TotalCalc

COLLABORATORS			
	TITLE : TotalCalc		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY		April 14, 2022	

REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME

Contents

Chapter 1

TotalCalc

1.1   TotalCalc documentation

```
                ------------------------------------------------------------------

                              TotalCalc 1.22

                           Copyright © 1998-99
                              Luca Carminati
   _____
```

```
                    Introduction

                    System requirements

                    Installation

                    Usage

                    Guarantee

                    Copyright

                    Author

                    Acknowledgements

                    History
```

1.2   Introduction

```
Introduction
```

TotalCalc is a powerful calculator having the following main features:

- Possibility to exchange among different numeration systems: floating point, decimal integer, hexadecimal, binary.
- Up to 13 normal digits plus 2 digits for the exponent of ten (scientific notation).
- Arithmetical operations.
- Powers, roots, logarithms, reciprocal, factorial, trigonometric functions, percent functions.
- Logical operations.
- Up to 20 nested parentheses.
- Up to 10 independent memories.
- Constant calculus.

Moreover, it is a standard commodity, it supports the Amiga clipboard, and it uses any font of your choice.

1.3 System requirements

System requirements

TotalCalc requires Kickstart 2.04+, and the following libraries in the LIBS: directory:

- diskfont.library
- mathieeedoubbas.library
- mathieeedoubtrans.library

1.4 Installation

Installation

To install TotalCalc, simply drag its icon to any drawer of your choice.

1.5 Usage

Usage

Starting the program

ToolTypes and CLI arguments

The main window

The Extras window

1.6 Starting the program

Starting the program

TotalCalc is a standard commodity. It can be started from Workbench by
double-clicking on its icon, or from a Shell window by typing in its name
(type in 'TotalCalc ?' to see the complete CLI template). If you want the
program to be run automatically every time you boot your computer, drag its
icon to the WBStartup drawer. In such a case, you should set the DONOTWAIT
ToolType.

See
            ToolTypes and CLI arguments
             for the program's settings.

While the program is running, you can press the defined hotkey at any moment
to open the user interface on the frontmost screen.

1.7 ToolTypes and CLI arguments

ToolTypes and CLI arguments

TotalCalc recognizes the following ToolTypes and CLI arguments:

    CX_POPUP=YES|NO
    Specifies if you want the user interface to be opened when the program
    starts (default=YES).

    CX_POPKEY
    Defines the hotkey used to open the user interface (default='ctrl alt t').

    CX_PRIORITY
    Specifies the priority of TotalCalc in the commodities chain (-128 to 127;
    default=0).

    FONTNAME=<font>

Specifies the name of the main font. If not specified or not found, the
Workbench screen's font will be used.

FONTSIZE=<n>
Specifies the size of the main font.

RESFONTNAME=<font>
Specifies the name of the font used to print the result on the display. If
not specified or not found, it will be the same as 'FONTNAME'.

RESFONTSIZE=<n>
Specifies the size of the font used to print the result on the display.

SPACEAROUNDKEYS=<n>
Specifies how many pixels of blank space to leave around the keys (1 to
12; default=2).

XPOS=<n>
Specifies the
              main window
              's horizontal position.

YPOS=<n>
Specifies the
              main window
              's vertical position.

BELOWMOUSE
Indicates you want the
              main window
               to be opened below the mouse
pointer. If specified, 'XPOS' and 'YPOS' will be ignored.

MODE=FLT|DEC|HEX|BIN
Specifies the initial numeration system (FLT=Floating point, DEC=decimal
integer, HEX=hexadecimal, BIN=binary; default=FLT).

EXTRAS
Indicates you want the
              Extras window
               to be opened when the program
starts.

MEMORIES
Indicates you want the
              Memories window
               to be opened when the program
starts.

AUTOCOPY
Indicates you want the result to be copied into the clipboard
automatically.

CONVANG
Indicates you want the displayed number to be converted when changing the
angular unit (see the 'DEG->RAD->GRA' key in the
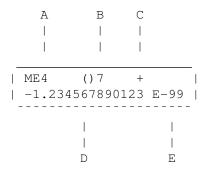   Extras window

```
                ).
```

```
    SCINOTATION
    Indicates you want the numbers to be always displayed in scientific
    notation (FLT mode only).
```

1.8 The main window

```
                The main window
```

The display in the main window has the following look:

```
        A       B    C
        |       |    |
        |       |    |
      _____
     | ME4     ()7     +      |
     | -1.234567890123 E-99 |
      ----------------------
              |          |
              |          |
              D          E
```

```
    A - Independent memory currently used.
    B - Number of parentheses opened.
    C - Current operation.
    D - Mantissa.
    E - Exponent of ten (FLT mode only).
```

When in BIN mode, the '«' character may appear on the left of the number. This
means that all the digits cannot be displayed (only the least significant word
is showed). Click on the 'Low->High' key in the
                Extras window
                 to see the
most significant word.

The following are brief descriptions of the keys you find in the main window
(between square parentheses you will find the respective keyboard shortcuts):

```
    0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F
    Numerical keys [0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F].
```

```
    .
    Decimal point [.].
```

```
    <
    Back space [BACKSPACE].
```

```
    +
    Addition [+].
```

```
    -
    Subtraction [-].
```

```
*
Multiplication [*].

/
Division [/].

+/-
Change the sign [`].

=
Perform the operation [=|Enter].

OR
Logical OR.

XOR
Logical XOR (exclusive OR).

AND
Logical AND.

NOT
Logical NOT.

(
Open parenthesis [(|[|{]

)
Closed parenthesis [)|]|}].

CE
Clear the last entry [RCOMMAND D].

CA
Clear all (the whole calculator is reset except the content of the
memories) [DEL].

MR
Recall the content of the current memory [RCOMMAND R].

Min
Store the result in the current memory [RCOMMAND S].

M+
Add the result to the content of the current memory [RCOMMAND +].

M-
Subtract the result from the content of the current memory [RCOMMAND -].

x=M
Exchange the displayed number with the content of the current memory
[RCOMMAND G].

x=y
Exchange the displayed number with the content of the working register.
```

```
FLT -> DEC -> HEX -> BIN
Mode key. It lets you choose which numeration system to use (FLT=floating
point, DEC=decimal integer, HEX=hexadecimal, BIN=binary) [TAB].
```

1.9 The Extras window

```
The Extras window
```

```
The following are brief descriptions of the keys you find in the Extras window
(between square parentheses you will find the respective keyboard shortcuts):
```

```
DEG -> RAD -> GRA
Sets the angular unit (DEG=degrees, RAD=radians, GRA=gradients).

Low -> High
Displays the least significant word (Low), or the most significant word
(High) when in BIN mode.

sin
Sine.

cos
Cosine.

tan
Tangent.

asin
Arcsine.

acos
Arccosine.

atan
Arctangent.

hsin
Hyperbolic sine.

hcos
Hyperbolic cosine.

htan
Hyperbolic tangent.

e^x
e (2.718281828459...) raised to number.

10^x
10 raised to number.

ln
Natural logarithm (base e).
```

```
log
Common logarithm (base 10).

n!
Factorial.

1/x
Reciprocal.

x^2
Number raised to 2.

x^3
Number raised to 3.

^
Number raised to power [^].

SqRt
Square root.

CbRt
Cubic root.

nRt
nth root.

Pi
Pi (3.14159265359...).

%
Percent [%].

EXP
Exponent of ten for scientific notation numbers [E].

LSL
Logical shift towards left.

LSR
Logical shift towards right.

ROL
Rotation towards left.

ROR
Rotation towards right.
```

1.10 The Memories window

```
The Memories window

The Memories window displays the content of each independent memory. You can
```

choose which memory to use by clicking on an item of the list. Double-clicking
on an item has two possible effects: if the item contains a zero, then the
number on the display will be stored in the memory; if the item contains a
value different than zero, then the content of the memory will be recalled on
the display.

1.11   The menus

               The menus

TotalCalc provides the following menus:

    Project/About...
    Shows some information about the program.

    Project/Hide
    Closes the user interface without quitting the program.

    Project/Quit
    Quits the program.

    Edit/Cut
    Removes the displayed number and places it in the clipboard.

    Edit/Copy
    Copies the displayed number into the clipboard.

    Edit/Paste
    Pastes the number stored in the clipboard on the display.

    Edit/Erase
    Removes the displayed number.

    Windows/TotalCalc
    Brings the
               main window
                to front.

    Windows/Extras
    Opens the
               Extras window
               , or brings it to front if already opened.

    Windows/Memories
    Opens the
               Memories window
               , or brings it to front if already opened.

```
Memories/Use
Lets you choose which independent memory to use (0 to 9).

Memories/Recall
Recalls the content of the current memory.

Memories/Store
Stores the result in the current memory.

Memories/Add
Adds the result to the content of the current memory.

Memories/Subtract
Subtracts the result from the content of the current memory.

Memories/Exchange
Exchanges the displayed number with the content of the current memory.

Memories/Clear
Clears the content of the current memory.

Memories/Clear all
Clears the content of each memory.



Options/Auto-copying
Indicates you want the result to be copied into the clipboard
automatically.

Options/Convert angle
Indicates you want the displayed number to be converted when changing the
angular unit (see the 'DEG->RAD->GRA' key in the
            Extras window
            ).

Options/Scientific notation
Indicates you want the numbers to be always displayed in scientific
notation (FLT mode only).
```

1.12   Calculus range

```
Calculus range
```

```
The calculus range depends on the numeration system currently used:
```

```
FLT mode:            +/-9.999999999999 E+/-99

DEC mode:            +/-9999999999999

HEX and BIN modes: -2147483648/+2147483647
```

1.13 Examples

Examples

The following are some examples on how to use the calculator:

Example	Operation	Reading
23+4.5-53=-25.5	23 + 4.5 - 53 =	-25.5
56x(-12)/(-2.5)=268.8	56 * 12 +/- / 2.5 +/- =	268.8
7x8-4x5=36	7 * 8 - (4 * 5) =	36
6 =0.3 4x5	4 * 5 / 6 x=y =	0.3
2x[7+6x(5+4)]=122	2 * (7 + (6 * (5 + 4))) =	122
2/3x(1x10^20) =6.666666666667x10^19	2 / 3 * 1 EXP 20 =	6.666666666667 E19
53+6= 59 + 23-8= 15 + 56x2=112 + 99/4= 24.75 = 210.75	53 + 6 Min 23 - 8 M+ 56 * 2 M+ 99 / 4 M+ MR	59 15 112 24.75 210.75
(3+6)x(2+5) [2x(3+4)]+[6x(7+8)] =0.605769230769	3 + 6 * (2 + 5) = Min 2 * (3 + 4) + (6 * (7 + 8)) = x=M / MR =	63 104 0.605769230769
12% of 1500=180	1500 * 12 %	180
3300+(16% of 3300)=3828	3300 * 16 % +	3828
1200-(22% of 1200)=936	1200 * 22 % -	936
Percentage of 660 against 880=75%	660 / 880 %	75

```
If you add 300cc to a solution of      300 + 500 %                           160
500cc,  what is the percentage of
the  new volume compared with the
initial one?.................160%


If last week you gained $80 and        100 - 80 %                            25
$100  this  week,  what  is the
percentage of increase?.....25%


     Pi
sin( r a d )=0.5                 'RAD'  Pi / 6 = sin                          0.5
     6


cos 63.7\textdegree{}=0.443071190824        'DEG'  63.7 cos          ←
    0.443071190824


tan(-35gra)=-0.61280078814        'GRA'  35 +/- tan            -0.61280078814


       1
a r c s i n =30\textdegree{}             'DEG'  1 / 2 = asin  ←
             30
       2


hypcos 1.5-hypsin 1.5         1.5 hcos - 1.5 hsin =         0.223130160148
=0.223130160148


log 1.23=0.089905111439                1.23 log          0.089905111439


ln 90=4.49980967033                      90 ln           4.49980967033


10^1.23=16.98243652462                 1.23 10^x         16.98243652462


e^4.5=90.01713130052                    4.5 e^x          90.01713130052


5.6^2.3=52.58143837201                 5.6 ^ 2.3 =       52.58143837201


Cubic root of 125=5                    125 CbRt                            5


7th root of 123=1.988647795276         123 nRt 7 =       1.988647795276


123+30^2=1023                          123 + 30 x^2 =                    1023
```

```
    1
         =12                    3 1/x - 4 1/x = 1/x                        12
  1     1
        -
  3     4
```

```
8! (=1x2x3x4x5x6x7x8)=40320                    8 n!                       40320
```

```
$FF8A AND $CCCC=$CC88          'HEX'  FF8A AND CCCC =                     CC88
```

```
LSR %110011=%11001                    'BIN'  110011 LSR                  11001
```

```
ROL $F0438C3C=$E0871879          'HEX'  F0438C3C ROL                  E0871879
```

1.14 Constant calculus

Constant calculus

TotalCalc is able to repeat the last operation performed. Here are some
examples:

Example	Operation	Reading
3+2.3=5.3	3 + 2.3 =	5.3
6+2.3=8.3	6 =	8.3
2.3x12=27.6	2.3 * 12 =	27.6
(-9)x12=-108	9 +/- =	-108
17+17+17+17=68	17 + = = =	68
3x6x4=72	4 * (3 * 6) =	72
3x6x(-5)=-90	5 +/- =	-90

```
  56
        =2.8                  56 / (4 * (2 + 3)) =                         2.8
4x(2+3)
```

```
  23
        =1.15                          23 =                               1.15
4x(2+3)
```

```
12% of 1200=144                     12 * 1200 %                           144
```

```
18% of 1200=216                              18 %                        216
23% of 1200=276                              23 %                        276


26% of 2200=572                   2200 * 26 %                            572
26% of 3300=858                        3300 %                           858
26% of 3800=988                        3800 %                           988


Percentage of 30 against 192=15.625%   30 / 192 %                   15.625
Percentage of 156 against 192=81.25%        156 %                    81.25


If you add 600cc to a solution of   600 + 1200 %                       150
1200cc, what is the percentage of
the  new volume compared with the
initial one?.................150%

If you add 510cc to a solution of        510 %                       142.5
1200cc, what is the percentage of
the  new volume compared with the
initial one?...............142.5%


What is the percentage of decrease   138 - 150 %                        -8
of $138 compared with $150?....-8%

What is the percentage of decrease        129 %                        -14
of $129 compared with $150?...-14%
```

1.15 Notes

```
              Notes
```

- TotalCalc does not care about the priority of the operators but it
  performs the operations sequentially. So the calculus '2+3*4' will be
  processed as '(2+3)*4=20' and not as '2+(3*4)=14'. Use the parentheses
  to obviate this.
- The
              Extras window
               can also be opened/closed by pressing the space
  bar.
- You can use the cursor up and down keys to choose which independent
  memory to use.
- Clicking on the
              main window
              's close gadget, or pressing the 'Esc'
  key, causes the user interface to be closed without quitting the
  program.

1.16   Guarantee

```
              Guarantee
```

The program has been tested several times, but its reliability is not
guaranteed at 100%. I (
              the author
) do not consider myself responsible
for loss or damage of data as consequence of the use of the program. Use
TotalCalc at your own risk.

1.17   Copyright

```
              Copyright
```

TotalCalc is copyright © Luca Carminati.

The program is CARDWARE, therefore it is freely distributable on condition
that it is always accompanied by all the files in this archive. The whole
archive must not be modified in any way.

If you think TotalCalc is useful, let me know by sending
              me
               a postcard
(preferred) or an e-mail message.

1.18   Author

Author

Here is my address:

    Luca Carminati
    Via Fratelli Urbani, 1
    24016 San Pellegrino Terme (BG)
    ITALY

    E-mail: toffi@spm.it

If you have some suggestions, or if you find some bugs in the program, write
me.

1.19   Acknowledgements

1.20 History

```
            History

   1.0  - First release.

   1.1  - The program did not work on 68000/68010 machines.
        - Fixed a bug which, in some cases, prevented you from entering the
          decimal point.
        - Negative numbers were not correctly rounded when in DEC, HEX and
          BIN modes.
        - Now the program handles scientific notation numbers
          (+/-9.999999999999 E+/-99).
        - Now the display shows some more information (see
              The main

              window
              ).
        - Added the
              constant calculus
               feature.
        - Renamed the key '$\div$' as '/' (see
              The main window
              ), the key
          'EXP' as 'e^x', and the key 'POW' as 'x^y' (see
              The Extras
```

```
        window
        ).
- Added the 'DEG->RAD->GRA', '10^x', 'n!', '1/x', 'x^2', 'x^3',
  'CbRt', 'nRt', '%' and 'EXP' keys to the
        Extras window
        .
- Added the 'EXTRAS' and 'SPACEAROUNDKEYS'
        ToolTypes and CLI

        arguments
        .
- Added the 'Memories'
        menu
        .
- Now up to 10 independent memories are available.
- Some other minor changes.

1.2  - Now the 'EXP' key in the
        Extras window
         works in a different
     way.
- Renamed the key 'x' as '*' (see
        The main window
        ), and the key
   'x^y' as '^' (see
        The Extras window
        ).
- Renamed the key 'LSW->MSW' as 'Low->High' and moved from the

        main window
         to the
        Extras window
        .
- Added the 'Min', 'x=M' and 'x=y' keys to the
        main window
        .
- Removed the 'EXT' key from the
        main window
        .
- Added the 'LSL', 'LSR', 'ROL' and 'ROR' keys to the
        Extras

        window
        .
- Added the 'BELOWMOUSE', 'MEMORIES', 'AUTOCOPY', 'CONVANG' and
  'SCINOTATION'
        ToolTypes and CLI arguments
        .
- Added the 'Store' and 'Exchange' items to the 'Memories'

        menu
        .
- Added the 'Edit', 'Windows' and 'Options'
        menus
        .
- Added the
```

```
               Memories window
                    .
     – Now you can paste numbers from the clipboard.
     – Some other minor changes.


1.21 – Opening the
               Memories window
                caused a software failure under
        release 2 of the operating system.
     – In some cases, scientific notation numbers were not correctly
       pasted from the clipboard.
     – Fixed a bug which allowed you to enter more than 2 digits for the
       exponent of ten.
     – In some cases, the trigonometric functions gave you imprecise
       results.
     – Now the
               ToolTypes
                are read even if you change the program's
        name.
     – Now you can use the cursor up and down keys to choose which
       independent memory to use.
     – Added the 'RESFONTNAME' and 'RESFONTSIZE'
               ToolTypes and CLI

               arguments
                    .
     – Some other minor changes.


1.22 – If a patch like VisualPrefs or UrouHack was running, there were
       problems when closing the
               Memories window
                    .
     – Now the program is a standard commodity (added the 'CX_POPUP',
       'CX_POPKEY' and 'CX_PRIORITY'
               ToolTypes and CLI arguments
               ).
     – Now clicking on the
               main window
                's close gadget, or pressing
        the 'Esc' key, causes the user interface to be closed instead of
        quitting the program.
     – Now, if a font is not specified by 'FONTNAME', or it cannot be
       found, the Workbench screen's font will be used (see

               ToolTypes and CLI arguments
               ).
     – Now, if a font is not specified by 'RESFONTNAME', or it cannot be
       found, it will be the same as 'FONTNAME' (see
               ToolTypes and

               CLI arguments
               ).
     – Added the 'Hide' item to the 'Project'
               menu
                    .
     – Some other minor changes.
```