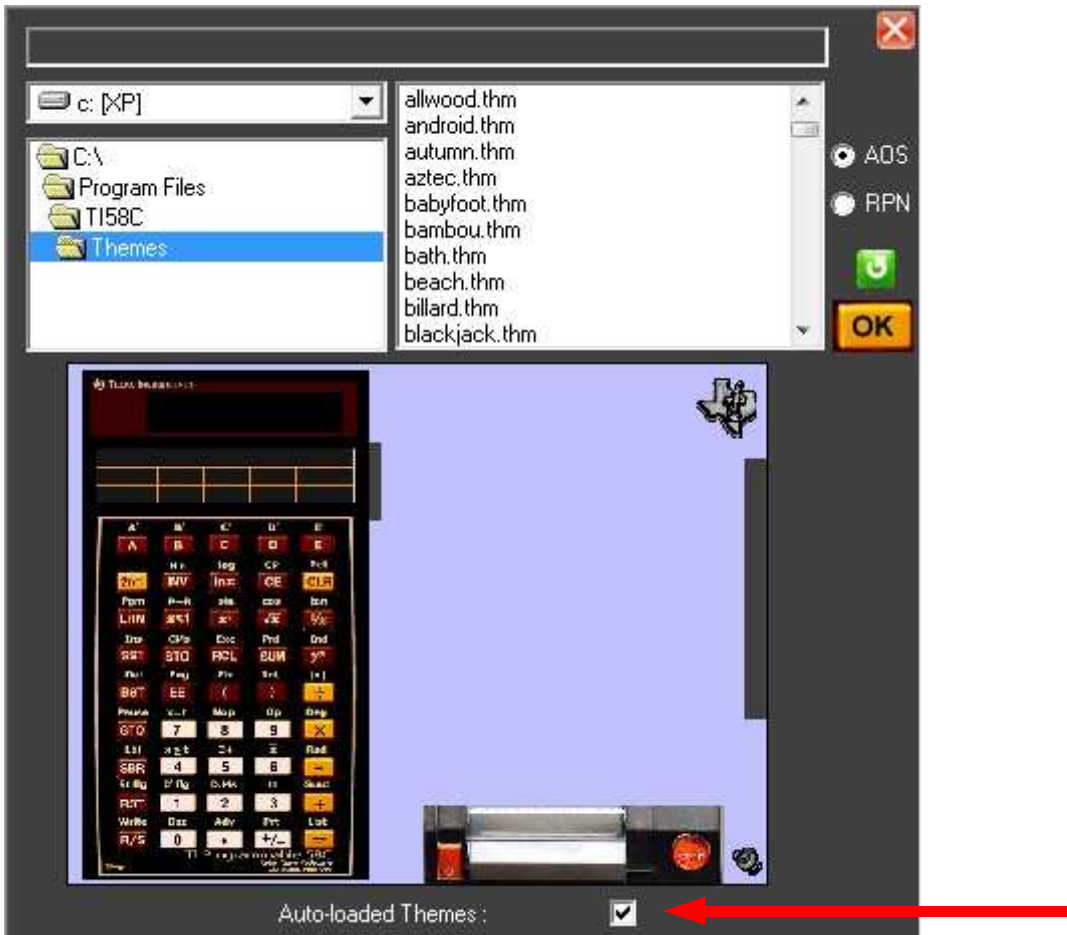


Examples of themes :



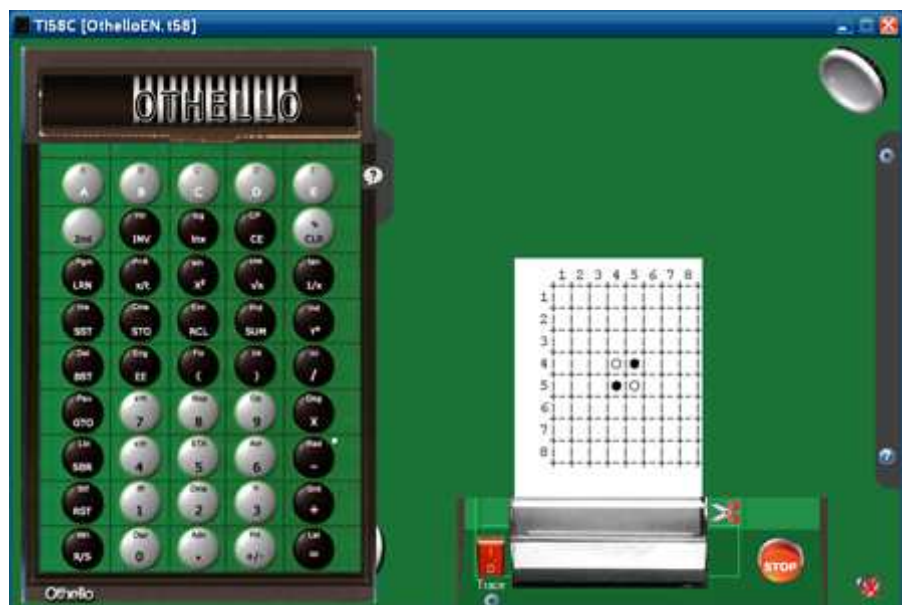
Automatic loading themes

When the name of a theme exactly matches the name of the program (example: othelloEN.thm and othelloEN.t58), it can be automatically loaded when you open the program if you have selected the option "AutoLoad" before, or if a file association (.alt) exists matching exactly the name of the program. (example: othelloEN.alt and othelloEN.t58)



To assign a theme to a program, you must open the program, choose the theme and use **ALT A**.

A **.alt** file corresponding to the name of the program is created in the themes directory.



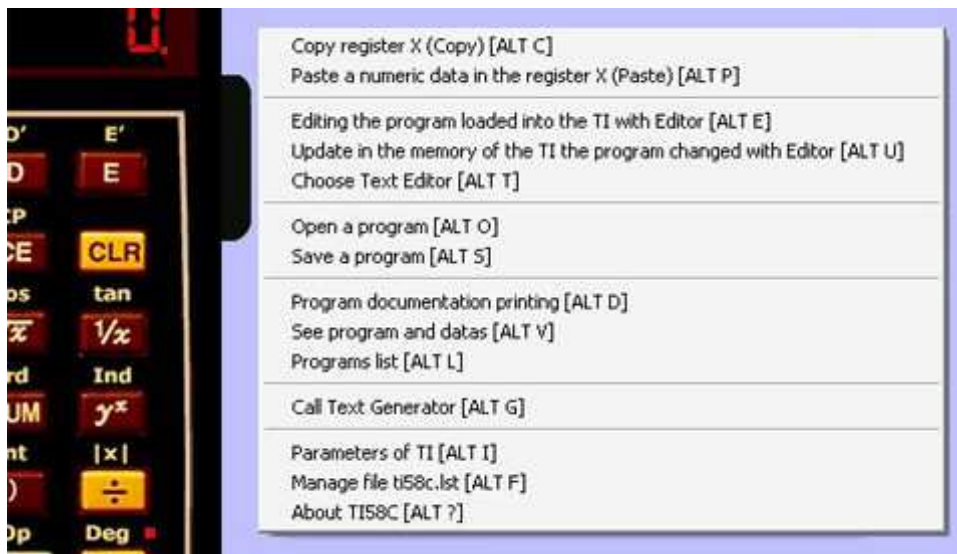
Specials features

TI58C has special functions accessible by keyboard combinations.

The main functions are :

- **ALT C** copy register X (*Copy*)
- **ALT P** paste a numeric data in the register X (*Paste*)
- **ALT E** editing the program loaded into the TI with "Notepad"
- **ALT U** update in the memory of the TI the program changed with "Notepad"
- **ALT T** choose text editor
- **ALT O** Open a program
- **ALT S** Save a program
- **ALT D** For program documentation printing
- **ALT V** To see program and datas
- **ALT L** Programs list
- **ALT G** call text generator
- **ALT I** access to the parameters of TI (useful if screen resolution 800x600)
- **ALT F** change name and directory of file ti58c.lst
- **ALT ?** accessing the "About"

You can also access these features with the menu displayed by **right click** (*in the blue area*)



ALT I allows access to the operating parameters of the emulator **TI58C**.
Some "**Special Parameters**" are accessible via the key combination **SHIFT ALT I**



You can also use the following key combinations :

- **ALT H** displays the themes menu (see page 83)
- **ALT M** activate / deactivate the sound
- **ALT N** display the keys codes
- **ALT Q** displays the stack (see page 106)
- **ALT W** displays the language agreement screen (see page 10)
- **ALT X** adjusting the width of the screen (see page 65)
- **ALT Y** adjusting the height of the screen (see page 65)
- **ALT Z** choice of calculator skin (see page 66)
- **ALT J** reveals a new key "3rd" and the labels of the functions
- **ALT A** associates a theme to a program
- **ALT R** opens the program documentation (pdf) if the file exists.
- **ALT K** saves the .ini file of the current skin
- **ALT B** exchanges the bottom of the skin (keyboard cache) (see page 95)
- **ALT !** show / hide program card

All keyboard shortcuts are accessible via a menu display by
Shift + right click (*in the blue area*)
or
ALT F1

```
ALT A Associates a theme to a program
ALT B Exchanges the bottom of the skin (keyboard cache)
ALT C Copy register X (Copy)
ALT D Program documentation printing
ALT E Editing the program loaded into the TI
ALT F Manage file ti58c.lst
ALT G Call Text Generator
ALT H Display the themes menu
ALT I Parameters of TI
ALT J Shows the key "3rd" and the labels of the functions
ALT K Saves the .ini file of the current skin
ALT L Programs list
ALT M Activate / deactivate the sound
ALT N Display the keys codes
ALT O Open a program
ALT P Paste a numeric data in the register X (Paste)
ALT Q Displays the stack
ALT R Opens the program documentation (PDF)
ALT S Save a program
ALT T Choose Text Editor
ALT U Update the program in the memory of the TI
ALT V See program and datas
ALT W AOS language agreement
ALT X Adjusting the width of the screen
ALT Y Adjusting the height of the screen
ALT Z Choice of calculator skin
ALT ! Show / hide program Card
ALT ? About TI58C
ALT F4 Close program
```



"Special" functions are also accessible via the following key combinations :

- **SHITF ALT A** Position the "Advance" button on the right or left on the printer
- **SHITF ALT T** Hide/show the "Trace" button on the printer
- **SHITF ALT M** Hide/show the Module
- **SHITF ALT L** Hide/show the Logo
- **SHITF ALT S** Hide/show the sound icon
- **SHITF ALT R** Hide/show the Card Reader
- **SHITF ALT P** Hide/show the Parameters panel
- **SHITF ALT X** See all, or not (Module, Logo, Sound Icon, Reader Card, parameters panel)
- **SHITF ALT G** See, or not, the GenHelp button for programs without .HLP file
- **SHITF ALT I** Displays the Special Parameters management screen (See page 108)

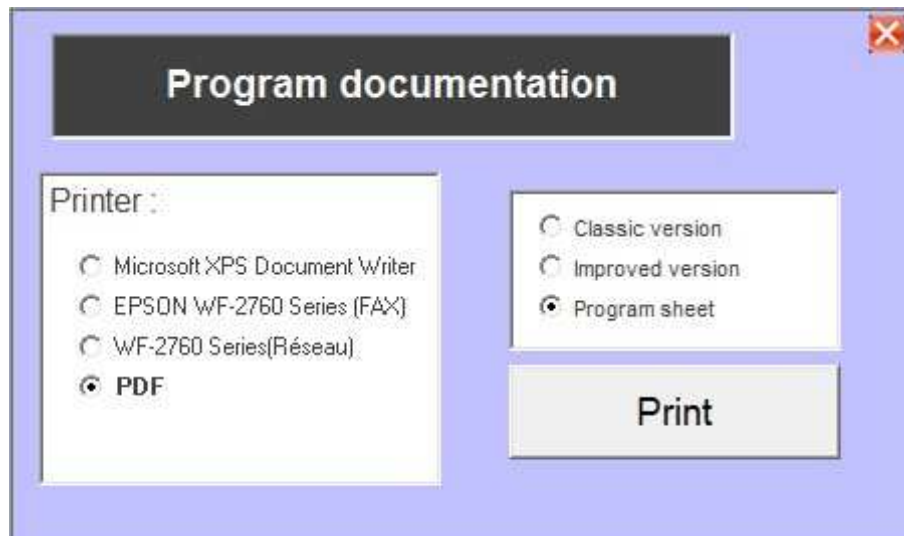
All special shortcuts are accessible via a menu displayed by

SHIFT ALT F1

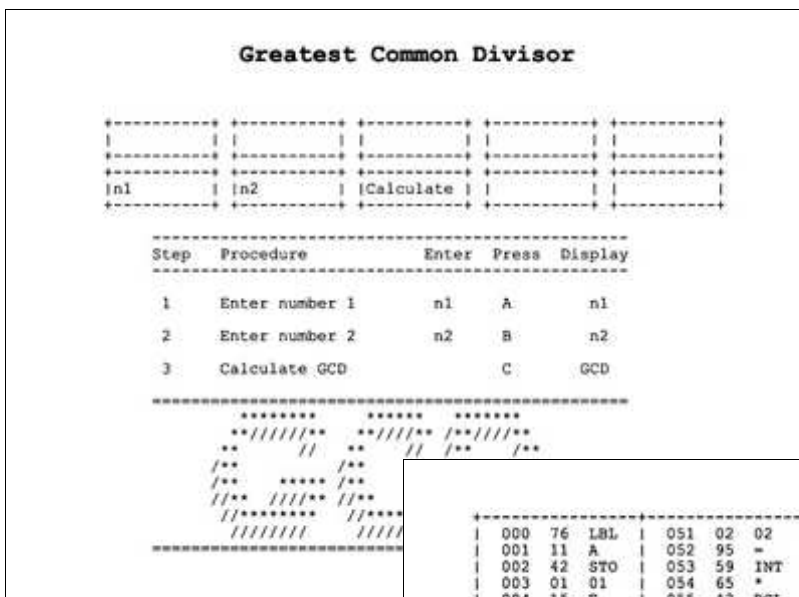


Program documentation [ALT+D]

With the special feature **ALT + D**, the complete documentation of the loaded program can be printed.



(You can choose your printer, but prefer PDF output because printing uses the font "Courier")



Classic version

```

000 76 LBL | 051 02 02 | 102 76 LBL | 153 00 00 |
001 11 A | 052 95 - | 103 19 D' | 154 02 02 |
002 42 STO | 053 59 INT | 104 69 OP | 155 00 00 |
003 01 01 | 054 65 * | 105 00 00 | 156 02 02 |
004 15 E | 055 43 RCL | 106 02 02 | 157 00 00 |
005 69 OP | 056 02 02 | 107 02 02 | 158 02 02 |
006 00 00 | 057 94 +/- | 108 00 00 | 159 00 00 |
007 03 03 | 058 85 + | 109 00 00 | 160 69 OP |
008 01 01 | 059 43 RCL | 110 01 01 | 161 04 04 |
009 03 03 |
010 02 02 |
011 04 04 |
012 00 00 |
013 00 00 |
014 02 02 |
015 69 OP |
016 04 04 |
    
```

L A B E L S		Adr	Branch.	Reg.	Instr.
001	11 A	C	071 67 EQ	01	002 42 STO
024	12 B	D'	094 19 D'		018 43 RCL
046	13 C	D'	098 19 D'		047 43 RCL
092	15 E	E	004 15 E		059 43 RCL
103	19 D'	E'	087 10 E'		064 42 STO
128	10 E'	E'	093 10 E'		083 43 RCL
		E'	097 10 E'		088 43 RCL
				02	025 42 STO
					040 43 RCL
					050 43 RCL
					055 43 RCL
					062 48 EXC
					066 43 RCL



Optimal Quantity of orders

Optimal Quantity of orders

Unit	Input

OPTIMAL QUANTITY OF ORDERS

Calculate the Optimal quantity of orders, the supply limit, the optimal cost of management and the total supply cost of a product based on its unit price, the period in request and on its fixed costs and variable costs.

Step	Procedure	Input
1	Initialization	A
2	Input management values	B
	* Unit Price	7 B
	* Stock Cost	7 B
	(Variable cost of detection in Euros per unit per period)	
	* Orders Cost	7 B
	(Fixed cost of ordering)	
	* Request	7 B
	(Periodic request)	
	* Lead time	7 B
	(Lead time between ordering and receiving [# periods])	
3	Printing results :	
	- Optimal quantity,	
	- Supply limit,	
	- Management cost,	
	- Supply cost.	

supply
management

qtcoindE8.rps

Page 1

Improved version

L A N E I S	Adr	Branch	Req.	Instr.
021 19 D'	A'	379 14 A'	02	083 42 BYO
029 18 C'	A'	383 14 A'		103 72 ST*
026 14 A'	A'	110 14 A'		
011 17 B'	A'	161 14 A'	03	135 43 NCL
062 11 A	B'	080 17 B'		
096 40 DEG	C'	097 18 C'	02	118 43 NCL
101 12 B	C'	115 18 C'		133 43 NCL
	C'	132 18 C'		132 43 NCL
	C'	132 18 C'		
	C'	149 18 C'	04	125 43 NCL
	D'	102 19 D'		142 43 NCL
	D'	131 19 D'		
	D'	138 19 D'	05	116 43 NCL
	D'	148 19 D'		150 43 NCL
	B'	158 19 B'		
	DEG	105 97 DEG	06	129 43 BYO
			07	146 42 BYO
				155 43 NCL
			08	123 42 BYO
				140 43 NCL
			09	010 73 AC*
				016 73 AC*
				089 42 BYO
			44	077 43 NCL
				061 43 NCL
				159 43 NCL
			45	042 43 NCL
			46	066 43 NCL
			47	050 43 NCL
			48	034 43 NCL
			49	106 43 NCL

Reg	qtcoindE8_02
25	4131243700
26	3335241017
27	2637321324
28	0015323637
29	2235161735
30	0015323637
31	0000003517
32	3461173637
33	2717131600
34	3724301700
35	3233372430
36	4808343743
37	3461333327
38	4308272430
39	3013311323
40	0015323637
41	3461333327
42	0015323637
43	0000000000
44	6464646464
45	0000364133
46	3327450030
47	1331132017
48	3017313700
49	2024202020

```

// ***** PRINT VALUES *****
LNL D'
FIX 2 FMT INV IIS
RTN

// ***** PRINT TITLES *****
LNL C'
RC* 09 OP 01
OP 29
RC* 09 OP 02
OP 03
OP 29
RTN

// ***** PRINT LINE *****
LNL A'
OP 01
OP 02
OP 03
OP 04
OP 05
OP 00
RTN

// ***** TITLE *****
LNL B'
NCL 45 OP 01
NCL 46 OP 02
NCL 47 OP 03
NCL 48 OP 04
OP 00
RTN

// ***** INITIALIZATION *****
LNL A
DMS
OP 59
9 9 OP 43
2 OP 43
3 INV WHI ADV NCL 44 A' B' NCL 44 A' 3 BYO 00 2 5 BYO 09 7 1 OP 33
LNL DEG
C'
CLR
R/S

// ***** INPUT VALUES *****
LNL B
D' ST* 00
DEG 00 DEG

// ***** COMPUTE *****
NCL 49 A' 7 2 OP 03
C' NCL 03 NCL 02 * 2 * STO 08 NCL 04 / SQW STO 06 D' C' NCL 02 NCL
01 * D' C' NCL 08 NCL 04 * SQW STO 07 D' C' NCL 05 NCL 05 * NCL 37 *
D' NCL 44 A'
CLR
OP 43
ADV
R/S

```

qtcoindE8.rps

Page 2

qtcoindE8.rps

Page 4





Revision (Op 17) Library Module Processor Cards
 Speicher (Op 17) Software-Modul Module Software Programmierkarte

PROGRAM DESCRIPTION • PROGRAMM-BESCHREIBUNG • DESCRIPTION DU PROGRAMME

=====

T R I A N G L E

=====

Step	Procedure	Keys	Display
1	Initialize	E	0
2	Input side 1	s1 A	s1
3	Input side 2	s2 B	s2
4	Input side 3	s3 C	s3
5	Begin evaluation	E	printed

Triangle

Program sheet

USER DEFINED KEYS PROGRAMM-ADRESSTASTEN TÖLCHER-UTILISATEUR	DATA REGISTERS DATENSPEICHER REGISTERS-MÉMOIRE	LABE LABE LABE
* SIDE 1	10 2436323615	20 3717000000
* SIDE 2	11 1727271736	21 321437
* SIDE 3	12 17	22 4136170000
* S	13 3441242713	23 3132370013
* EVAL.	14 3717351327	24 42132724
* E	15 36151327	25 1600373524
* F	16 1731170000	26 1331222717
* T	17 352422	27 6565000000
* P	18 2337000000	28 6565656500
* INIT.	19 131541	29 6565656565

TITLE Triangle PAGE 2 OF 5 TI PROGRAMMABLE
 TITRE Triangle PAGE 2 DE 5 PROGRAM RECORD
 PROGRAMMEUR DATE 4 mai 2020 PROGRAM-BERICHT
 PROGRAMMEUR DATE FICHE DE PROGRAMMATION

LOC ADR	CODE RODE	KEY TASTE TOUCHE	COMMENTS REMERQUEN COMMENTAIRES	LOC ADR	CODE RODE	KEY TASTE TOUCHE	COMMENTS REMERQUEN COMMENTAIRES	LOC ADR	CODE RODE	KEY TASTE TOUCHE	COMMENTS REMERQUEN COMMENTAIRES
000	76	LBL	INITIALIZA	055	42	STO		110	43	RCL	
001	10	E		056	01	01		111	04	04	
002	47	CMS		057	04	4		112	71	SBR	
003	01	1		058	42	STO		113	24	CE	
004	22	INV		059	03	03		114	43	RCL	
005	96	WRI		060	76	LBL		115	05	05	
006	02	2		061	60	DEG		116	71	SBR	
007	22	INV		062	42	STO		117	24	CE	
008	96	WRI		063	02	02		118	43	RCL	
009	25	CLR		064	73	RC*		119	06	06	
010	91	R/S		065	02	02		120	71	SBR	
011	76	LBL	SIDE 1	066	86	STF		121	24	CE	
012	11	A		067	00	0		122	43	RCL	
013	42	STO		068	76	LBL		123	05	05	
014	04	04		069	34	SQR		124	32	X/T	
015	01	1		070	97	DSZ		125	43	RCL	
016	03	3		071	00	00		126	04	04	
017	69	OP		072	33	X2		127	67	RQ	
018	04	04		073	87	IFF		128	32	X/T	
019	43	RCL		074	00	00		129	43	RCL	
020	04	04		075	38	SIN		130	06	06	
021	69	OP		076	69	OP		131	32	X/T	
022	06	06		077	31	31		132	43	RCL	
023	91	R/S		078	43	RCL		133	04	04	
024	76	LBL	SIDE 2	079	01	01		134	67	RQ	
025	12	B		080	42	STO		135	43	RCL	
026	42	STO		081	00	00		136	43	RCL	
027	05	05		082	43	RCL		137	05	05	
028	01	1		083	03	03		138	67	RQ	
029	04	4		084	61	GTO		139	43	RCL	
030	69	OP		085	60	DEG		140	61	GTO	
031	04	04		086	76	LBL		141	42	STO	
032	43	RCL		087	33	X2		142	76	LBL	
033	05	05		088	32	X/T		143	32	X/T	
034	69	OP		089	69	OP		144	43	RCL	
035	06	06		090	22	22		145	06	06	
036	91	R/S		091	73	RC*		146	32	X/T	
037	76	LBL	SIDE 3	092	02	02		147	43	RCL	
038	13	C		093	77	GR		148	04	04	
039	42	STO		094	34	SQR		149	67	RQ	
040	06	06		095	69	OP		150	44	SUM	
041	01	1		096	32	32		151	76	LBL	
042	05	5		097	63	EX*		152	43	RCL	
043	69	OP		098	02	02		153	86	STF	
044	04	04		099	69	OP		154	05	5	
045	43	RCL		100	22	22		155	69	OP	
046	06	06		101	72	ST*		156	00	00	
047	69	OP		102	02	02		157	43	RCL	
048	06	06		103	22	INV		158	10	10	
049	91	R/S		104	86	STF		159	69	OP	
050	76	LBL	EVALUATION	105	00	0					
051	15	E		106	61	GTO					
052	03	3		107	34	SQR					
053	42	STO		108	76	LBL					
054	00	00		109	38	SIN					

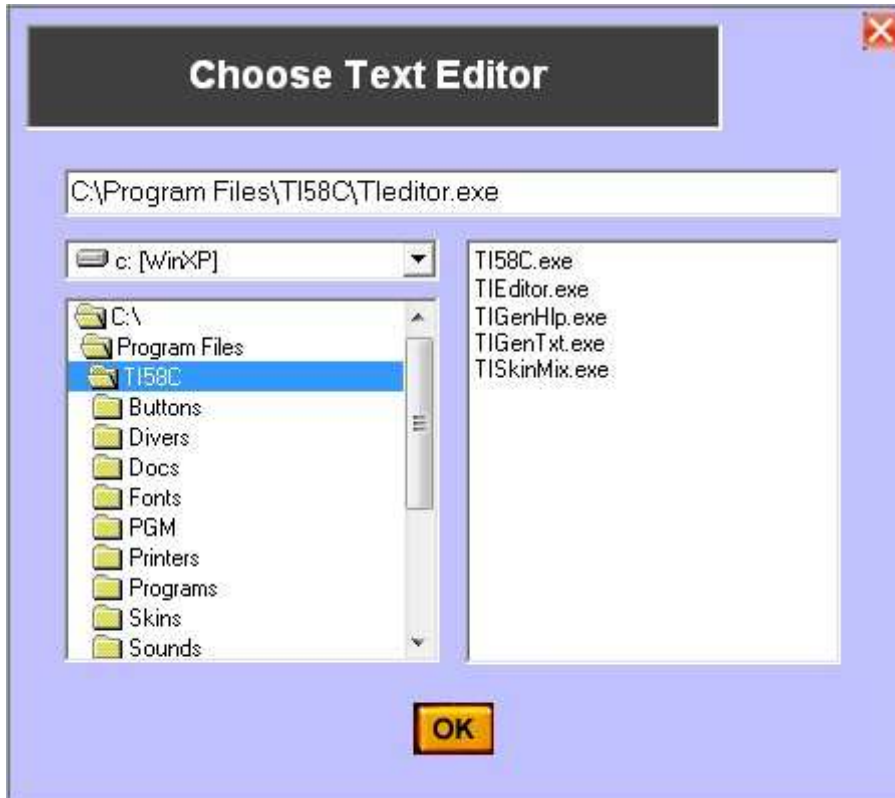
TEXAS INSTRUMENTS



Choice of the text editor [ALT+T]

The special feature **ALT+E** is for edit the program loaded in memory with a text editor like TIEditor. (Notepad by default)

You can choose the text editor you prefer with the special feature **ALT+T**.



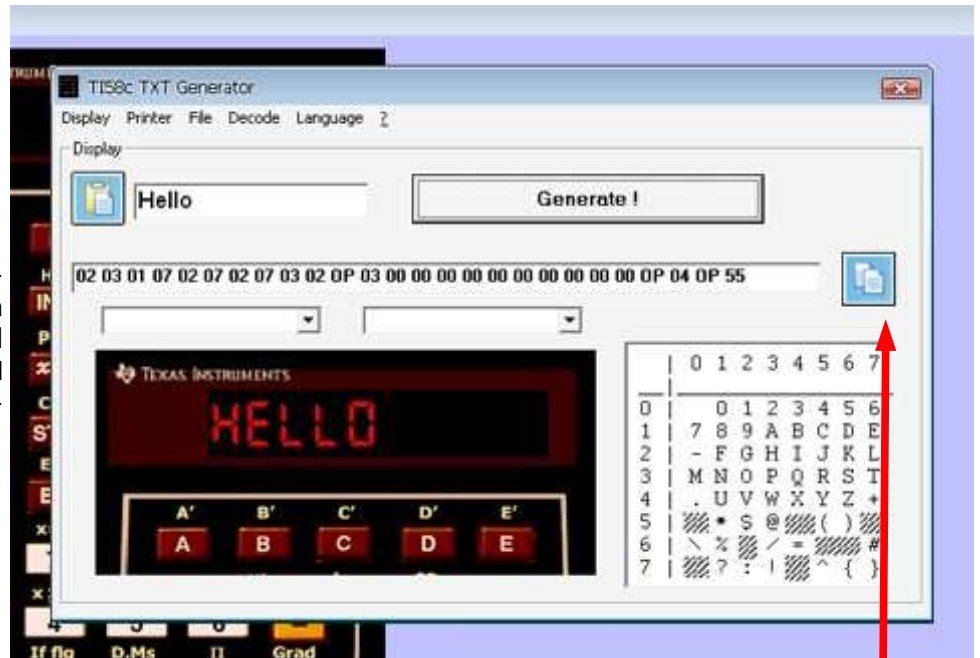
Launching the text generator [ALT+G]

ALT G Launch the generator of alphanumeric texts

The special feature **ALT+G** starts the generation program of alphanumeric messages for display or printer.

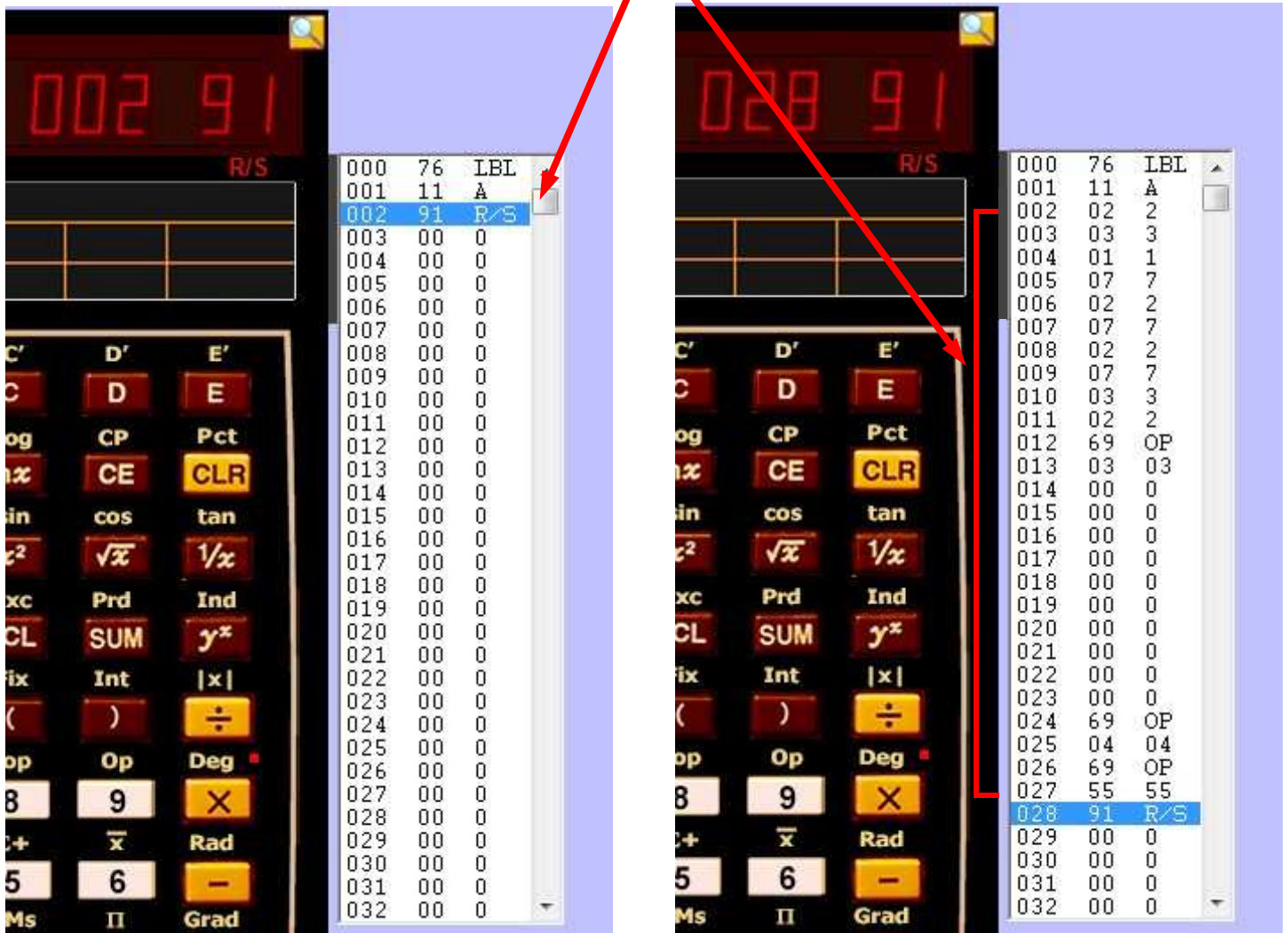
The **ALT+P** (Paste) keyboard shortcut allows you to paste either a value in the X register or statistical data (See page 98) but also, in **LRN** mode, to paste instruction sequences.

The code sequences created with the text generator are therefore recoverable within a program.



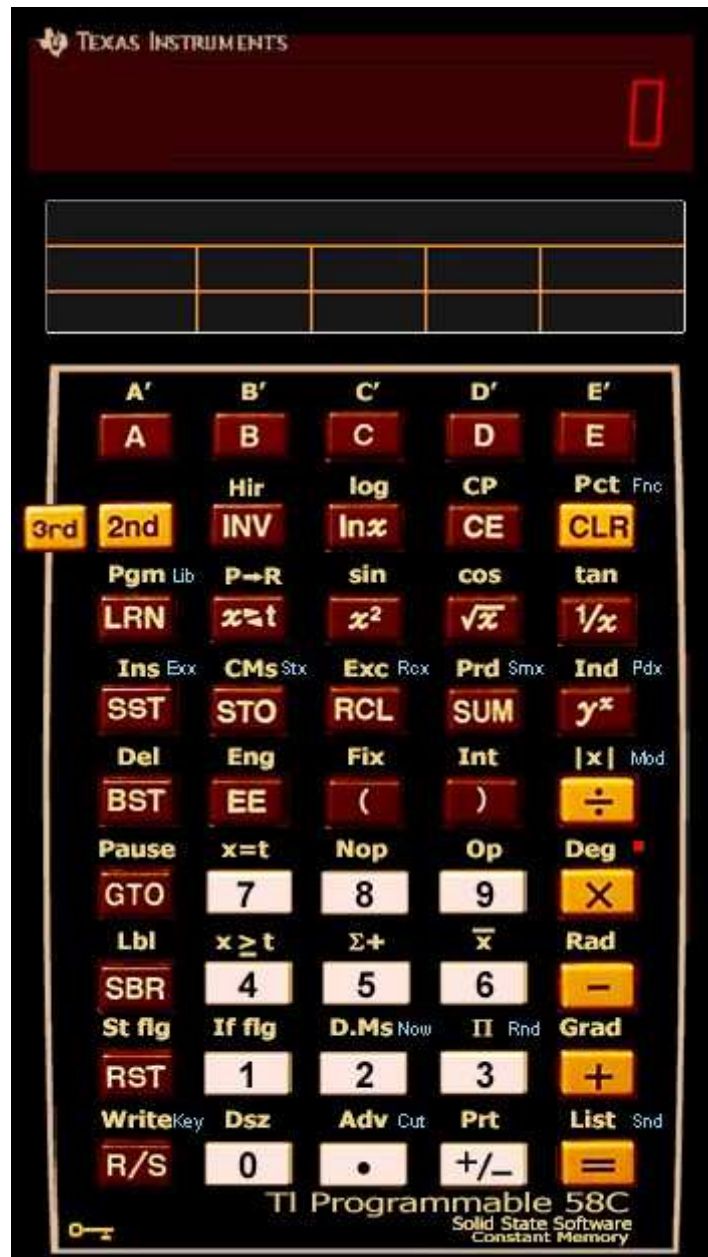
Paste (ALT+P)

Copy



3rd key [ALT+J]

The special feature **ALT+J** reveals a new key "3rd" and the labels of the functions added in **TI58C**.



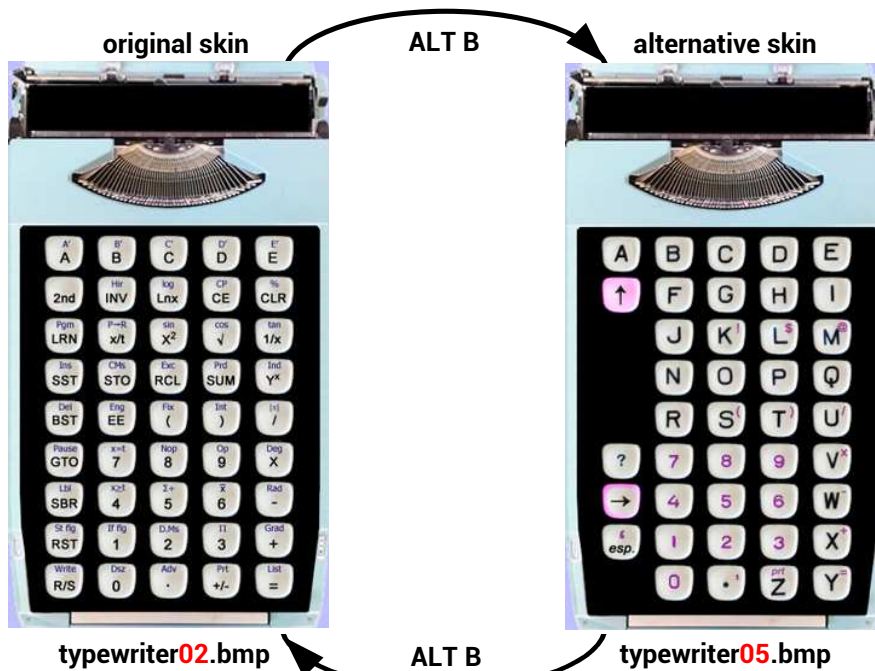
Skin exchange [ALT+B]

The **T158** has been the basis to create few custom calculators (*Agrippina, Lloyd, Nordstern, Chrysler...*)
And, on the classical TI, to use some programs it was necessary to put a cover on the keyboard.

The **T158C** emulator allows you to use a keyboard cover associated with a standard skin.

A skin consists of several files including a **xxxx2.bmp** representing the lower part (keyboard) of the calculator.

With the key sequence **ALT+B** you can interchange the **xxxx2.bmp** file with a file **xxxx5.bmp** found either in the skins directory, either in the same directory as the program.

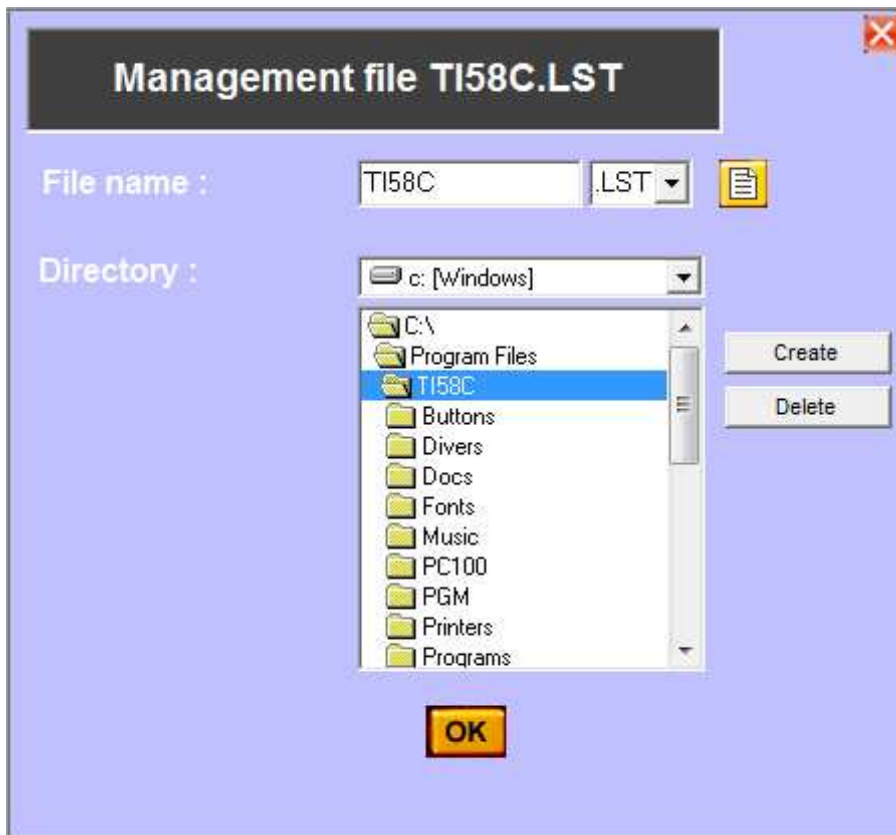


The management of the skins allows to define the keys of the keyboard that will be disabled when using the "alternative skin".



ti58c.lst file [ALT+F]

When printing on the **PC100** printer, a duplicate is saved in the file **ti58c.lst** whose name and extension can be changed through a screen displayed by the key combination **ALT+F**



The chosen extension can be LST, PRT or TXT



About [ALT+?]

The "**About**" screen accessible via the **ALT+?** key combination mentions the version number of the **TI58C** emulator and checks to see if this version is the latest.



Statistics and linear regression

The disadvantages of the original TI statistical functions are the tedious side of data entry.

- to introduce a set of values, to a single variable (x_i), you must enter each value :

X_i 2nd $\Sigma+$

- to introduce the two-variable statistical data (x_i, y_i for $i=1,2,3,\dots,N$) you must enter each sequence :

X_i \leftarrow Y_i 2nd $\Sigma+$

the statistics having to be initialized beforehand either manually by erasing registers 01 to 06 and register T, or by using the program 01 of the **ML** library module (Master Library) using the sequence :

2nd Pgm 1 SBR CLR

The special **ALT P** (paste) function of the **TI58C** emulator allows you to paste a number into the display register X, but also allows you to paste a set of cells from a table for statistical purposes. :

- \Rightarrow either 1 row of N columns (N values of x),
 - \Rightarrow either 1 column of N rows (N values of x),
 - \Rightarrow either 2 rows of N columns (N values of x and y),
 - \Rightarrow either 2 columns of N rows (N values of x and y),
- each cell copied must imperatively be numerical.

If all the cells are valid, the command **ALT P** will execute automatically :

- the initialization of registers used for statistics
- entering data in the required sequence :

X_i 2nd $\Sigma+$ or X_i \leftarrow Y_i 2nd $\Sigma+$

(each value is automatically printed on the PC100 printer)

Length cm	Weight g
101.3	609
103.7	626
98.6	586
99.9	594
97.2	579
100.1	605

Cells that can be copied.

or

Length	101.3	103.7	98.6	99.9	97.2	100.1
Weight	609	626	586	594	579	605



Example #1 (Manual "Personal Programming" V-36)

Length	101.3	103.7	98.6	99.9	97.2	100.1
Weight	609	626	586	594	579	605

Copy

The calculator screen displays the following data and calculations:

- 101.3
- 609
- 103.7
- 626
- 98.6
- 586
- 99.9
- 594
- 97.2
- 579
- 100.1
- 605
- 599.8333333 AVR
- 599.8333333 /
- 599.8333333 X/T
- 100.1333333 =
- 5.990346205
- 17.05774506 IAVR
- 17.05774506 X/T
- 2.240238083

Calculator keys shown on the right:

- ALT P (points to the list of data)
- 2nd \bar{x} (points to 599.8333333 AVR)
- \bar{x} (points to 599.8333333 /)
- INV 2nd \bar{x} (points to 5.990346205)
- \bar{x} (points to 17.05774506 X/T)

with "Keyboard Trace" (points to the Trace button)

Reminder

MEAN, VARIANCE AND STANDARD DEVIATION

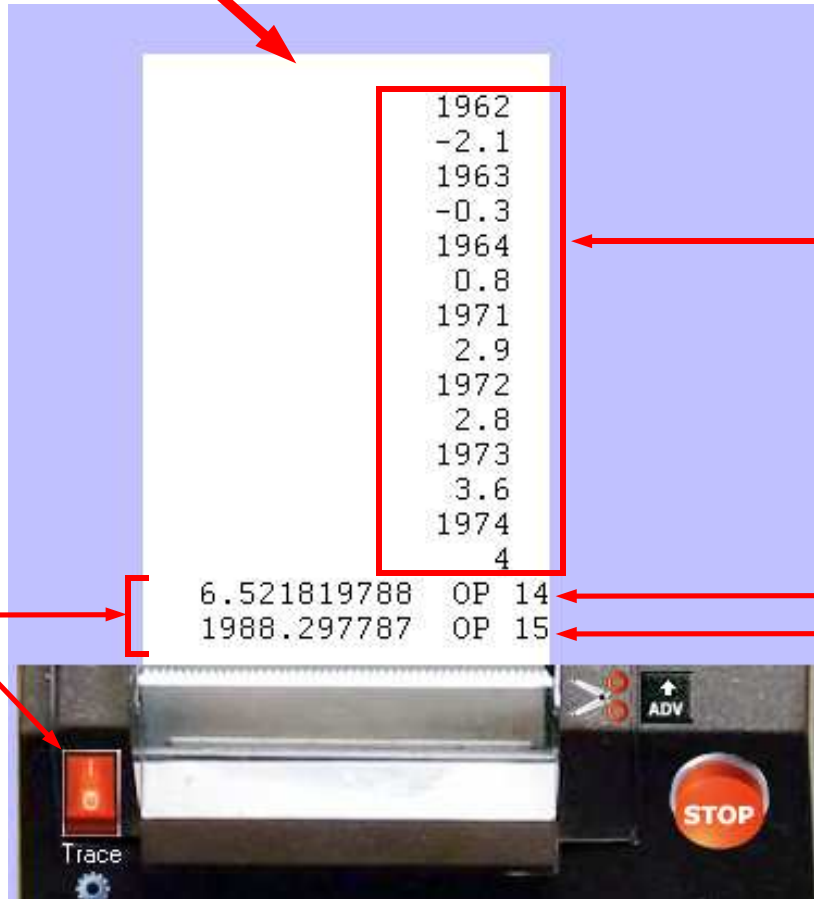
2nd \bar{x}	Calculates and displays the mean of the dependent (y-array) data.
\bar{x}	displays the mean of the independent (x-array) data.
INV 2nd \bar{x}	Calculates and displays the standard deviation of the dependent (y-array) data.
\bar{x}	displays the standard deviation of the independent (x-array) data.
2nd Op 1 1	Calculates and displays the variance of the dependent (y-array) data.
\bar{x}	displays the variance of the independent (x-array) data.



Example #2 (Manual "Personal Programming" V-40)

Year	Profitability
1962	-2.1
1963	-0.3
1964	0.8
1971	2.9
1972	2.8
1973	3.6
1974	4

Copy



ALT P

with
"Keyboard Trace"

2nd Op 1 4
2nd Op 1 5

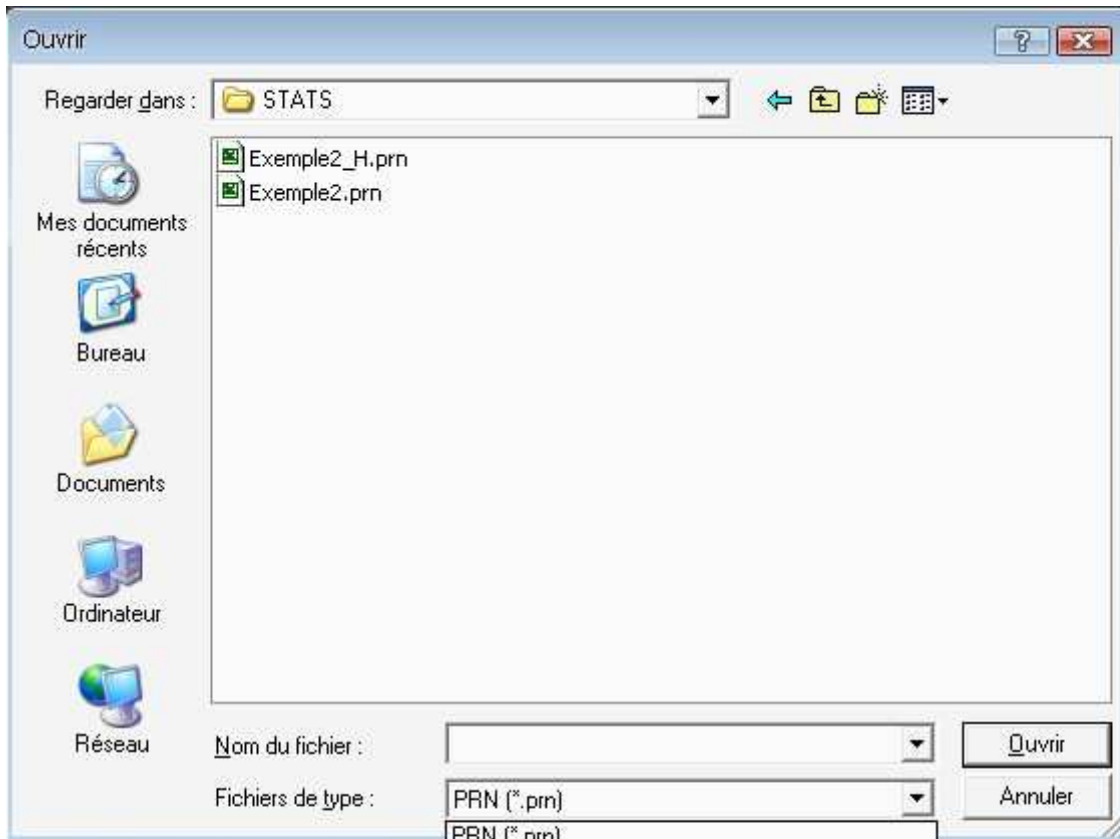
Reminder

LINEAR REGRESSION

2nd Op 1 2	Calculates and displays the y-intercept of the line fitted to the data points.
$x \rightarrow t$	displays the slope of the line fitted to the data points. Data
2nd Op 1 3	Calculates and displays the correlation coefficient of the individual data points in relation to the line fitted to these points.
2nd Op 1 4	Calculates and displays a linear estimate of y' on the linear regression line corresponding to an x entry from the keyboard.
2nd Op 1 5	Calculates and displays a linear estimate of x' on the regression line corresponding to a y entry from the keyboard.



Alt F12 also makes it possible to simplify the loading of statistical data by giving the possibility of opening a "table" file :



Le fichier d'extension PRN ou TXT devra contenir les cellules séparées par le caractère "tabulation".

	A	B	C	D	E	F	G
1	Longueur	101.3	103.7	98.6	99.9	97.2	100.1
2	Poids	609	626	586	594	579	605

	A	B	C	D	E	F
1	101.3	103.7	98.6	99.9	97.2	100.1
2	609	626	586	594	579	605

	A	B
1	Longueur	Poids
2	101.3	609
3	103.7	626
4	98.6	586
5	99.9	594
6	97.2	579
7	100.1	605

The table could be

- Horizontal with or without column of titles
- vertical with or without title line.

If all the cells are valid, the command will automatically execute the initialization of the registers used for the statistics and the entry of the data according to the necessary sequence. :

X_i 2nd $\Sigma+$ or X_i $x=t$ Y_i 2nd $\Sigma+$

(each value is automatically printed on the PC100 printer)



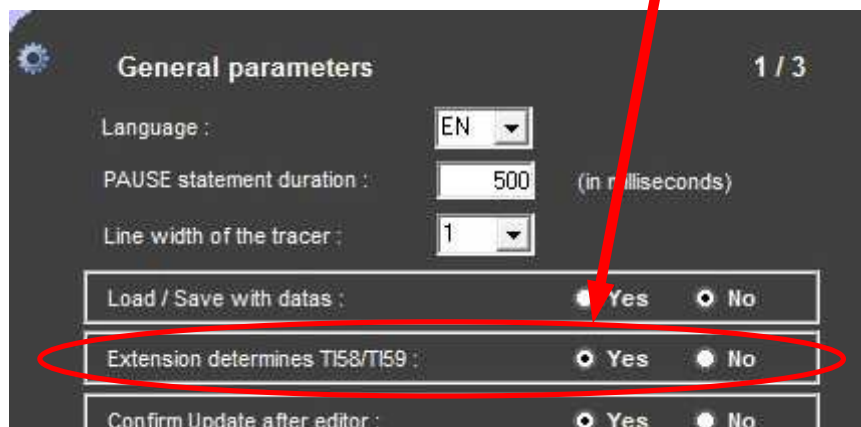
Calculator choice [TI58/TI58C or TI59]

The two differences between the **TI58/TI58C** and **TI59** calculators are :

- ① the size of the memory (steps and data), so the partitioning,
- ② the use of the **WRI** and **INV WRI** instructions. (presence of a card reader only on the TI59)

So, in order for the emulator to be the most compatible, choosing the operating mode between TI59 and TI58/TI58C is possible in several ways :

- at the program launch (command line or shortcut) with the parameter **/ti58** or **/ti59** (see page 117) ,
- with instruction **OP 17 : 58 OP 17** for **TI58/TI58C** mode or **59 OP 17** for **TI59** mode (see page 42),
- either automatically according to the extension of the opened program (or library module loaded with **PGM**) if the parameter "Extension determines TI58/TI59" is set to Yes.



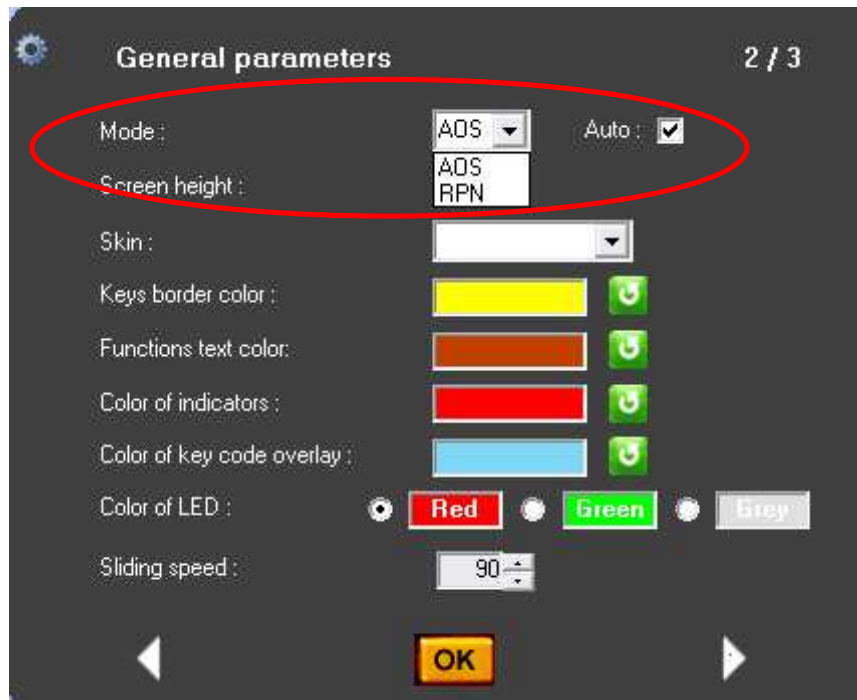
Exeptions:

- in both modes (**TI58/TI58C** and **TI59**) it is possible to keep the maximum partition of the emulator **TI58C**: **989** program steps and **999** registers.,
- in automatic parametrization only **.t59** and **.t58** extensions can change the mode, other extensions (**.lst**, **.ti**, **.ti5p**, **.soa**, **.prg**, **.m59**) remain without influence on the calculator choice,
- the option to "restore/save" the data at the same time as the "open/save" program remains in accordance with the recording of **TI58/TI58C** (40 groups of 25 registers).



RPN mode

The mode **AOS** or **RPN** is selectable in the general parameters.
Changing the mode implies the program memory erasing.



To check the parameter "**Auto**" means that the mode **AOS** or **RPN** will automatically be changed during a change of "skin" (or of theme) according to the nature of the "skin". (The .ini file of the skin has to contain the option mode=AOS or mode=RPN to allow the automatism)

Load / Save a program allows :

- in **AOS mode** : the usual files types of TI58C (*.t58, *.t59, *.lst, *.soa, *.ti, *.t5p)
- in **RPN mode** : the file type is *.rpn (same as *.t58 but with formulae of calculation in **RPN**)

Modules remain valid but run in **AOS** mode :

Attention with the incompatibility of the calculation stack...

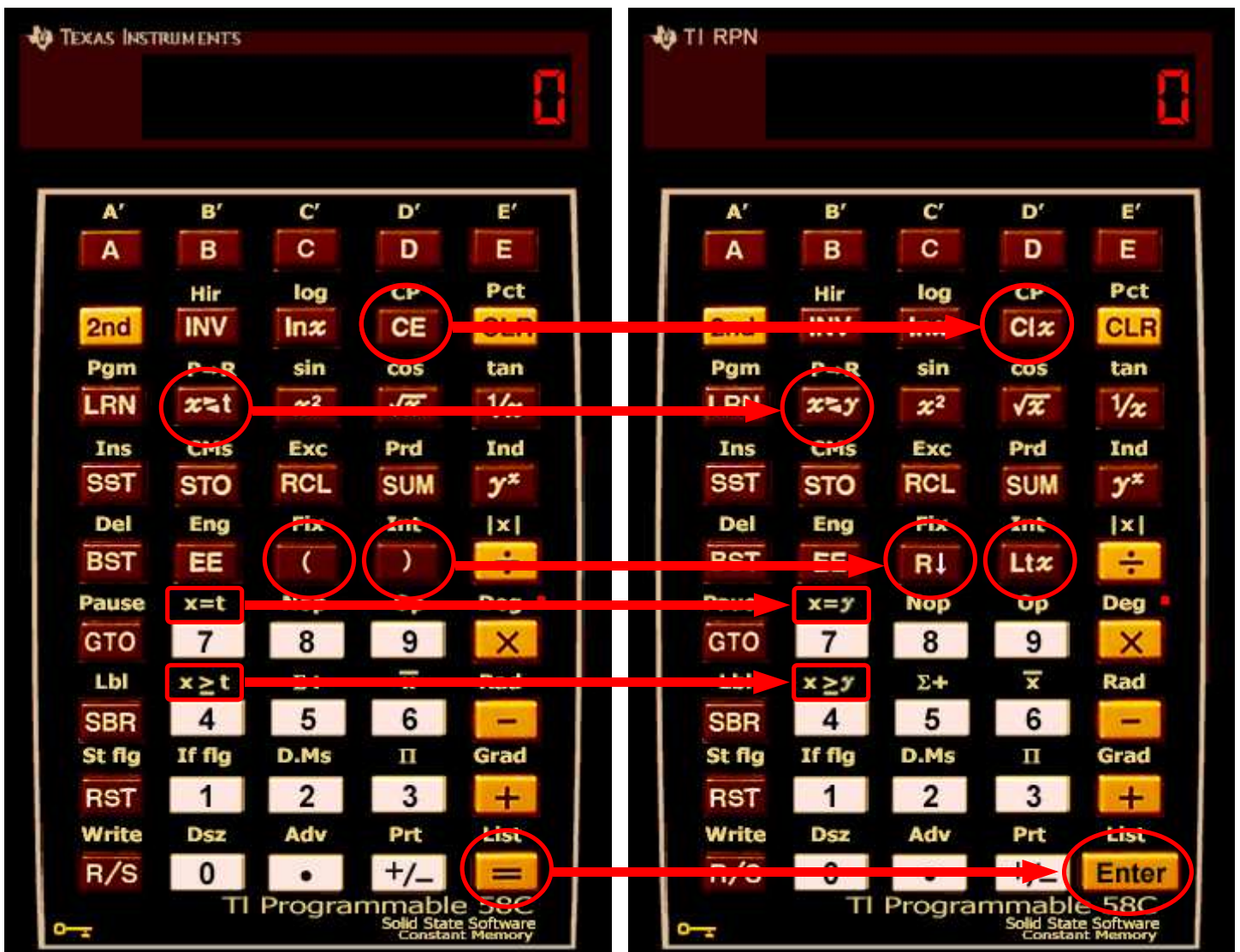


X register (display) stays X register
 T register (test) becomes Y registre :

- the key x/t becomes x/y
- the key $x\geq t$ becomes $x\geq y$
- the key $x=t$ becomes $x=y$
- the key (becomes $R\downarrow$ (DOWN)
- the key) becomes **LastX**
- the key CE becomes **Clx**
- the key = becomes **ENTER**

Attention on the skins which do not reflect necessarily these keys change.
 Specific RPN skins could be created.

In all cases, the programming language remains the TI language !



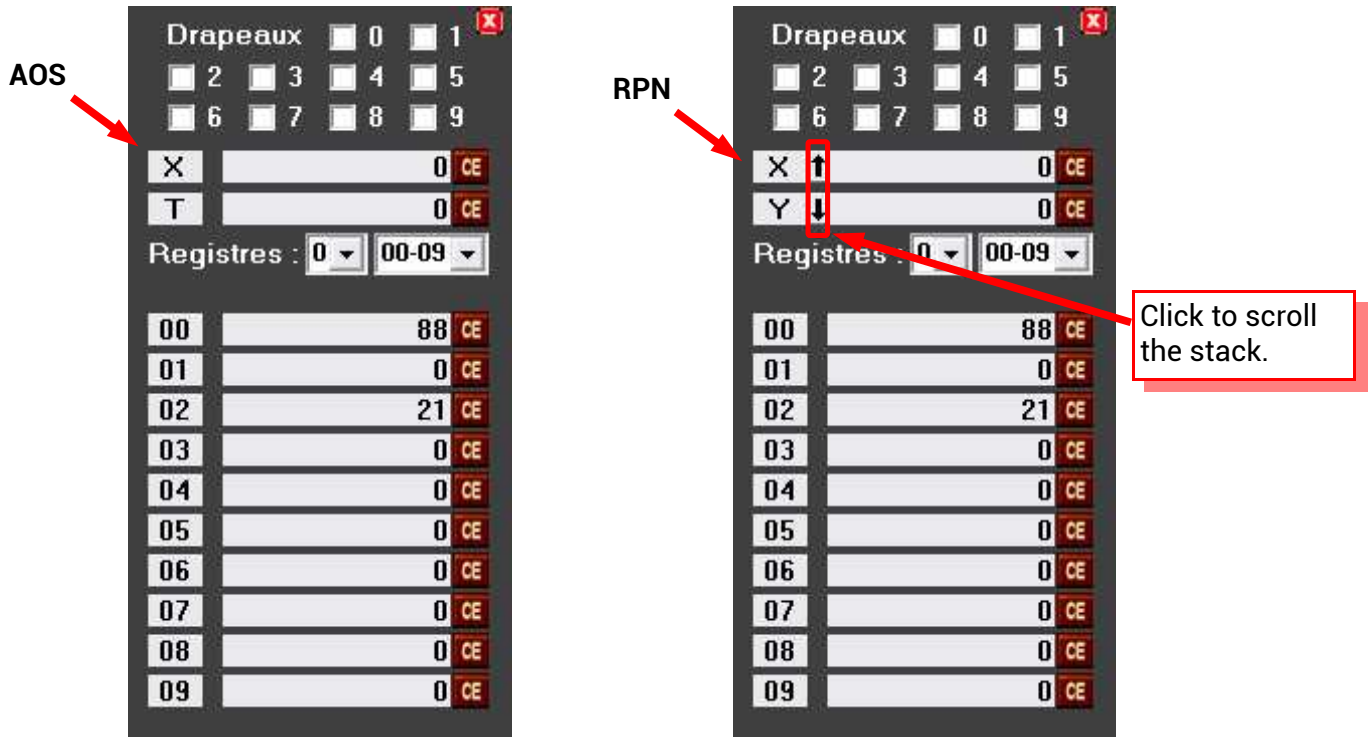
TI58C RPN [essai.rpn]

As touches, the code changes...
And INV DWN completes the possible instructions.

000	76	IBL
001	11	A
002	03	3
003	95	[E]
004	01	1
005	85	+
006	91	R/S
007	32	X/Y
008	77	X>Y
009	67	X=Y
010	53	DWN
011	54	LTX
012	24	CLX
013	91	R/S



See registers...



See RPN stack...

ALT Q allows to show/hide the RPN stack

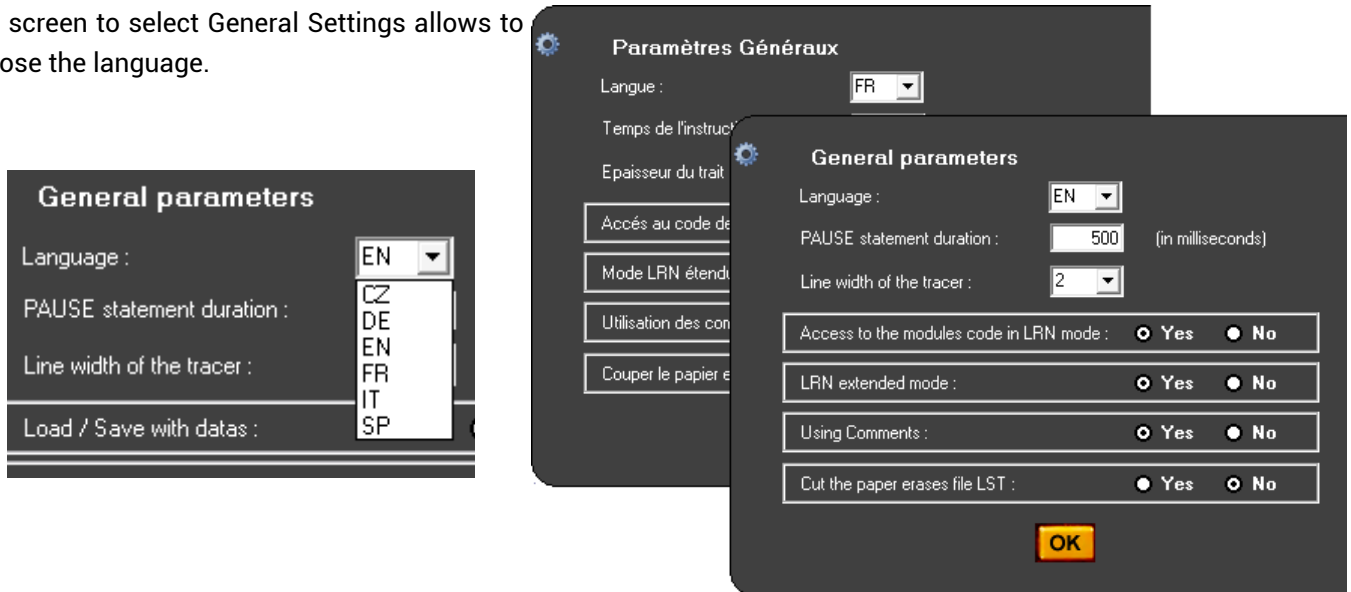


Languages

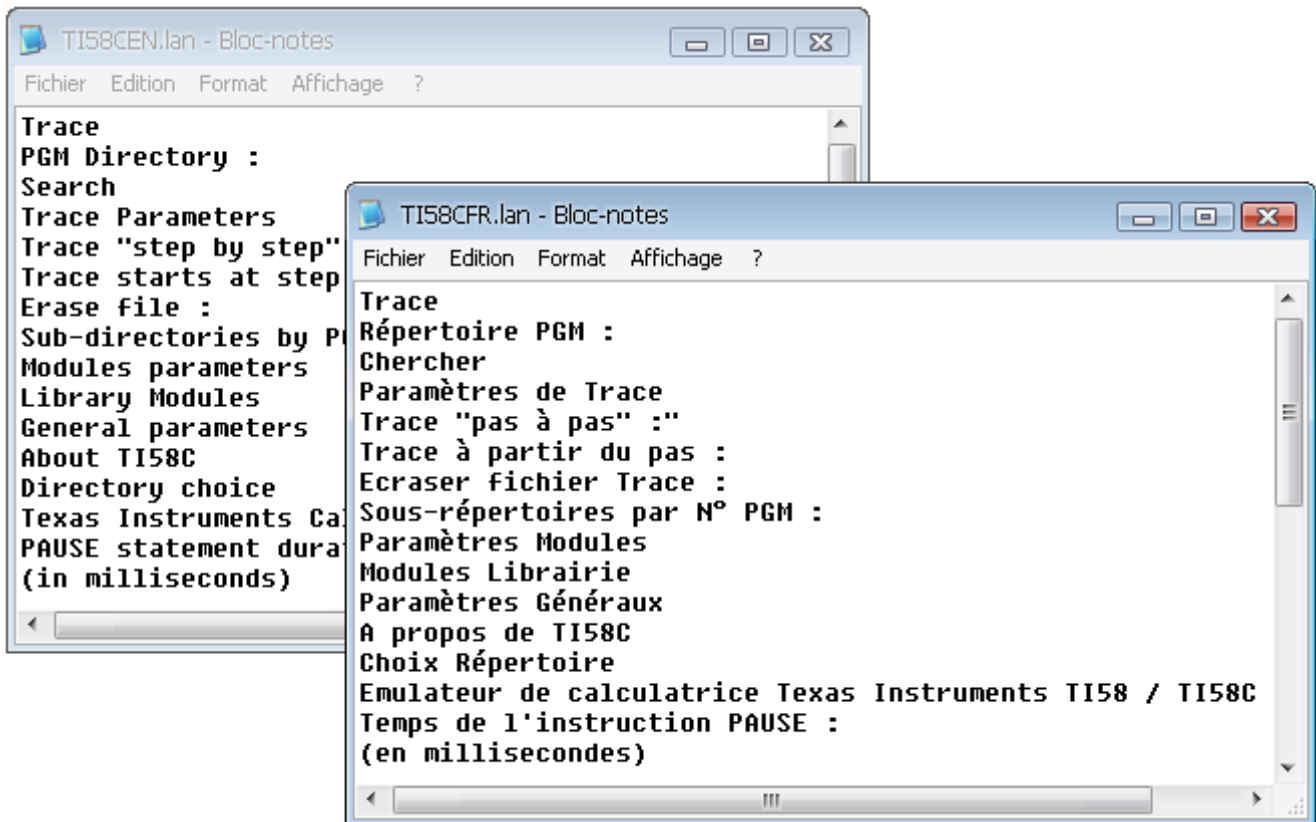
TI58C is downloadable normally with 7 language options :

French, English, Italian, Czech, German, Brazilian and Spanish..

The screen to select General Settings allows to choose the language.



Each sentence of TI58C is recorded in a language file (ti58cFR.lan for French, ti58cEN.lan for English, ti58cIT.lan for Italian).



You can create your own file (Ex: ti58cCZ.lan) containing your own translation.



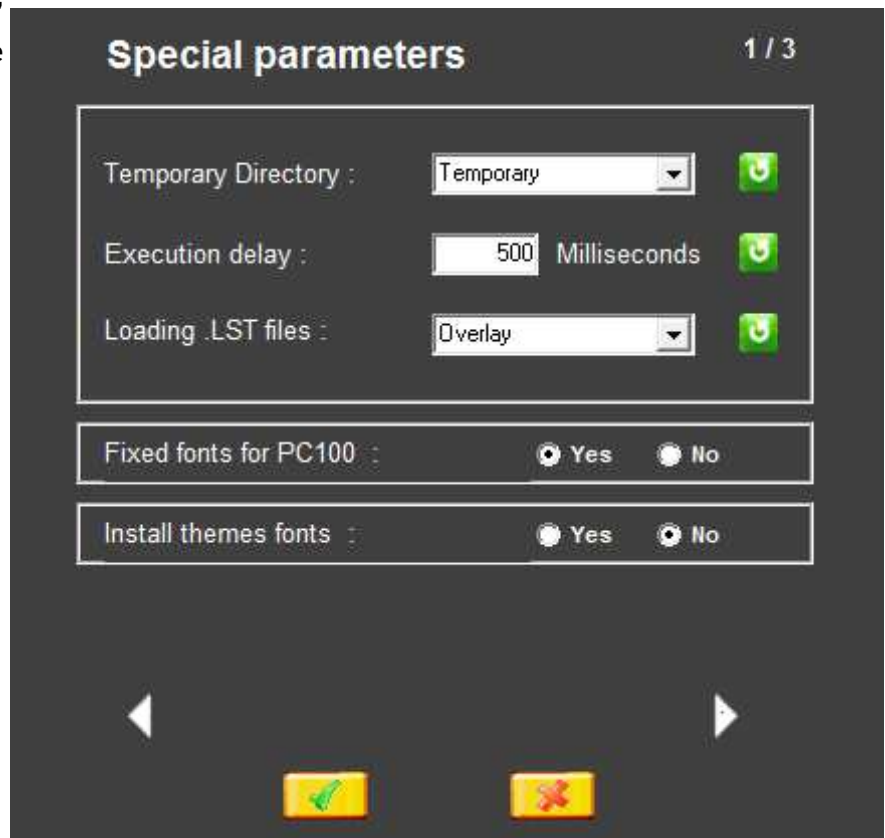
Paramètres spéciaux SHIFT+ALT+I

The special function **SHIFT+ALT+I** gives access to the screens of modification of some **TI58C** emulator parameters. **TI58C** uses configuration settings stored

- either in a **ti58c.ini** file,
- either in the Windows registry.

Most of these parameters are managed through the different parameter entry screens.

But some parameters are of "confidential" use because rather specific and modifiable with care...



"**Temporary Directory**" allows you to choose the location of temporary emulator files **TI58C**.

- **Local** → the files are permanently stored in the *TempDir* folder of the application directory,
- **Temporary** → the files are stored in the *TempDir* folder of the application directory and this *TempDir* folder is purged when the program closes,
- **Windows** → the files are stored in the Windows *Temp* folder.

"**Execution delay**" adjusts the timing of print instructions to avoid possible **PC100** overload on the fastest systems.

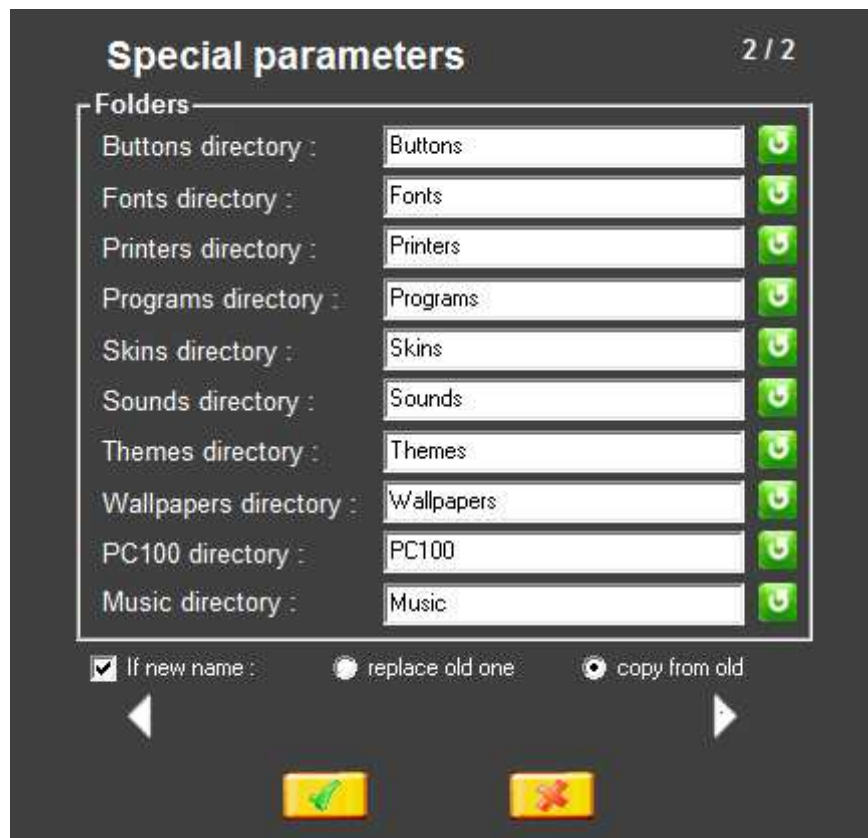
"**Loading .LST files**" indicates how to load an **.lst** extension program into memory: either the addresses of each step are ignored and the program is loaded from step 000 after deletion of the possibly existing instructions (**Overlay**), or the addresses of each step are used to load the program and any other instructions that may already exist are stored (**Append**).

"**Fixed fonts for PC100**" specifies whether only fixed-width fonts can be used with the **PC100** printer (OnlyFixed=Oui recommended)

"**Install themes fonts**" determines whether the theme fonts, for the **PC100** printer, should be automatically installed in the Windows Fonts folder when loading the theme into the **TI58C** emulator.



The **TI58C** emulator uses specific folders to store everything related to "decorative" elements as well as programs. By default these folders are subdirectories of the application directory.



The names of the folders can be changed as well as their path.

A single folder name means that the folder is in the application directory.
(Ex: "Buttons" means "C:\Program Files\ti58c\Buttons")
but the full path can be specified (Ex: "C:\ProgramData\ti58c\Buttons")
for storage other than in the application directory.

When changing the name (or the path), the data transfer can be done from the old folder to the new one with (or not) deletion of the old folder.

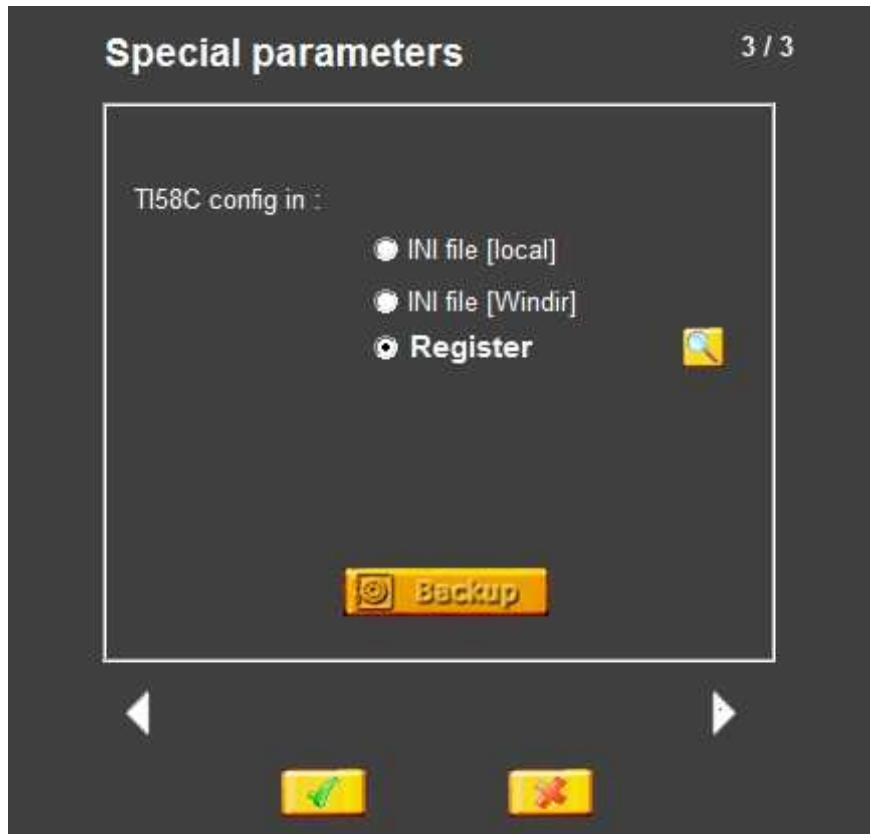
In the case of previous copy (or move) of the old folder with Windows Explorer the box "If new name" should be unchecked.



The **TI58C** emulator configuration parameters can be stored

- either in a local **ti58c.ini** file (application directory),
- either in a **ti58c.ini** file in the Windows directory (systemroot),
- either in the Windows registry.

- ⇒ Choosing **local INI file** deletes the **ti58c.ini** file from the Windows folder and creates the local file **ti58c.ini**,
- ⇒ Choosing **Windows INI file** deletes the **ti58c.ini** file from the application folder and creates the Windows file **ti58c.ini**,
- ⇒ Choosing **Register** deletes the file **ti58c.ini** (local or Windows) and creates the settings in the registry.



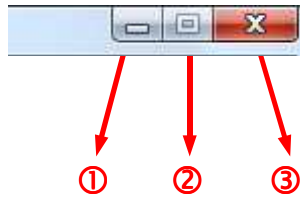
Click on the "Backup" button to save the parameters in

- a **ti58cyyyyymmddhhmmss.ini** file for general parameters and
- a **ticonvyyyyymmddhhmmss.ini** file for language settings.

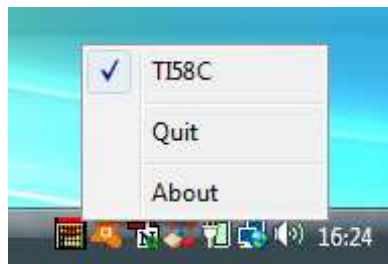


Window buttons

The **TI58C** program uses **Windows** standard window management buttons.



- ① Minimize button : represented by a horizontal line, this button removes the **TI58C** emulator from the screen but does not close it. It is still present but hidden behind the **TI58C** icon on the taskbar. a left click on the icon reopens the window and a right click makes appear a menu.



- ② Reduce/enlarge button : represented by a square, this button allows you to modify the size of the **TI58C** emulator window in the same way as with **ALT + X**. (see page "Screen size")
- ③ Close button : represented by a cross, this button is used to close the software (same as **ALT + F4**)



Files used by TI58C

TI58C.Log	Generated Trace by "Trace" mode
TI58C.Lst	Program(s) " <i>list</i> " (in append)
TI58C.Mem	Constant memory of TI58C
TI58C_01.WRI	Memories 00 to 24 (1 2nd WRI)
TI58C_02.WRI	Memories 25 to 49 (2 2nd WRI)
TI58C_03.WRI	Memories 50 to 74 (3 2nd WRI)
TI58C_04.WRI	Memories 75 to 99 (4 2nd WRI)
... / ... (see page about OP 99)	
TI58C_40.WRI	Memories 975 to 999 (40 2nd WRI)
TI58C.Ini	Generals settings (voir annexes)
TI58CFR.lan	French language
TI58CEN.lan	English Language
TI58CIT.lan	Italian Language
TI58CCZ.lan	Czech Language
TI58CDE.lan	German Language
TI58CBR.lan	Brazilian Language
TI58CES.lan	Spanish Language
TI58C.pgl	Programs list

Websites about TI58/TI58C/TI59

<http://www.ti59.com>

<http://www.datamath.org/>

<http://www.n3times.com/vertigo/>

<http://www.zanchetta.net/>

https://github.com/lido/ti5x_android

(all the documentations !)

(Java emulator)

(emulator)

(emulator on Android)

http://gtello.pagesperso-orange.fr/ti58_e.htm

(compiler, emulator...)

Without this site, I would never have taken back my TI58C, 30 years later, and I would not have had the idea to do TI58C.exe...

and of course <http://ti58c.phweb.me>



Appendices



Keys codes

16	A'	17	B'	18	C'	19	D'	10	E'
11	A	12	B	13	C	14	D	15	E
		82	HIR	28	LOG	29	CP	20	PCT
21	2nd	22	INV	23	LN _X	24	CE	25	CLR
36	PGM	37	P/R	38	SIN	39	COS	30	TAN
31	LRN	32	X/T	33	X ²	34	SQR	35	1/X
46	INS	47	CMS	48	EXC	49	PRD	40	IND
41	SST	42	STO	43	RCL	44	SUM	45	YX
56	DEL	57	ENG	58	FIX	59	INT	50	IXI
51	BST	52	EE	53	(54)	55	/
66	PAU	67	EQ	68	NOP	69	OP	60	DEG
61	GTO	07	7	08	8	09	9	65	*
76	LBL	77	GE	78	STA	79	AVR	70	RAD
71	SBR	04	4	05	5	06	6	75	-
86	STF	87	IFF	88	DMS	89	PI	80	GRD
81	RST	01	1	02	2	03	3	85	+
96	WRT	97	DSZ	98	ADV	99	PRT	90	LST
91	R/S	00	0	93	.	94	+/-	95	=

These codes can be displayed on the calculator with the key combination **ALT N**



Modules (Solid State Software)

#	Code	Name	
01	ML	Master Library	(*)
02	ST	Applied Statistics	(*)
03	RE	Real Estate / Investment	
04	SY	Surveying	(*)
05	NG	Marine Navigation	(*)
06	AV	Aviation	(*)
07	LE	Leisure Library	(*)
08	SA	Securities Analysis	
09	BD	Business Decisions	
10	MU	Math / Utilities	(*)
11	EE	Electrical Engineering	(*)
12	FM	Agriculture	
13	RP	RPN Simulator	
14	SE	Structural Engineering	

("Texas Instruments" modules)
 (*) included in pgm.zip

#	Code	Name
14	PH	PH Messages

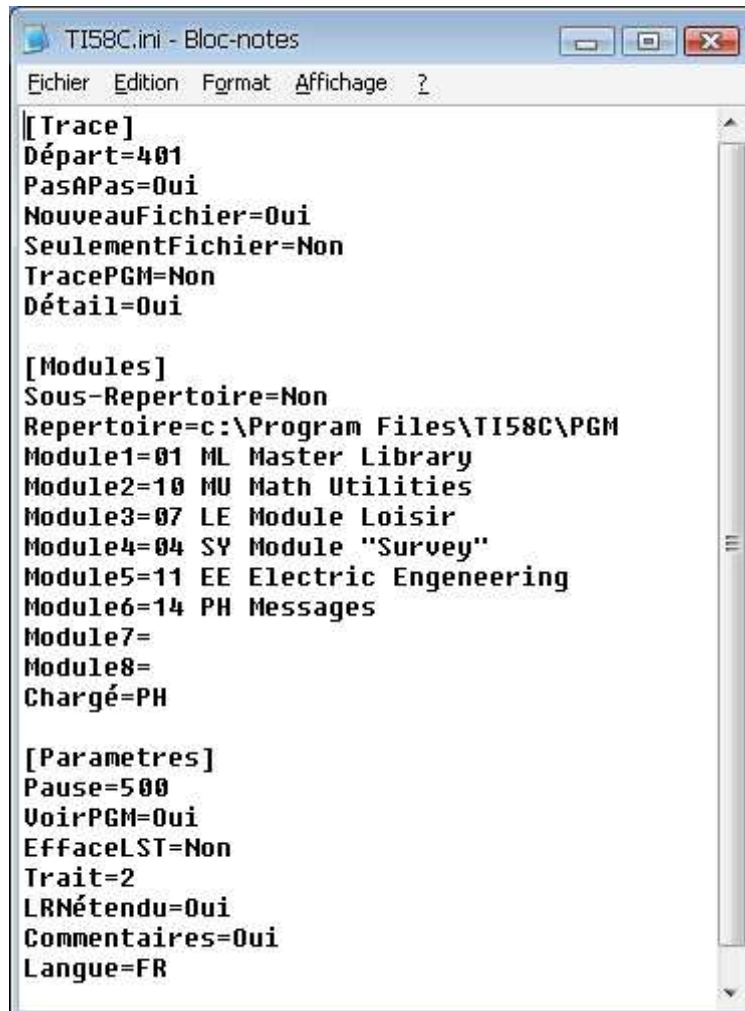
(TI58C modules provided with the install - see pgm.zip)



ti58c.ini file

This file is present by default in the windows directory (c:\windows) and contains the parameters of TI58C.exe. You can copy or move this file in the application directory, in this case the ini file in the application directory is that will be used.

(this file is in french...)



```
[Trace]
Départ=401
PasAPas=Oui
NouveauFichier=Oui
SeulementFichier=Non
TracePGM=Non
Détail=Oui

[Modules]
Sous-Repertoire=Non
Repertoire=c:\Program Files\TI58C\PGM
Module1=01 ML Master Library
Module2=10 MU Math Utilities
Module3=07 LE Module Loisir
Module4=04 SY Module "Survey"
Module5=11 EE Electric Engineering
Module6=14 PH Messages
Module7=
Module8=
Chargé=PH

[Parametres]
Pause=500
VoirPGM=Oui
EffaceLST=Non
Trait=2
LRNétendu=Oui
Commentaires=Oui
Langue=FR
```

(see manual [TIConfigEN.pdf](#))



Command line / Shortcut

The launch of TI58C program is configurable either through a shortcut or through a command file (.cmd or .bat)

The parameters can be :

- TI58C screen width :
 - /w0** standard mode (*default*),
 - /w1** calculator and printer,
 - /w2** calculator only
- TI58C screen height :
 - /h0** height 600 (*default*),
 - /h1** height 680
- Calculator type :
 - /ti58**,
 - /ti59**
- program to load at start



height 600



height 680



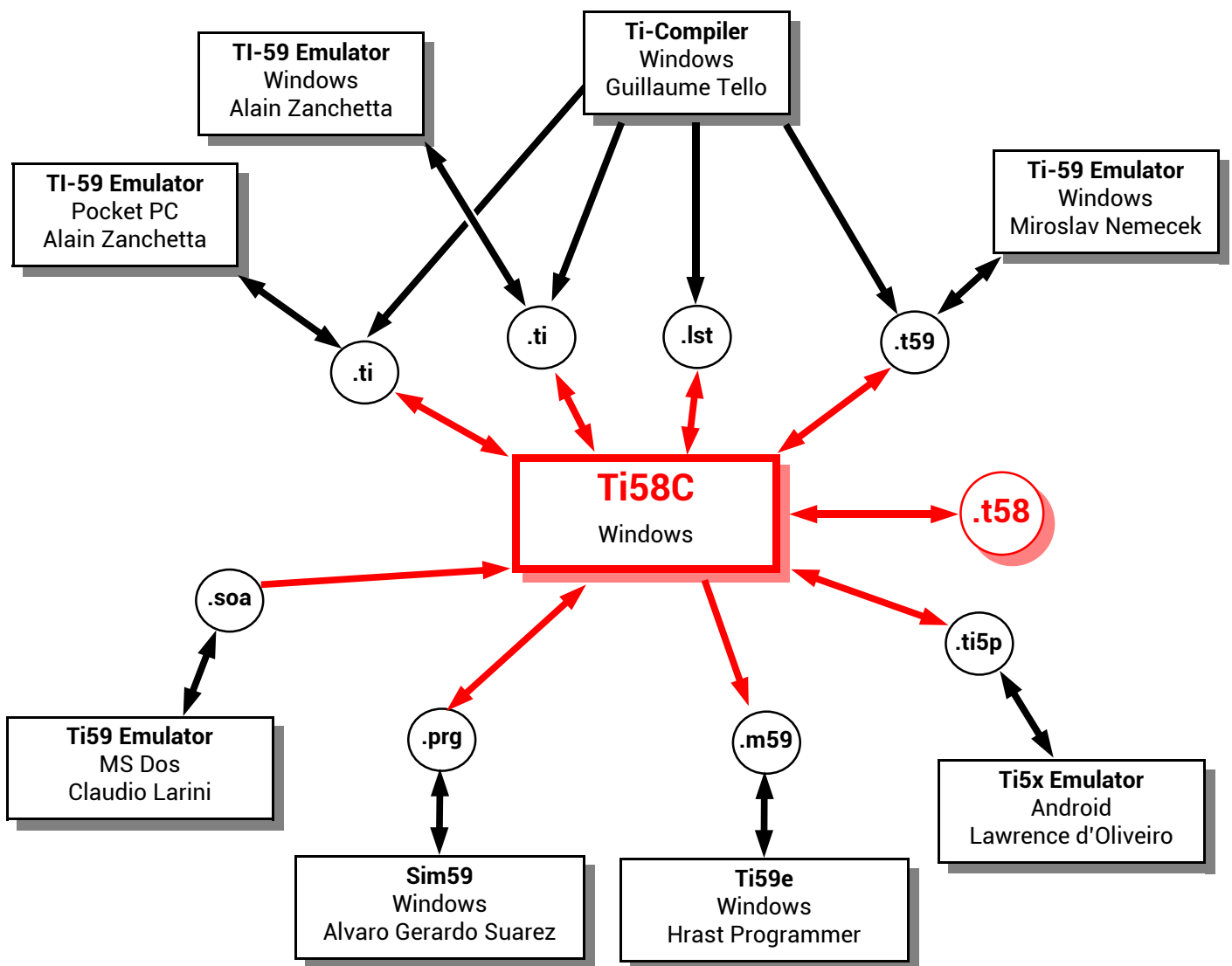
Supported file formats

Ti58C.exe uses its own format (.t58) to record the programs but may also use other formats to be compatible as possible with other existing products.

Supported formats :

Extension	Product	OS	Author
.t59	Ti-59 Emulator	Windows	Miroslav Nemecek
.ti	Ti-59 Emulator	Windows	Alain Zanchetta
.ti	Ti-59 Emulator	Pocket PC	Alain Zanchetta
.ti5p	Ti5x	Android	Lawrence d'Oliveiro
.soa	Ti-59 Emulator	MS Dos	Claudio Larini
.lst	Ti-59 Compiler	Windows	Guillaume Tello
.prg	Sim59	Windows	Alvaro Gerardo Suarez
.m59	Ti59e	Windows	Hrast Programmer

CAUTION : specific extensions of Ti58C may be not compatible with other emulators.



Warning to the readers

The informations contained in this manual are given as an indicative guide and have no exhaustive character even certain.

As an example not restrictive, this manual can propose you one or several addresses of Web sites which will be not more current or which the contents will have changed when you will access it.

So, this information should not engage the responsibility of the author of this manuel.

The author cannot be considered responsible for any omission, error or gap which would have been present into this manual as well as consequences, whoever they are, who would result from information and indications supplied as well as with their use.

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This manual is neither published, nor produced by the owners of the calculators which are concerned and the marks are used only as name of products.

