

C47 Ref page : Abbreviations

Abbrev	Meaning	Description
ADM	Angular Display Mode	Determines angle type for numbers not explicitly tagged
AIM	Alpha Input Mode	Activated by [α] on f[XEQ]
ASM	Alpha Selection Mode ; starts UPPERCASE	Alpha selection is automatically waiting for the first alpha. Press first character, then second, to search while the underscore is shown in the status bar for three seconds, while the entered search characters are also shown in the status bar
CAT	Catalog	Label shown in Catalog, on longpress (depending on settings) and in programming
CRA	Current Register Address	Used by STOPW
DMCP	DM Calculator Platform	The base software layer of the DM hardware that C47 runs on
EIM	Equation Input Mode	Activated by EQ.NEW and EQ.EDIT
MIM	Matrix Input Mode	Activated by M.EDIT
NIM	Numeric Input Mode	Started by numeric keypad
NM	NM (NORMAL)	Normal operating mode for doing calculations and running programs, etcetera
PEM	Program Entry Mode	Activated by PRGM
Ref	Reference page	Indicates availability of additional reference information on a subject (documentation)
SBI	Status Bar Information (Annunciator)	Information shown permanently in the status bar depending on settings, flags, etc.
tag	ADM label	Indicates angular display mode, attached to number on stack
TAM	Transient Alpha Mode	Started by commands requiring trailing input, presenting specialised menus designed to facilitate parameter input like registers, variables, labels, flags or softbuttons
TI	Temporary Information	Labels shown temporarily on the left side of the stack
TSV	Tab Separated Values	The export text file format used to store register values (by the commands and) and output of the
USER	USER mode	Operating mode where the keyboard reconfigurations are active

C47 Ref page : AKA menus (also known as, or pseudo-menus)

Button/key	Located at	Type	Activates menu	Menu
[α]	f [XEQ]	MENU (item)	ALPHA	MENU
→	[Tam.1] F1	Command (TAM)	TamIndirect	MENU (TAM)
∫ f d	[ADV.1] F5	MENU	MVAR	MENU (internal)
BITSHFT	[BASE.1] f F6	MENU (item)	BITS↔2	MENU
CENTRL	[CENTRL (SCATR).1] F1	Command (special)	SCATR	MENU (internal)
CFLG	[MODE.1] f F6	MENU (item, nonpgm)	SYS.FL	MENU (ASM)
Draw	[Graphs.1] F5	MENU (item)	PLFUNC	MENU (internal)
Draw^x	[f Graph.1] F6	MENU (item)	PLFUNC	MENU (internal)
DTSET	[DISP.2] F6	MENU (item)	CLK↔2	MENU
EDIT	[EQN.1] F2	Command (submnu)	EQ_EDIT	MENU (internal)
EDIT	[MATX.1] F3	MENU (item, nonpgm)	M_EDIT	MENU
EDITN	[MATX.1] F4	MENU (item, nonpgm)	M_EDIT	MENU
FPART_L	[DISP.1] g F3	MENU (item, nonpgm)	FPART	MENU
IPART_L	[DISP.1] g F1	MENU (item, nonpgm)	IPART	MENU
MENU	[TamMenu.1] F2	MENU (ASM)	MENUS	MENU (ASM)
NEW	[EQN.1] F1	MENU (item, nonpgm)	EQ_EDIT	MENU (internal)
PLT f	[ADV.1] F4	MENU (item)	MVAR	MENU (internal)
PLTFCNS	[P.FN1.1] g F6	MENU (item)	PLFUNC	MENU (internal)
PROG	[TamLabel.1] F2	MENU (TAM, ASM)	PROGS	MENU (ASM)
RADIX.	[DISP.1] g F2	MENU (item, nonpgm)	RADIX	MENU
SIM EQ	[MATX.1] F5	MENU (item)	M_SIMQ	MENU
SOLVE	[ADV.1] F6	Command	MVAR	MENU (internal)
VAR	[Tam.1] F2	MENU (ASM)	ALL	MENU (ASM)
VarMNU	[P.FN2.1] F5	Command (PEM)	MVAR	MENU (internal)

C47 Ref page : Annunciators

Label	FullName	Type	FLAG	Annunciator	Determined by
OCT	Octal	Setting (pgm)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	Setting #
DEC	Decimal (short integer)	Setting (pgm)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	Setting #
(ASM active)	ASM active	SBI		$\overline{A}$	
(ASM search)	ASM search	SBI		AB	
(Busy)	Calculator busy	SBI		X	
(Running)	Program running	SBI		P	
(Waiting)	Program waiting	SBI		0	
#	Number base	Setting (pgm, stack)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	SBI is shown if flag SBfrac is SET
→INT	Number base	Setting (pgm, stack)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	SBI is shown if flag SBfrac is SET
↑ (α ²⁴)	Superscript	Alpha-shift		A ; * ; N	
↓ (α ₂₄)	Subscript	Alpha-shift		A ; * ; N	
<f>	Shift f	f-shift		f	SBI position depends on flag SBhfr
<f>lipchar	Flip case (one character)	Alpha-shift (special)		A ; a	
<g>	Shift g	g-shift		g	SBI position depends on flag SBhfr
>#<c	Print byte	Command (old)		$\overline{A}$	
>#CHAR<	Print character	Command (old)		$\overline{A}$	
>#TAB<	Print column	Command (old)		$\overline{A}$	
>DMX<	Set max denominator for fractions [Old]	Setting (pgm, old)		/nnnn ; /max	
	Set max denominator for fractions [Older]	Setting (pgm, older)		/nnnn ; /max	
#	Print byte	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#ADV	Printer advance	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#ALLr	Print all registers	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#CHAR	Print character	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#ITEMS	Print all items	Command (SIM)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#LCD	Print LCD	Command (strike)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#LIST	Print list	Command (nonpgm)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#PROG	Print program	Command (nonpgm)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#r	Print register or variable	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#REGS	Print registers	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#STK	Print stack	Command	SSIZE8	$\overline{A}$; 8 ; 4	SBI $\overline{A}$; 8 ; 4 is shown if flag SBprn is SET
#TAB	Print column	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#USER	Print user items	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#WIDTH	Printer width	Command (strike)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#x	Print x	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#XFN	Print XFN	Command (strike)		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#xy	Print X and Y	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#α	Print alpha	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
#Σ	Print summation registers	Command		$\overline{A}$	SBI $\overline{A}$ is shown if flag SBprn is SET
16-BIT	Word size 16 bits	Setting (pgm)	SBint	16<cm>	SBI 16<cm> is shown if flag SBint is SET
16i2	Signed 16 bits	Setting (pgm)	SBint	16i2	Setting ZCmpl ; SBI 16i2 is shown if flag SBint is SET
16u	Unsigned 16 bits	Setting (pgm)	SBint	16u	Setting UNSIGN ; SBI 16u is shown if flag SBint is SET
1COMPL	1's complement	Setting (pgm)	SBint	<u>+1	SBI <u>+1 is shown if flag SBint is SET
2COMPL	2's complement	Setting (pgm)	SBint	<u>+2	SBI <u>+2 is shown if flag SBint is SET
32-BIT	Word size 32 bits	Setting (pgm)	SBint	32<cm>	SBI 32<cm> is shown if flag SBint is SET
32i2	Signed 32 bits	Setting (pgm)	SBint	32i2	Setting ZCmpl ; SBI 32i2 is shown if flag SBint is SET
32u	Unsigned 32 bits	Setting (pgm)	SBint	32u	Setting UNSIGN ; SBI 32u is shown if flag SBint is SET
42PRA	Print Alpha register	Command (42)		$\overline{A}$	
64-BIT	Word size 64 bits	Setting (pgm)	SBint	64<cm>	SBI 64<cm> is shown if flag SBint is SET
64i2	Signed 64 bits	Setting (pgm)	SBint	64i2	Setting ZCmpl ; SBI 64i2 is shown if flag SBint is SET
64u	Unsigned 64 bits	Setting (pgm)	SBint	64u	Setting UNSIGN ; SBI 64u is shown if flag SBint is SET
8-BIT	Word size 8 bits	Setting (pgm)	SBint	8<cm>	SBI 8<cm> is shown if flag SBint is SET
8i2	Signed 8 bits	Setting (pgm)	SBint	8i2	Setting ZCmpl ; SBI 8i2 is shown if flag SBint is SET
8u	Unsigned 8 bits	Setting (pgm)	SBint	8u	Setting UNSIGN ; SBI 8u is shown if flag SBint is SET
a b/c	Fractions modes	Setting (cyclic, pgm, stack)	FRACT	a ^b /n ; b/n ; [+±] ; a ^b /cx1 ; b/cx1 ; [+±]	Setting DMX ; SBI is shown if flag SBfrac is SET
ADM	Set angular display mode	Command		" ; " ; r ; w ; 9	
ADM#	Get angular display mode	Command		" ; " ; r ; w ; 9	Command ADM
ALPHA	Alpha Input Mode	Flag	ALPHA	A ; a ; N	
ARCCOS	Arc cosine	Function (monadic)	CPKRES	C ; R	
ARCSIN	Arc sine	Function (monadic)	CPKRES	C ; R	
ASLIFT	Automatic Stack Lift	Flag (system)	ASLIFT	SL	
Begin	TYM begin payments	Setting (pgm)	ENDPMT	BEG	
BIN	Binary	Setting (pgm)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	Setting #
CAPS	Alpha capslock	Setting	αCAP	A ; a	
CARRY	Carry (bit)	Flag	CARRY	c	SBI c is shown if flag SBoc is SET
	Carry (bit)	Setting	CARRY	c	
CASE DN	Alpha lock downwards	Alpha-shift		N ; A ; a	
CASE UP	Alpha lock upwards	Alpha-shift		A ; a ; N	
CLK12	12 hour clock	Setting (pgm)	TDM24	HH:MMam/pm	
CLK24	24 hour clock	Setting (pgm)	TDM24	HH24:MM	
CLREGS	Clear registers	Command	SSIZE8	8 ; 4	
CLSTK	Clear stack	Command	SSIZE8	8 ; 4	
CPKRES	Complex results	Flag	CPKRES	C ; R	SBI C ; R is shown if flag SBcr is SET
	Complex results	Setting	CPKRES	C ; R	
D.MS	Set ADM to D.MS	Setting (pgm)	SBang	*	
DEG	Set ADM to DEG	Setting (pgm)	SBadm	*	SBI * is shown if flag SBadm is SET
DENANY	Denominator any	Flag	DENANY	[+±]	Setting DENFIX ; SBI [+±] is shown if flag SBfrac is SET
	Denominator any	Setting	DENANY	[+±]	
DENFIX	Denominator fixed	Flag	DENFIX	[+f]	Setting DENANY ; SBI [+f] is shown if flag SBfrac is SET
	Denominator fixed	Setting	DENFIX	[+f]	
di<g>it	Set numeric (one digit)	Alpha-shift (special)		N	
DMX	Set max denominator for fractions	Command		/nnnn ; /max	SBI is shown if flag SBfrac is SET
	Set max denominator for fractions [TAM]	Setting (pgm)		/nnnn ; /max	Command DMXmax ; SBI is shown if flag SBfrac is SET
DMX#	Get max denominator for fractions	Command		/nnnn ; /max	Command DMX ; SBI is shown if flag SBfrac is SET
DMXmax	Set DMX to maximum	Command		/max	SBI /max is shown if flag SBfrac is SET
DMY	Day,month,year	Flag (system)	DMY	DD.MM.YYYY	SBI is shown if flag SBdate is SET
	Day,month,year	Setting (pgm)	DMY	DD.MM.YYYY	
End	TYM end payments	Setting (pgm)	ENDPMT	END	
ENDPMT	TYM end payments	Flag (system)	ENDPMT	END ; BEG	SBI END ; BEG is shown if flag SBtvm is SET
ENTER	Enter	Command	eRPN	8 or 4	
eRPN	Entry RPN mode	Flag	eRPN	8 or 4	SBI 8 or 4 is shown if flag SBss is SET
	Entry RPN mode	Setting	eRPN	8 or 4	
EXPatk	Export stack	Command	SSIZE8	8 ; 4	
f/g	Shift f/g	f/g-shift		f ; g	SBI f ; g is shown if flag SBhfr is SET
FDIGS	Set significant digits for fractions	Setting (pgm)	SBfrac	[+±]	SBI [+±] is shown if flag SBfrac is SET
FRACT	Fractions mode	Flag	FRACT	a ^b /n ; b/n ; [+±]	Setting IRFRAC ; SBI is shown if flag SBfrac is SET
	Fractions mode	Setting	FRACT	a ^b /n ; b/n ; [+±]	
GRAD	Set ADM to GRAD	Setting (pgm)	SBang	*	
GROW	Grow (matrix edit)	Flag	GROW	wrap ; grow	SBI is shown if flag SBmx is SET
	Grow (matrix edit)	Setting	GROW	grow	
HEX	Hexadecimal	Setting (pgm)	KEYA- <i>r</i>	#BASE ; #KEYA- <i>r</i>	Setting #
IRFRAC	Irrational fractions mode	Flag	IRFRAC	a ^b /cx1 ; b/cx1 ; [+±]	Setting FRACT ; SBI is shown if flag SBfrac is SET
	Irrational fractions mode	Setting	IRFRAC	a ^b /cx1 ; b/cx1 ; [+±]	
KEYA- <i>r</i>	A-F keys	Flag	KEYA- <i>r</i>	#KEYA- <i>r</i>	
	A-F keys	Setting	KEYA- <i>r</i>	#KEYA- <i>r</i>	
LOWBAT	Low Battery	Flag (system)	LOWBAT	Q	SBI Q is shown if flag SBbatv is SET
MDY	Month/day/year	Flag (system)	MDY	MM/DD/YYYY	SBI is shown if flag SBdate is SET
	Month/day/year	Setting (pgm)	MDY	MM/DD/YYYY	
MULt	Set ADM to MULt	Setting (pgm)	SBang	*r	
NUM	Numlock	Flag	NUM	N	
	Numlock	Setting	NUM	N	
OVERFL	Overflow	Flag	OVERFL	*	SBI * is shown if flag SBoc is SET
	Overflow	Setting	OVERFL	*	
POLAR	Polar notation	Flag	POLAR	L ; ⊙	SBI L ; ⊙ is shown if flag SBcpv is SET
	Polar notation	Setting (pgm)	POLAR	⊙	
PROFPR	Proper fractions	Flag	PROFPR	a ^b /n ; b/n ; [+±] ; a ^b /cx1 ; b/cx1 ; [+±]	
	Proper fractions	Setting	PROFPR	a ^b /n ; b/n ; [+±] ; a ^b /cx1 ; b/cx1 ; [+±]	
RAD	Set ADM to RAD	Setting (pgm)	SBang	*	
RECT	Rectangular notation	Setting (pgm)	POLAR	r	
RUNTIM	Stopwatch running	Flag (system)	RUNTIM	⌚	SBI ⌚ is shown if flag SBstw is SET
SBadm	Show degree symbol	Flag	SBadm	(°)	Flag SBang
SBang	Show angle symbol	Flag	SBang	(°)	Flag SBadm
SBbatV	Show battery depletion	Flag	SBbatV	($\overline{u}$)	flag LOWBAT is SET
SBcpv	Show complex mode	Flag	SBcpv	(L ; ⊙)	Flag POLAR
SBcr	Show complex results	Flag	SBcr	(C ; R)	
SBdate	Show date	Flag	SBdate	(CLK ; YY)	Flag SBtime
SBfrac	Show Fractions Mode and #BASE Mode	Flag	SBfrac	(a ^b /n ; b/n ; [+±] ; a ^b /cx1 ; b/cx1 ; [+±] ; #BASE ; #KEYA- <i>r</i>)	
SBint	Show integer mode	Flag	SBint	(<u>+<cm>)	Setting WSIZE

Label	FullName	Type	FLAG	Annunciator	Determined by
SBmx	Show matrix mode	Flag	SBmx	(w ^{ap} ; grow)	Flag GROW
SBpc	Show overflow/carry mode	Flag	SBpc	(^a ; c)	
SBprn	Show printing	Flag	SBprn	($\bar{a}$)	
SBser	Show serial I/O	Flag	SBser	($\dagger$)	
SBshfR	Show shift on the right	Flag	SBshfR	($\overline{f}$; $\overline{D}$)	
SBss	Show stack size	Flag	SBss	($\S$; $\mathbb{H}$)	
SBstw	Show stopwatch running	Flag	SBstw	($\overline{O}$)	
SBtime	Show time	Flag	SBtime	(HH24:MM ; HH:MMam/pm)	Flag SBdate
SBtvm	Show TVM mode	Flag	SBtvm	(END ; BEG)	Flag ENDPMT
SBuoy	Show Week of Year and day number	Flag	SBuoy	(Ww#-d#)	Flag SBdate
SIGNMT	Sign and mantissa	Setting (pgm)	SBint	<w>;s	SBI <w>;s is shown if flag SBint is SET
SSIZE#	Get Stack size	Command	SSIZE#	# ; $\mathbb{H}$	
SSIZE $\mathbb{H}$	Stack size $\mathbb{H}$	Setting (pgm)	SSIZE#	$\mathbb{H}$	
SSIZE#	Stack Size #	Flag	SSIZE#	# ; $\mathbb{H}$	SBI # ; $\mathbb{H}$ is shown if flag SBss is SET
	Stack Size #	Setting (pgm)	SSIZE#	#	
STOPW	Stopwatch	App	RUNTIM	$\overline{O}$	
SUP	Normal-super-subscript	Setting (cyclic)		AA ^A ; aa ^a ; $\mathbb{H}^{\mathbb{H}}$	
TDH24	Time display 24h	Flag	TDH24	HH24:MM ¹ ; HH:MMam/pm	Setting CLK24 ; SBI is shown if flag SBtime is SET
UNSIGN	Unsigned	Setting (pgm)	SBint	<w>;u	SBI <w>;u is shown if flag SBint is SET
USB	USB Power	Flag (system)	USB	$\overline{U}$	
USER	USER mode	Flag	USER	$\overline{U}$	
	USER mode	Setting	USER	$\overline{U}$	
WOYiso	ISO Week of Year rule	Setting (pgm)	SBuoy	Ww#-d#	SBI Ww#-d# is shown if flag SBuoy is SET
WOYME	Middle East Week of Year rule	Setting (pgm)	SBuoy	Ww#-d#	SBI Ww#-d# is shown if flag SBuoy is SET
WOYUS	US Week of Year rule	Setting (pgm)	SBuoy	Ww#-d#	SBI Ww#-d# is shown if flag SBuoy is SET
WRAP	Grow (matrix edit)	Setting	GROW	w ^{ap}	
WSIZE	Set word size	Setting (pgm)	SBint	#<#<#>	SBI #<#<#> is shown if flag SBint is SET
YMD	Year-month-day	Flag (system)	YMD	YYYY-MM-DD	SBI is shown if flag SBdate is SET
	Year-month-day	Setting (pgm)	YMD	YYYY-MM-DD	
α CAP	Alpha capslock	Flag (system)	CAPS	A ; a	

C47 Ref page : Assignment (to USER mode buttons or keys)

Goal	Object	Command	Navigate/press	Action	Target or Action				
ASSIGN	Function	ASN (f[1])	+	Keyboard	press (function) key	+	<keyboard-key> 1)	OR	<menu-button> 2a)
		ASN (f[1])	+	CAT.FCNS	select function	+	<keyboard-key>	OR	<menu-button>
		ASN (f[1])	+	α (f[XEQ])	spell function name + [ENTER]	+	<keyboard-key>	OR	<menu-button>
	Menu	ASN (f[1])	+	CAT.MENUS	select menu	+	<keyboard-key>	OR	<menu-button>
		ASN (f[1])	+	α (f[XEQ])	spell menu name + [ENTER]	+	<keyboard-key>	OR	<menu-button>
	Programs	ASN (f[1])		CAT.PROGS	select program	+	<keyboard-key>	OR	<menu-button>
	Variable	ASN (f[1])		CAT.VARS	select variable	+	<keyboard-key>	OR	<menu-button>
	Character	ASN ([α.1] fF4)	+	Keyboard	press character key	+	<AIM>-key>	OR	Myα-button
		ASN ([α.1] fF4)	+	A...Ω, αMath, αMisc, αINTL	press character button	+	<AIM>-key>	OR	Myα-button
	Unassign	Function, Menu, Program, Variable	ASN (f[1])	+	[ENTER]	press key	+	<keyboard-key> 3)	OR
Character		ASN ([α.1] fF4)	+	[ENTER]	press key	+	<AIM>-key>	OR	Myα-button
Create	User defined menu	ASN (f[1])	+	USER (f[2])	spell menu name + [ENTER]				
Delete	User defined menu	DELITM ([DELETE.1] gF6)	+	CAT.MENUS	select menu				
All assignments are shown in KEYMAP e.g. on [CAT.1] f F6 (this includes the Normal Mode assignments made in menu Σ+ KEY on [KEYS.1] F1) Assignment can also be performed by selecting the object as any item already assigned to a key or button To assign ENTER to a target, or to assign to the [ENTER] key, spell the name 'ENTER' To assign EXIT to a target, or to assign to the [EXIT] key, spell the name 'EXIT' To assign USER to a target, or to assign to the USER (f[2]) key, spell the name 'USER' (toggle flag USER to get out of USER mode if necessary) To assign ↑ or ↓ to a target, or to assign to the [▲] or [▼] keys, spell the name as 'UP' or 'DOWN' respectively To assign ← (Backspace) to a target, or to assign to the [←] key, spell the name 'BKSPC' To assign <f>, f/g or <g> to a target, select <f>, <g> or f/g from catalog ; the key [f/g] cannot be assigned to (but see note 1) The command α cannot be assigned to a target, nor can the key α (f[XEQ]) be assigned to Assigning to a menu button is allowed for user menus (user defined, Myα, MyMenu, HOME, P.FN ; these menus show 'rivets' to indicate targets To remove all keyboard and menu assignments, use the respective commands in menu RESETS on [KEYS.1] F3									
1) Assigning to longerpress [f/g] is possible ; this is shown in the KEYMAP (for the shift key(s) : on the g-layer) the special assignment to the shift key is possible if either HOME^g or MyM^g is SET 2a) When assigning an item to a menu (user defined, Myα, MyMenu, HOME, P.FN), open the menu before the command ASN and return to it using [EXIT] 2b) During assignment, pressing USER (f[2]) opens MyMenu 2c) Assign "magic" conversions to a menu by choosing compatible pairs from the CONV menus and put them on F1/2, F3/4 or F5/6 (or shifted rows) when flag CONV_{HP} is CLEAR, to←→to is displayed, when CLEAR, from→←from ; conversions having the same category can be combined this way 3) When removing individual assignments, in some cases it is necessary to switch to Normal Mode first, pressing USER (f[2])									
1 Application note : https://47calc.com/doc/Application%20Notes/AN0018_C47_R47_Keyboard.pdf 2c Application note : https://47calc.com/doc/Application%20Notes/AN0024_C47_R47_JM_Assigning_custom_conversion_pairs.pdf									

C47 Ref page : Base digits -- dBASE (Setting on [DISP.2]F5)

Base	2-62
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Digit	Value
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Digit	Value
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19
K	20
L	21
M	22
N	23
O	24
P	25
Q	26
R	27
S	28
T	29
U	30
V	31
W	32
X	33
Y	34
Z	35

Digit	Value
a	36
b	37
c	38
d	39
e	40
f	41
g	42
h	43
i	44
j	45
k	46
l	47
m	48
n	49
o	50
p	51
q	52
r	53
s	54
t	55
u	56
v	57
w	58
x	59
y	60
z	61

Example

RJvM ₅₈	Value		Base		Power	Result
R	27	x	58	^	3	5268024
J	19	x	58	^	2	63916
v	57	x	58	^	1	3306
M	22	x	58	^	0	22
						5335268

C47 Ref page : BestF param -- MODEL (Model) in menu [REGR.1]gF4 : Functions to set parameter for which models are selected in the LR analysis

Label	Fullname	Description	AdditionalInfo
AllF	Set all (models)	Set <BestF> to include all curve fitting models (511) ; deselects OrthoF	L.R. selected to 511
ResetF	Reset fitting	Reset <BestF> to default (1)	L.R. selected to 001
OrthoF	Orthogonal fit	Select orthogonal curve fitting (used in PLSTAT) ; deselects other curve fit settings	Sets <BestF> to 0 ; TI : L.R. selected to OrthoF
L.R.	Linear Regression	Calculate all selected regression models, and select the one with the best coefficient of fit model correlation (r)	<model>* a ₂ = ; y = a ₁ = ; <formula> a ₀ =

Label	Fullname	Description	AdditionalInfo
LinF	Linear fit	Set <BestF> to include Linear curve fitting : $y = a_0 + a_1x$; deselects OrthoF	Adds 1 to <BestF> ; TI : L.R. selected to <BestF>.
ExpF	Exponential fit	Set <BestF> to include Exponential curve fitting : $y = a_0 e^{(a_1x)}$; deselects OrthoF	Adds 2 to <BestF> ; TI : L.R. selected to <BestF>.
LogF	Logarithmic fit	Set <BestF> to include Logarithmic curve fitting : $y = a_0 + a_1 \ln(x)$; deselects OrthoF	Adds 4 to <BestF> ; TI : L.R. selected to <BestF>.
PowerF	Power fit	Set <BestF> to include Power curve fitting : $y = a_0 x^{a_1}$; deselects OrthoF	Adds 8 to <BestF> ; TI : L.R. selected to <BestF>.
RootF	Root fit	Set <BestF> to include Root curve fitting : $y = a_0 a_1^{(1/x)}$; deselects OrthoF	Adds 16 to <BestF> ; TI : L.R. selected to <BestF>.
HypF	Hyperbolic fit	Set <BestF> to include Hyperbolic curve fitting : $y = (a_0 + a_1x)^{-1}$; deselects OrthoF	Adds 32 to <BestF> ; TI : L.R. selected to <BestF>.
ParabF	Parabolic fit	Set <BestF> to include Parabolic curve fitting : $y = a_0 + a_1x + a_2x^2$; deselects OrthoF	Adds 64 to <BestF> ; TI : L.R. selected to <BestF>.
CauchF	Cauchy peak fit	Set <BestF> to include Cauchy peak curve fitting : $y = [a_0 (x + a_1)^2 + a_2]^{-1}$; deselects OrthoF	Adds 128 to <BestF> ; TI : L.R. selected to <BestF>.
GaussF	Gauss peak fit	Set <BestF> to include Gauss peak curve fitting : $y = a_0 e^{[(x - a_1)^2 / a_2]}$; deselects OrthoF	Adds 256 to <BestF> ; TI : L.R. selected to <BestF>.

Label	Fullname	ResetF	Value	AllF	Value	Example	Value
LinF	Linear fit	ON	1	ON	1	ON	1
ExpF	Exponential fit	OFF	0	ON	2	ON	2
LogF	Logarithmic fit	OFF	0	ON	4	ON	4
PowerF	Power fit	OFF	0	ON	8	ON	8
RootF	Root fit	OFF	0	ON	16	OFF	0
HypF	Hyperbolic fit	OFF	0	ON	32	OFF	0
ParabF	Parabolic fit	OFF	0	ON	64	OFF	0
CauchF	Cauchy peak fit	OFF	0	ON	128	OFF	0
GaussF	Gauss peak fit	OFF	0	ON	256	OFF	0
		<BestF> =	1	<BestF> =	511	<BestF> =	15

C47 Ref page : CAT-FCNS					
Descriptions in https://47calc.com/doc/C47/Catalog/C47_Function_catalog.pdf					
1024 ⁿ □	10CMPL ○	10 ^x	16-BIT ○	1COMPL ○	1/x
2COMPL ○	2RCL	2STO	2 ^x	32-BIT ○	3DROP
3DUP	3RCL	3RCL _{I93}	3RCLV ₉₀	3RCLZ ₉₆	3R↔3P
3STO	3STOI ₉₃	3STOV ₉₀	3STOZ ₉₆	3SWAP	3↔x
42AIP	42ALENG	42ARCL	42AROT	42ASHF	42ASTO
42ATOX	42AVIEW	42CLA	42DIM#	42KEYG	42KEYX
42POSA	42PRA	42PRMPT	42I-	42VRMNU	42XTOA
42α	4SWAP	64-BIT ○	82240 ○	8-BIT ○	9CMPL ○
ActUSB	ADM ₀	ADM#	AGM	AGRAPH	ALL ₃ ○
AllF	am(u,m)	AND	ANGLE?	ARCCOS	arcosh
ARCSIN	ARCTAN	arsinh	artanh	ASRn	ASSIGN
ATAN2	AtoSYM	AVIEW	a,b→m	BACK	BAL
BASE _{HP} ▢	BATT	BCD □	BCDUNS ○	BC?	BEEP
BeginP ○	BestF ₁	BestF#	BIN	Binom _p	Binom _Δ
Binom _Δ	Binom ⁻¹	B _n	BOLD □	BST	BS?
BUZZ	B _n [*]	B.SWP	CARRY □	CASE	CauchF □
Cauch _p	Cauch _Δ	Cauch _Δ	Cauch ⁻¹	CB	CC
ceil	CENTRL	CF	CHS	CLCVAR	CLD
CLFALL	CLGRF	CLK12 ○	CLK24 ○	CLLCD	CLLCD _{xy}
CLMall	CLMENU	CLREGS	CLRMOD	CLSTK	CLTVM
CLVall	CLX	CLα	CLΣ	Clmatx?	CNORM
CNST	cn(u,m)	COMB	COMPLEX	Config?	CONJ
CONVG?	CORR	COS	cosh	COV	CPX _i ○
CPX _j ○	CPXmul □	CPXRES ▢	cpXSlv	cpXSlv _y ^x	CROSS
CSUM	C?	C→V ₂	C→R	C↔V ₂	Date→D
DAY	dBASE ₀	DBLR	DBLx	DBL÷	DEC
DECOMP	DECR	DEG ○	DELall	DELBkup	DELITM
DELMall	DELP	DELPall	DELvall	DENANY □	DENFIX □
DF ₀	DF#	DISK	DisU _p	DisU _Δ	DisU _Δ
DisU ⁻¹	dLrgLI ▢	DMCP	DMX ₆₄	DMX ₆₄	DMXmax
DMX#	DMY ○	dn(u,m)	DOT	Draw	Draw _y ^x
DRG	DROPx	DROPy	DSE	dSI ₂	DSL
DSP ₃	dSTACK ₄	DSZ	DT→J	dZ.0 □	D.MS ○
D?	D→J	D→x	D→zyx	EDIT	EFF→I/a
EIGVAL	EIGVEC	e ⁱ x	END	ENDP ○	ENG ○
ENG0VR ○	ENORM	ENTER	ENTRY?	EQ.DEL	EQ.EDIT
EQ.NEW	erf	erfc	eRPN ▢	ERR	EVEN?
e ^x	EXITALL	ExpF □	EXPltr	EXPnrg	Expon _p
Expon _Δ	Expon _Δ	Expon ⁻¹	EXPreg	EXPstk	EXPT
EXPxfnx	e ^x -1	E(m)	E(φ,m)	f	FACTORS
FB	FBR	FCOM, ○	FC?	FC?C	FC?F
FC?S	FDIGS ₃₄	FDIGS#	FDOT. ○	FF	fg.FUL ▢
fg.GR □	fg.LIM □	FIB	FILL	FIX ○	FLGS
floor	FNONE ○	FNSPC _Δ ○	FP	FPER. ○	FPGRP ₃
F _p (x)	FP?	FRACT □	FRCYC □	FSE _{ALL}	FSPC _Δ ○
FS?	FS?C	FS?F	FS?S	FTICK' ○	FUNDR_ ○
FWCOM, ○	FWDOT. ○	FWPER. ○	FWSPC _Δ ○	FWTICK' ○	F(φ,m)
F _Δ (x)	F _Δ (x)	F ⁻¹ (p)	f/g	f'(x)	f''(x)
g	GaussF □	GCD	gd	gd ¹	Geom _p
Geom _Δ	Geom _Δ	Geom ⁻¹	GEV _p	GEV _Δ	GEV _Δ
GEV ⁻¹	GRAD ○	GTO	g.2Tp ▢	HEX	HIDE ₀
HIDE#	HISTOX	HISTOY	H _n	HNORM	H _{nP}
HOMEb □	HOME _f ^g ▢	HOURL	HP12C □	HPLLOT	Hyper _p
Hyper _Δ	Hyper _Δ	Hyper ⁻¹	HypF □	H.MS→T	H→T
i C ○	i LI ○	i LI/R ○	i R ○	ICOM, ○	IDIV
IDIVR	IDOT. ○	Im	IMPORTr	Im=0?	Im≠0?

INCR	INDEX	INONE $\circ$	INPUT	INSPC _L $\circ$	INT?
IP	IPER. $\circ$	IPGRP ₃	IPGRP ₁₀	IPGRP _{1x0}	IRFRAC $\square$
ISE	ISG	ISM ₂	ISM#	ISPC _L $\otimes$	ISZ
ITICK' $\circ$	IUNDR_ $\circ$	IWCOM ₁ $\circ$	IWDOT $\bullet$ $\circ$	IWPER. $\circ$	IWSPC _L $\circ$
IWICK' $\circ$	I _{xyz}	I Γ_p	I Γ_q	i Π_n	i Σ_n
I+	I-	I $\rightarrow$ EFF/a	I=V:Z	JG.1582	JG.1752
JG.1873	JG.1949	J _y (x)	J+	J-	J/G
J/G#	J $\rightarrow$ DT	KEY _{A-F} $\square$	KEYG	KEYMAP	KEYX
KEY.LP $\square$	KEY?	KTYP	K(m)	k $\rightarrow$ m	LASTT
LASTx	LB	LBL	LBL?	LCM	LEAD.0 $\square$
LEAP?	LgNrm _p	LgNrm _A	LgNrm _A	LgNrm ⁻¹	LinF $\square$
LINPOL	LINT	LINT?	LJ	L _m	L _m ^(∞)
LN	LN β	LN Γ	LN(1+x)	LOAD	LOADP
LOADR	LOADSS	LOADST	LOADV	LOAD Σ	LocR
LocR#	LOG	LogF $\square$	Logis _p	Logis _A	Logis _A
Logis ⁻¹	LOG _{xy}	LR:a0	LR:a1	LR:a2	LSTERR
L.R.	MAN $\otimes$	MANT	Martel $\circ$	MASKL	MASKR
MATR?	Mat_X	MAX	MDY $\circ$	MEM	MENU
MENU#	MIN	MINUTE	MIRROR	MNU _{p1} $\square$	MOD
MONTH	MSG	MULTx $\otimes$	MULT $\bullet$ $\circ$	MUL π $\circ$	MVAR
MyMb $\square$	MyM _p ^g $\square$	M.C47	M.C47+	M.CMAX	M.CMIN
M-ENCTB	M-ENCTR	M.COL+1	M.CPX	M.C $\rightarrow$ C	M.DELC
M.DELR	M.DIM	M.DIMgr	M.DIMN#	M.EDIT	M.EDITN
M.ENG	M.FACT	M.FIN	M.FIND	M.FIN+	M.GETM
M.GOTO	M.GROW $\circ$	M.IDENT	M.INSR	M.INSR	M.LU
M.NEW	M.OLD	M.PUTM	M.QR	M.R47	M.R47+
M.ROW+1	M.R $\rightarrow$ R	M.SAV	M.SAV+	M.SQRT	M.SQR?
M.WRAP $\otimes$	m $\rightarrow$ k	M $\rightarrow$ zyx	m $\rightarrow$ 0	NAND	NaN?
NBin _p	NBin _A	NBin _A	NBin ⁻¹	NDEC#	NDEC ₃
NDROP	NDUP	NEIGHB	NEXTP	NNZ	NOP
NOR	NORM $\circ$	Norml _p	Norml _A	Norml _A	Norml ⁻¹
NOT	NSWAP	NUMBR?	NXTPER	n Σ	OCT
ODD?	OFF	OPENM	op_A	op_a	op_a ²
op_A ⁻¹	op_i	op_i $\otimes$	OR	OrthoF $\square$	OVERFL $\square$
P1 ₁	P2 ₁₂	ParabF $\square$	PAUSE	PERM	PGMINT
PGMPLT	PGMSLV	PIXEL	PLAY	PLSTAT	PLT f
PLTFCNS	PLTRST	P _n	POINT	Poiss _p	Poiss _A
Poiss _A	Poiss ⁻¹	POLAR $\circ$	PopLR	PowerF $\square$	PRIME?
PRNTR $\square$	PROMPT	PROPFR $\square$	Prto2 _p	Prto2 _A	Prto2 _A
Prto2 ⁻¹	Prto _p	Prto _A	Prto _A	Prto ⁻¹	PUTK
RAD $\circ$	RANI#	RAN#	RCL	RCLCFG	RCLEL
RCLIJ	RCLS	RCLSEQ	RCLVEL	RCLVEL ₁	RCLVEL ₂
RCLVEL ₃	RCL+	RCL-	RCLx	RCL.SKIP	RCL÷
RCL $\uparrow$	RCL $\downarrow$	RCOM ₁ $\circ$	RDOT $\bullet$ $\circ$	RDP	Re
READP	realSlv	realSlv _y ^x	RECT $\otimes$	REGS	REM
RESET	ResetF	Re $\rightarrow$ Im	Re=0?	Re $\neq$ 0?	RJ
RL	RLC	RLCn	RLn	Rmatx?	RMD
RMODE ₀	RMODE#	RNG ₆₁₄₅	RNG#	R _{nn} $\rightarrow$ V	RNORM
RootF $\square$	ROUND	ROUNDI	RPER. $\otimes$	RP _{HP} $\square$	RR
RRC	RRCn	RRn	RSD	RSUM	RTN
RTN.SKIP	RWCOM ₁ $\circ$	RWDOT $\bullet$ $\circ$	RWPER. $\circ$	R-CLR	R-COPY
R-SORT	R-SWAP	R?	R $\rightarrow$ C	R $\uparrow$	R $\downarrow$
s	SAVE	SAVEAUT	SAVEST	SB	SCATR
SCI $\circ$	SCIOVR $\otimes$	SDIGS ₃₄	SDIGS#	SDL	SDR
SECOND	SEED	SETDAT	SETTIM	SF	SHOW
SH.4s $\square$	SIG $\circ$	SIG0 $\square$	sign	SIGNMT $\circ$	SIM_EQ
SIN	sinc	sinc π	sinh	SINT	SINT?
SKIP	SL	SLn	SLVC	SLVQ	s _m
s _{mi}	s _{mw}	SNAP	sn(u,m)	SOLVE	SPCRES $\square$

SPEC?	SR	SRESET	SRn	SSIZE4 ○	SSIZE8 ◎
SSIZE#	SST	STATE	STATUS	ST0	STOCFG
STOEL	STOIJ	STOP	STOPW	STOS	STOSEQ
STOVEL	STOVEL ₁	STOVEL ₂	STOVEL ₃	ST0+	ST0-
ST0×	ST0÷	ST0↑	ST0↓	STRACE ○	STRI?
s _w	s _{xy}	SYMtoA	s(a)	S.CHN ◇	S.DFLT ◇
S.EUR ◇	S.IND ◇	S.JPN ◇	S.UK ◇	S.USA ◇	TAN
tanh	TDISP ₀	TICKS	Time→T	T _n	TONE
TOP?	t _p (x)	TRACE ○	TYPE	t _Δ (x)	t _Δ (x)
t ⁻¹ (p)	T?	T→zyx	t _z	ULP	U _n
UNDO	Unfm _p	Unfm _Δ	Unfm _Δ	Unfm ⁻¹	UNIT ○
UNITV	UNSIGN ○	UNZIP	$\bar{v}_2[01]$	$\bar{v}_2[10]$	$\bar{v}_2 \rightarrow \mathbb{C}$
$\bar{v}_2 \rightarrow yx$	$\bar{v}_3[001]$	$\bar{v}_3[010]$	$\bar{v}_3[100]$	$\bar{v}_3 \rightarrow zyx$	$\bar{v}_3 \rightarrow zy\mathbf{x}_M$
$\bar{v}_3 \rightarrow zy\mathbf{x}_p$	VARMNU	VECT2D?	VECT3D?	VERS	VIEW
VOL ₁₁	VOL↑ ₁₁	VOL↓ ₁₁	VOL#	V→R _{nn}	V=I×Z
WDAY	Weibl _p	Weibl _Δ	Weibl _Δ	Weibl ⁻¹	WHO
W _m	WOY	WOY _{ISO}	WOY _{ME}	WOY _{US}	WOY#
W _p	WRITEP	WRXPall	WSIZE ₆₄	WSIZE#	W ⁻¹
W.SWP	$\hat{x}$	$\bar{x}$	X→BAL	$\bar{x}_1$	X10^X
X1/X	x ²	x ³	XACOS	XADD	XASIN
XATAN	XATAN2	XCHS	XCOS	XDIV	XDRG
XEQ	XEQ.SKP	Xe^X	$\bar{x}_G$	$\bar{x}_H$	XIRR
XLN	XLOG	x _{MAD}	x _{MAX}	x _{MEDN}	x _{MIN}
XMOD	XMOD ₄	XMULT	XNOR	XOR	XPORTP
XPOWER	x _{R1}	x _{R3}	x _{RANGE}	XRDP	$\bar{x}_{RMS}$
XRSD	XSIN	XSQR	XSQRT	XSUB	x _{SUM}
XTAN	$\bar{x}_w$	XXRTY	$\sqrt[4]{y}$	Xπ	X.EDIT
X.SWAP	x!	x→D	X→DEG	X→RAD	X→XFN
x→α	x _z	x _z y	x< ?	x≤ ?	x= ?
x≈ ?	x≠ ?	x≥ ?	x> ?	x=+0 ?	x≥+0 ?
x≤-0 ?	x=-0 ?	x%ILE	$\hat{y}$	Y→Δ	YEAR
YMD ◎	y ^x	yx→ $\bar{v}_2$	yx↔ $\bar{v}_2$	YY ₀	YYoff
YYtrack	Y _y (x)	y _z	ZIP	ZOOM	zyx→D
zyx→M	zyx→T	zyx→ $\bar{v}_3$	$zyx \rightarrow \bar{v}_{3M}$	$zyx \rightarrow \bar{v}_{3p}$	zyx↔ $\bar{v}_3$
z _z	Z=V÷I	αIP	αLEFT	αLENG	αLOWER
αMID	αPARSE	αPOS	αREV	αRIGHT	αRL
αRR	αSL	αSR	αUPPER	αTRIM	α→x
β(x,y)	Γ _{xy}	γ _{xy}	Γ(x)	Δ→Y	Δ%
Δ% $\bar{x}_1$	ε	ε _m	ε _p	ζ(x)	Z(φ,m)
θ→m	Π _n	Π(n,m)	σ	σ ₀	σ ₁
σ ₁ *	ΣINT	σ _k	σ _k *	Σln ² x	Σln ² y
Σlnx	Σlnx·lny	Σlny	Σ _n	ΣPRN	σ _w
Σx	Σx ²	Σx ² y	Σx ² y ⁻¹	Σx ² ·lny	Σx ³
Σx ⁴	Σxy	Σxy ⁻¹	Σx ⁻¹	Σx ⁻¹ ·lny	Σx ⁻²
Σx·lny	Σy	Σy ²	Σy ⁻¹	Σy ⁻²	Σy·lnx
Σ+	Σ-	φ _E	φ _p	φ _Δ	φ _Δ
φ ⁻¹	χ _p ² (x)	χ _Δ ² (x)	χ _Δ ² (x)	(χ ²) ⁻¹	(-1) ^x
[M] ^T	[M] ⁻¹	+	±∞?	-	×
xMOD	^MOD	.ms	.ms ⁻¹	÷	→CYL
→DEG	→D.MS	→GRAD	→I	→INT	→MULπ
→POLAR	→POL _{Cx}	→POL _{hp}	→RAD	→REAL	→RECT
→RECT _{Cx}	→RECT _{hp}	→SPH	↑BIN	↓BIN	z
	M	x	x _p	x̄-ȳ ₂	%
%MRR	%T	%Σ	%Σ,Δ% $\bar{x}_1$	%+MG	√x
√(1+x ²)	∫f d	∫ _y ^x	z	z _x , y _y	▣ADV
▣ALLr	▣CHAR	▣DELAY ₁₈	▣LCD	▣LIST	▣MODE
▣OFF ◎	▣ON ○	▣PROG	▣r	▣REGS	▣STK
▣TAB	▣USER	▣WIDTH	▣x	▣XFN	▣xy
▣α	▣Σ	▣#	#B		

C47 Ref page : CAT-MENUS					
Descriptions in https://47calc.com/doc/C47/Catalog/C47_Menu_catalog.pdf					
42	ADV	ALLVARS	ALPHA	AMORT	ANGLES
Angle:	Area:	AUDIO	BASE	BASE2	Binom:
BITS	BITSET	BLUE47	CASHFL	CATALOG	CATe
CAT α	Cauch:	CHARS	Chef:	CLK	CLR
CNST	CONFIGS	CONV	CPX	CPXS	DATES
DELETE	DISP	DISTR	DisUni:	ELEC	ELLIPT
Energy:	EQN	EXP	Expon:	f Graph	f Solve
FCNS	FCNSe	FFF+:	FIN	FLAG	FLoads:
FPART	F:	f'	f''	F&p:	Geom:
GEV:	Graphs	HIST	HOME	HPLOT	Hyper:
INFO	INTS	IPART	I/O	KEYS	Length:
Logis:	LOOP	L.INTS	Mass:	MatPrp:	MATRS
MATX	MENU	MENUS	Misc:	MLoads:	MODE
MODEL	MULTSTK	MyMenu	My α	M_EDIT	M_SIMQ
Norml:	NUMBRS	NumTh	ORTHOG	Pareto:	PLoads:
PLOT	Poiss:	Power:	PREF	Prefix	PRINT
PROB	PROG	PROGS	P.FN	P.FN1	P.FN2
P.FN3	RADIX	REAL	REALS	REGR	RESETS
RIBBONS	SecPrp:	Speed:	STAT	STK	STRINGS
Struct:	SYS.FL	S.INTS	Temp:	TEST	TIMES
Tools	Tool $\int$	TRG	TRG...	TRG_R47	TVM
t:	Uniform:	VAR	VARS	VECTOR	Volume:
$\bar{v} \leftrightarrow \bar{v}$	Weibl:	XFCNS	X.FN	Ymmv:	α INTL
α intl	α Math	α Misc	α .FN	A... Ω	α ... ω
Φ :	χ^2 :	$\int f$	$\int f d$		$\square \Sigma$ +KEY

C47 Ref page : Configuration

Internal reference	Variable	Label	Type	Default	Description
<i>shortIntegerMode</i>	ISM	SIGNMT	Setting (pgm)	OFF	Set sign and mantissa mode for Short integer (ISM = -1)
	ISM	UNSIGN	Setting (pgm)	OFF	Set unsigned mode for Short integer (ISM = 0)
	ISM	1COMPL	Setting (pgm)	OFF	Set 1's complement mode for Long integer (ISM = 1)
	ISM	2COMPL	Setting (pgm)	ON	Set 2's complement mode for Long integer (ISM = 2)
<i>shortIntegerWordSize</i>		WSIZE	Setting (pgm)	64	Set word size in bits, for Short integer (8.02-8.16)
<i>displayFormat</i>	DF	FIX	Setting (pgm)	OFF	Set numeric display mode to fixed notation with nn decimals (NDEC = nn = 0-19 ; DF = 1)
	DF	SCI	Setting (pgm)	OFF	Set numeric display mode to scientific notation with nn decimals = nn+1 digits (NDEC = nn = 0-19 ; DF = 2)
	DF	ENG	Setting (pgm)	OFF	Set numeric display mode to engineering notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 3)
	DF	UNIT	Setting (pgm)	OFF	Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024 ⁿ is SET, binary prefixes are shown if available and long integer values are indicated by Z: ; prefixes can be selected directly from menu Prefix
	DF	SIG	Setting (pgm)	OFF	Set numeric display mode to significant digits notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 4) ; switching over to scientific or engineering notation when number of rounded trailing zeros exceeds group size (IPGRP)
	DF	ALL	Setting (pgm)	3	Set numeric display mode to ALL digits notation ; display all digits as far as possible with maximum nn decimal zeros (NDEC = nn = 0-19 ; DF = 0)
<i>displayFormatDigits</i>	NDEC	DSP	Setting (pgm)	3	Set display mode precision (only) ; applies to FIX, SCI, ENG, UNIT, SIG, ALL
<i>gapItemLeft</i>		PER.	Setting (pgm)	OFF	Set integer part separator to period
		COM,	Setting (pgm)	OFF	Set integer part separator to comma
		DOT·	Setting (pgm)	OFF	Set integer part separator to dot
		WPER.	Setting (pgm)	OFF	Set integer part separator to wide period
		WCOM,	Setting (pgm)	OFF	Set integer part separator to wide comma
		WDOT ·	Setting (pgm)	OFF	Set integer part separator to wide dot
		TICK'	Setting (pgm)	OFF	Set integer part separator to narrow tick
		SPC_	Setting (pgm)	ON	Set integer part separator to space
		NONE	Setting (pgm)	OFF	Set integer part separator to <none>
		WTICK'	Setting (pgm)	OFF	Set integer part separator to tick
		WSPC_	Setting (pgm)	OFF	Set integer part separator to double space
		UNDR_	Setting (pgm)	OFF	Set integer part separator to underscore
		NSPC_	Setting (pgm)	OFF	Set integer part separator to narrow space
		PER.	Setting (pgm)	OFF	Set fractional part separator to period
<i>gapItemRight</i>		COM,	Setting (pgm)	OFF	Set fractional part separator to comma
		DOT·	Setting (pgm)	OFF	Set fractional part separator to dot
		WPER.	Setting (pgm)	OFF	Set fractional part separator to wide period
		WCOM,	Setting (pgm)	OFF	Set fractional part separator to wide comma
		WDOT ·	Setting (pgm)	OFF	Set fractional part separator to wide dot
		TICK'	Setting (pgm)	OFF	Set fractional part separator to narrow tick
		SPC_	Setting (pgm)	ON	Set fractional part separator to space
		NONE	Setting (pgm)	OFF	Set fractional part separator to <none>
		WTICK'	Setting (pgm)	OFF	Set fractional part separator to tick
		WSPC_	Setting (pgm)	OFF	Set fractional part separator to double space
		UNDR_	Setting (pgm)	OFF	Set fractional part separator to underscore
		PER.	Setting (pgm)	OFF	Set fractional part separator to period
		COM,	Setting (pgm)	OFF	Set fractional part separator to comma
		DOT·	Setting (pgm)	OFF	Set fractional part separator to dot

Internal reference	Variable	Label	Type	Default	Description
		NSPC.	Setting (pgm)	OFF	Set fractional part separator to narrow space
gapItemRadix		PER.	Setting (pgm)	ON	Radix decimal period
		COM,	Setting (pgm)	OFF	Radix decimal comma
		DOT.	Setting (pgm)	OFF	Radix decimal dot
		WPER.	Setting (pgm)	OFF	Radix decimal wide period
		WCOM,	Setting (pgm)	OFF	Radix decimal wide comma
		WDOT.	Setting (pgm)	OFF	Radix decimal wide dot
grpGroupingLeft		IPGRP	Setting (pgm)	3	Set integer part group size (2-9 digits) ; not for SCI or ENG notation
grpGroupingGr1LeftOverflow		IPGRP1x	Setting (pgm)	0	Allow the first group to the left of the radix to contain one more digit (up to 1-9) than the number of digits specified by IPGRP1 ; a value of 0 means this setting is ignored (IPGRP1 is followed)
grpGroupingGr1Left		IPGRP1	Setting (pgm)	0	Set number of digits of the first group to the left of the radix to be different from IPGRP ; a value of 0 means this setting is ignored (IPGRP is followed)
grpGroupingRight		FPGRP	Setting (pgm)	3	Set fractional part group size (2-9 digits)
currentAngularMode	ADM	DEG	Setting (pgm)	ON	Set Angular Display Mode to degrees mode (ADM = 0)
	ADM	D.MS	Setting (pgm)	OFF	Set Angular Display Mode to sexagesimal degrees mode (ADM = 1)
	ADM	RAD	Setting (pgm)	OFF	Set Angular Display Mode to radians mode (ADM = 2)
	ADM	MUL π	Setting (pgm)	OFF	Set Angular Display Mode to multiple of pi radians mode (ADM = 3)
	ADM	GRAD	Setting (pgm)	OFF	Set Angular Display Mode to gradians mode (ADM = 4)
lrSelection		BestF	Setting (pgm)	1	Select curve fit model(s) by setting parameter value directly
lrChosen		<none>	<none>	<none>	Not a user item, this remembers where the "*" indicating which of the LR methods succeeded ; <none>
denMax	DMX	DMX	Setting (pgm)	64	Set max denominator for fractions [TAM variant] ; maximum value of 32500 is set by button DMXmax on [TamNonRegMax.1] F2, stored as 0 and displayed as DMX _{max}
displayStack		dSTACK	Setting (pgm)	4	Set the number of stack registers to be displayed
firstGregorianDay		J/G	Function (monadic)	1752-09-14	Set the day that Julian date changes over to Gregorian date (using date in X)
roundingMode		RMODE	Setting (pgm)	0	Set floating point rounding mode ; used for RSD and RDP ; also used when converting from the extended precision internal format to packed reals ; 0 : $\frac{1}{2}E$ = round half even ; 1 : $\frac{1}{2}\uparrow$ = round half up ; 2 : $\frac{1}{2}\downarrow$ = round half down ; 3 : $\leftarrow 0 \rightarrow$ = round away from zero ; 4 : $\rightarrow 0 \leftarrow$ = round towards zero ; 5 : $\lceil x \rceil$ = ceiling ; 6 : $\lfloor x \rfloor$ = floor
systemFlags0		<none>	<none>	<none>	Not a user item, this variable stored represents the first 64 SFL flags ; <none>
systemFlags1		<none>	<none>	<none>	Not a user item, this variable stored represents the second 64 SFL flag ; <none>
kbd_usr		<none>	<none>	<none>	Not a user item, this variable stores all 37 USER keys - If not configured, they are a copy of the standard non-user keys ; <none>
fgLN		fg.OFF	Setting (pgm)	OFF	Do not show horizontal f- and g-lines indicating the state of the f-shift or g-shift in menus
		fg.LIM	Setting (pgm)	OFF	Switch on menu f,g-highlighting limited
		fg.FUL	Setting (pgm)	ON	Switch on menu f,g-highlighting full
HOME3		HOME _{f³}	Setting	ON	Switch on HOME menu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag HOME _{f³}
ShiftTimeoutMode		SH.4s	Setting	OFF	Switch on shift time-out of 4s ; not programmable - in PEM, use flag SH.4s
BASE_HOME		HOME _b	Setting	OFF	Switch on HOME menu shown ; not programmable - in PEM, use flag HOME _b
Input_Default		i LI/R	Setting (pgm)	ON	New numeric input is put on the stack as Long integer (0) or Real number (1.0-1.5)
		i R	Setting (pgm)	OFF	New numeric input is put on the stack as Real number (1.0-1.5)
		i C	Setting (pgm)	OFF	New numeric input is put on the stack as Complex number (2.0-2.5)
		i LI	Setting (pgm)	OFF	New numeric input is put on the stack as Long integer (0) and entry of the decimal radix is ignored
dispBase		dBASE	Setting (pgm)	0	Display long integer in X as base number in the T-line (base 2-62) ; exit by entering dBASE 0
BASE_MYM		MyMb	Setting	ON	Switch on MyMenu shown ; not programmable - in PEM, use flag MyMb

Internal reference	Variable	Label	Type	Default	Description
<i>jm_G_DOUBLETAP</i>		g.2Tp	Setting	ON	Switch on double tap function keys for g-shift ; not programmable - in PEM, use flag g.2Tp
<i>Norm_Key_00.func</i>		Σ+ KEY	MENU		Not a user item, these 3 variables store the NRM00 key ; Special hotkey assignments to key [Σ+] in NORMAL mode
<i>Norm_Key_00.funcParam</i>		Σ+ KEY	MENU		Not a user item, these 3 variables store the NRM00 key ; Special hotkey assignments to key [Σ+] in NORMAL mode
<i>Norm_Key_00.used</i>		Σ+ KEY	MENU		Not a user item, these 3 variables store the NRM00 key ; Special hotkey assignments to key [Σ+] in NORMAL mode
<i>fractionDigits</i>		FDIGS	Setting (pgm)	34	Set the number of significant digits (1-34) used by the approximations of the fraction modes ; SBI ≈ indicates fractions can be approximated to be close enough (displayed if FDIGS < 34)
<i>IrFractionsCurrentStatus</i>		IRFR	Flag (system)	CLEAR	SET for irrational fractions mode preferred; CLEAR for irrational fractions mode not preferred
<i>displayStackSHOIDISP</i>		dSI	Setting (pgm)	2	Set the short integer split screen lines for the display of X in #BASE Mode
<i>bcdDisplaySign</i>		BCDUNS	Setting (pgm)	ON	Set BCD unsigned display of Long integer in #BASE Mode
<i>DRG_Cycling</i>		DRG	Function (monadic, cyclic, r		Not a user item, stores the current DRG selection ; Add ADM tag to untagged value in X, convert tagged value to degrees-radians-gradians (cyclic)
<i>DM_Cycling</i>		FSE	Setting (cyclic)	ALL	Not a user item, stores the current Display Mode selection ; Display mode cycling (FIX ; SCI ; ENG ; UNIT ; SIG ; ALL)
<i>LongPressM</i>		M.1234	Setting (pgm)	ON	Longpress control : Math keys do full cycle
		M.124	Setting (pgm)	OFF	Longpress control : Math keys skip g-shift
		M.14	Setting (pgm)	OFF	Longpress control : Math keys skip f- and g-shift
<i>LongPressF</i>		F.1234	Setting (pgm)	OFF	Longpress control : Function keys do full cycle
		F.124	Setting (pgm)	ON	Longpress control : Function keys skip g-shift
		F.14	Setting (pgm)	OFF	Longpress control : Function keys skip f- and g-shift
<i>lastDenominator</i>		<none>	<none>	<none>	Not a user item, this is the memory of the last denominator used in the .. notation of entering fractions ; <none>
<i>significantDigits</i>		SDIGS	Setting (pgm)	34	Set the number of significant digits (1-34) for rounding after each operation ; sets tolerance of solvers, plotting and CONVG? ; value of 0 sets maximum precision (34)
<i>pcg32_global</i>		<none>	<none>	<none>	Not a user item, this is the seed for the random number generator ; <none>
<i>exponentLimit</i>		RNG	Setting (pgm)	6145	Set number range as 10^{nn} , where nn in [99, 6145]
<i>exponentHideLimit</i>		HIDE	Setting (pgm)	0	Set parameter to hide small Real numbers or parts ; display ≈0. for numbers with absolute values $< 10^{-n}$, where n in [12, 99] ; useful e.g. in matrices ; reset by HIDE 0 ; when menu XFCNS is open, setting HIDE is ignored
<i>lastIntegerBase</i>		<none>	<none>	<none>	Not a user item, this is the memory of the last base used for SI entry ; <none>
<i>MYM3</i>		MyMf³	Setting	OFF	Switch on MyMenu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag MyMf ³
<i>timeDisplayFormatDigits</i>		TDISP	Setting (pgm)	0	Set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds

C47 Ref page : Constants -- CNST (Constants) on key g[+] or in menu [CAT.1]F2

Label	CNST-param	PEM #	Abbreviated name	FullName	Value	Unit
Δ_g	00	# 1	yr.gregori	Days per year (Gregorian)	$+3.652425 \times 10^2$	d
r_{Bohr}	01	# 2	rad.bohr	Bohr radius	$+5.29177210544 \times 10^{-11}$	m
a_{Moon}	02	# 3	orb.moon	Moon orbit (semi major axis)	$+3.844 \times 10^8$	m
a_E	03	# 4	orb.earth	Earth orbit (semi major axis)	$+1.495979 \times 10^{11}$	m
c	04	# 5	lightspeed	Speed of light (vacuum)	$+2.99792458 \times 10^8$	m/s
C_1	05	# 6	c.radiatn1	1st radiation constant	$+3.741771852192758011367155555929985 \times 10^{-16}$	Wm ²
C_2	06	# 7	c.radiatn2	2nd radiation constant	$+1.438776877503933802146671601543912 \times 10^{-2}$	mK
e	07	# 8	charge.elem	Elementary charge	$+1.602176634 \times 10^{-19}$	As
e	08	# 9	e.euler	Euler's	$+2.718281828459045235360287471352662$	
F	09	# 10	c.faraday	Faraday constant	$+9.64853321233100184 \times 10^4$	As/mol
F_α	10	# 11	a.feigenbm	Feigenbaum alpha	$+2.502907875095892822283902873218216$	
F_δ	11	# 12	d.feigenbm	Feigenbaum delta	$+4.669201609102990671853203820466202$	
G	12	# 13	c.grav.nwt	Newtonian constant of gravitation	$+6.6743 \times 10^{-11}$	m ³ /kg.s ²
G_0	13	# 14	cond.quant	Conductance quantum	$+7.748091729863650646680823323308764 \times 10^{-5}$	Ω^{-1}
G_C	14	# 15	c.catalan	Catalan's constant	$+9.159655941772190150546035149323841 \times 10^{-1}$	
g_e	15	# 16	gfact.elec	Landé's electron g-factor	-2.00231930436092	
GM_E	16	# 17	c.grav.geo	Geocentric gravitational constant	$+3.986004418 \times 10^{14}$	m ³ /s ²
g_E	17	# 18	acc.earth	Standard Earth acceleration	$+9.80665$	m/s ²
h	18	# 19	c.planck	Planck constant	$+6.62607015 \times 10^{-34}$	Js
$\hbar$	19	# 20	red.planck	Reduced Planck constant	$+1.05457181764615639126428003302281 \times 10^{-34}$	Js
k_B	20	# 21	c.boltzmn	Boltzmann constant	$+1.380659 \times 10^{-23}$	J/K
K_J	21	# 22	c.josephsn	Josephson constant	$+4.835978484169836324476582850545281 \times 10^{14}$	Hz/V
l_{PL}	22	# 23	len.planck	Planck length	$+1.616255 \times 10^{-35}$	m
m_e	23	# 24	mass.elec	Electron rest mass	$+9.1093837139 \times 10^{-31}$	kg
M_{Moon}	24	# 25	mass.moon	Mass of the Moon	$+7.349 \times 10^{22}$	kg
m_n	25	# 26	mass.neu	Neutron rest mass	$+1.67492750056 \times 10^{-27}$	kg
m_n/m_p	26	# 27	r.neu.prot	Neutron / proton rest mass	$+1.00137841946$	
m_p	27	# 28	mass.prot	Proton rest mass	$+1.67262182595 \times 10^{-27}$	kg
m_{pL}	28	# 29	mass.planck	Planck mass	$+2.176434 \times 10^{-8}$	kg
m_p/m_e	29	# 30	r.prot.elec	Proton / electron rest mass	$+1.83615267342 \times 10^3$	
m_u	30	# 31	mass.atom	Atomic mass constant	$+1.6605390689 \times 10^{-27}$	kg
$m_u c^2$	31	# 32	energy.atom	Energy equivalent of m_u	$+1.4924180876 \times 10^{-10}$	J
m_μ	32	# 33	mass.muon	Muon rest mass	$+1.883531627 \times 10^{-28}$	kg
$M_\odot$	33	# 34	mass.sun	Mass of the Sun	$+1.9891 \times 10^{30}$	kg
M_E	34	# 35	mass.earth	Mass of the Earth	$+5.9736 \times 10^{24}$	kg
N_A	35	# 36	nr.avogadro	Avogadro's number	$+6.02214076 \times 10^{23}$	/mol
NaN	36	# 37	not.a.nr	Not a Number	Not a number	
p_0	37	# 38	press.atm	Standard atmospheric pressure	$+1.01325 \times 10^5$	Pa
R	38	# 39	c.mol.gas	Molar gas constant	$+8.31446261815324$	J/mol K
r_e	39	# 40	rad.elec	Classical electron radius	$+2.8179403205 \times 10^{-15}$	m
R_K	40	# 41	c.klitzing	Von Klitzing constant	$+2.581280745930450666004551670608744 \times 10^4$	Ω
R_{Moon}	41	# 42	rad.moon	Mean radius of the Moon	$+1.73753 \times 10^6$	m
R_∞	42	# 43	c.rydberg	Rydberg constant	$+1.097373156815 \times 10^7$	/mol
$R_\odot$	43	# 44	rad.sun	Mean radius of the Sun	$+6.96 \times 10^8$	m
R_E	44	# 45	rad.earth	Mean radius of the Earth	$+6.37101 \times 10^6$	m
S_{aE}	45	# 46	majax.earth	Semi-major axis of the Earth	$+6.378137 \times 10^6$	m
S_{bE}	46	# 47	minax.earth	Semi-minor axis of the Earth	$+6.3567523142 \times 10^6$	m
Se^2	47	# 48	sq.eccentr1	1st eccentricity squared	$+6.69437999014 \times 10^{-3}$	
Se'^2	48	# 49	sq.eccentr2	2nd eccentricity squared	$+6.7394674228 \times 10^{-3}$	
Sf^{-1}	49	# 50	f.flatteng	Flattening factor	$+2.98257223563 \times 10^2$	
T_0	50	# 51	temp.stand	Standard temperature	$+2.7315 \times 10^2$	K
T_P	51	# 52	temp.planck	Planck temperature	$+1.416784 \times 10^{32}$	K
t_{PL}	52	# 53	time.planck	Planck time	$+5.391247 \times 10^{-44}$	s
V_m	53	# 54	volume.gas	Volume of ideal gas	$+2.241396954501413773501110288675056 \times 10^{-2}$	m ³ /mol
Z_0	54	# 55	imped.vac	Characteristic impedance of vacuum	$+3.76730313412 \times 10^2$	Ω
α_F	55	# 56	c.finestruc	Fine-structure constant	$+7.2973525643 \times 10^{-3}$	
K_0	56	# 57	c.khinchin	Khinchin constant	$+2.685452001065306445309714835481796$	
γ_{EM}	57	# 58	c.eul.masoc	Euler-Mascheroni constant	$+5.772156649015328606065120900824024 \times 10^{-1}$	
γ_p	58	# 59	r.gyro.prot	Proton gyromagnetic ratio	$+2.6752218708 \times 10^8$	
$\Delta\nu_{Cs}$	59	# 60	frq.hypf.cs	Hyperfine transition frequency of ¹³³ Cs	$+9.19263177 \times 10^9$	Hz
ϵ_0	60	# 61	epermt.vac	Vacuum electric permittivity	$+8.8541878188 \times 10^{-12}$	As/Vm
λ_C	61	# 62	wavl.elec	Compton wavelength of the electron	$+2.42631023538 \times 10^{-12}$	m
λ_{Cn}	62	# 63	wavl.nu	Compton wavelength of the neutron	$+1.31959090382 \times 10^{-15}$	m
λ_{Cp}	63	# 64	wavl.prot	Compton wavelength of the proton	$+1.32140985360 \times 10^{-15}$	m
μ_0	64	# 65	mperm.vac	Vacuum magnetic permeability	$+1.25663706127 \times 10^{-6}$	Vs/Am
μ_B	65	# 66	magn.both	Bohr's magneton	$+9.274010065 \times 10^{-24}$	J/T
μ_e	66	# 67	mgnom.elec	Electron magnetic moment	$-9.2847646917 \times 10^{-24}$	J/T
μ_e/μ_B	67	# 68	r.elec.bohr	Electron magnetic moment / Bohr's magneton	-1.00115965218046	
μ_n	68	# 69	magnom.neu	Neutron magnetic moment	$-9.6623653 \times 10^{-27}$	J/T
μ_p	69	# 70	mgnom.prot	Proton magnetic moment	$+1.41060679545 \times 10^{-26}$	J/T
μ_ν	70	# 71	magn.nucl	Nuclear magneton	$+5.0507837393 \times 10^{-27}$	J/T
μ_μ	71	# 72	mgnom.muon	Muon magnetic moment	$-4.4904483 \times 10^{-26}$	J/T
σ_B	72	# 73	c.stephbol	Stefan-Boltzmann constant	$+5.670374419184429453970996731889231 \times 10^{-8}$	W/m ² K ⁴
ϕ	73	# 74	r.golden	Golden ratio	$+1.618033988749894848204586834365638$	
Φ_0	74	# 75	fluxq.magn	Magnetic flux quantum	$+2.067833848461929323081115412147497 \times 10^{-15}$	Vs
ω_E	75	# 76	vangl.earth	Nominal mean angular velocity of the Earth	$+7.292115 \times 10^{-5}$	rad/s
$-\infty$	76	# 77	inf.minus	Minus infinity	$-\infty$	
$+\infty$	77	# 78	inf.plus	Plus infinity	$+\infty$	
0	78	# 79	zero	Zero	0	
ζ_B	79	# 80	exp.bbone	Backbone exponent	$+3.566668367128895828373073810012663 \times 10^{-1}$	
δ_s	80	# 81	r.silver	Silver ratio	$+2.414213562373095048001688724209698$	
μ_G	81	# 82	c.gerver	Gerver constant	$+2.21953166887197$	
τ	82	# 83	c.circle	tau	$+6.283185307179586476925286766559006$	
π	83	# 84	pi	pi	$+3.141592653589793238462643383279503$	

C47 Ref page : CONVg param -- CONVg? (Convergence?) in menu [TEST.1] gF6 : Test convergence of X and Y using binary coded parameter for comparison mode and special numbers ; tolerance is derived from setting SDIGS

Comparison

relative

absolute

0	0	0	0
0	0	1	1

Infinity

$\pm\infty$ not convergent

$\pm\infty$ convergent

0	0	0	0
0	2	0	2

NaN

NaN not convergent

NaN convergent

0	0	0	0
4	0	0	4

NaN | Infinity | Comparison

NaN not convergent | $\pm\infty$ not convergent | relative
 NaN not convergent | $\pm\infty$ not convergent | absolute
 NaN not convergent | $\pm\infty$ convergent | relative
 NaN not convergent | $\pm\infty$ convergent | absolute
 NaN convergent | $\pm\infty$ not convergent | relative
 NaN convergent | $\pm\infty$ not convergent | absolute
 NaN convergent | $\pm\infty$ convergent | relative
 NaN convergent | $\pm\infty$ convergent | absolute

0	0	0	0
0	0	1	1
0	2	0	2
0	2	1	3
4	0	0	4
4	0	1	5
4	2	0	6
4	2	1	7

NaN

NaN not convergent
 NaN not convergent
 NaN not convergent
 NaN not convergent
 NaN convergent
 NaN convergent
 NaN convergent
 NaN convergent

Infinity

$\pm\infty$ not convergent
 $\pm\infty$ not convergent
 $\pm\infty$ convergent
 $\pm\infty$ convergent
 $\pm\infty$ not convergent
 $\pm\infty$ not convergent
 $\pm\infty$ convergent
 $\pm\infty$ convergent

Comparison

relative
 absolute
 relative
 absolute
 relative
 absolute
 relative
 absolute

CONVG? → Z would pull the CONVg argument from Z instead of using the argument directly ;

So if Z contained 0, CONVg → Z would act like CONVg 0

The absolute difference between a and b is $\text{abs}(a-b)$. As floating point numbers have only limited number of significant digits, with large absolute values you may never see an absolute difference as small as your tolerance which defaults to be $1e-32$.

Relative difference does not depend on the magnitude of the compared values, i.e. the difference is considered $\text{abs}(a - b) / a$ which means the difference is now always in range of the tolerance.

Example: if $\text{tol} = 1e-32$, and $a=2+1e33$ and $b=1+1e33$ (on the limit of accuracy) then:

Absolute mode: $\text{abs}(a-b) = 1$ and it does not converge as $1 \gg 1e-32$

Relative mode: $\text{abs}(a-b)/a = 9.999...e-34$ therefore it does converge.

So we must per default use Relative mode, with NaN and with infinities NOT converging, therefore parameter 0 should be the user's goto value unless he needs specialist behaviour.

Practical example:

2 SDIGS 1000 ENTER 1001 CONVg? 0 results in true (relative)

2 SDIGS 1000 ENTER 1001 CONVg? 1 results in false (absolute)

Or illustrating the indirect parameter:

2 SDIGS 1 ENTER 1000 ENTER 1001 CONVg? → Z results in false

2 SDIGS 0 STO 00 1000 ENTER 1001 CONVg? → 00 results in true

2 SDIGS 1 STO 00 1000 ENTER 1001 CONVg? → 00 results in false

(paraphrased and modified from here:

<https://stackoverflow.com/questions/70657424/what-is-meant-by-a-relative-comparison-and-an-absolute-comparison>)

C47 Ref page : Datatypes (according to command TYPE)

TYPE	Type (= TI except for compound)	Description	Symbol or notation
0	LongInteger	Long integer ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:"	Z
1.0	Real	Real number	R
1.1	Real, MULπ	Angle, multiple of pi radians	R (πr)
1.2	Real, D.MS	Angle, sexagesimal degrees	R (°)
1.3	Real, Degree	Angle, degrees	R (°)
1.4	Real, Grad	Angle, gradians	R (g)
1.5	Real, Radian	Angle, radians	R (r)
2.0	Complex	Complex number in Rectangular notation	C
2.1	Complex, MULπ	Complex number in Polar notation, multiple of pi radians	C (πr)
2.2	Complex, D.MS	Complex number in Polar notation, sexagesimal degrees	C (°)
2.3	Complex, Degree	Complex number in Polar notation, degrees	C (°)
2.4	Complex, Grad	Complex number in Polar notation, gradians	C (g)
2.5	Complex, Radian	Complex number in Polar notation, radians	C (r)
3	Time	Time or time interval	T
4	Date	Date	D
5	String	Text string	
6	RealMatrix	Real matrix or vector	[m×n Matrix]
6.001	RealMatrix, row vector	>3D Generic Row Vector in Rectangular notation	[1×n Matrix]
6.002	RealMatrix, col vector	>3D Generic Column Vector in Rectangular notation	[m×1 Matrix]
6.021	RealMatrix, 2D RECT	2D Vector in Rectangular notation	[i] [v ₁ v ₂]
6.022	RealMatrix, 2D RECT, col	2D Vector in Rectangular notation (Transposed)	[i] [v ₁ v ₂] ^T
6.031	RealMatrix, 3D RECT	3D Vector in Rectangular notation	[ijk] [v ₁ v ₂ v ₃]
6.032	RealMatrix, 3D RECT, col	3D Vector in Rectangular notation (Transposed)	[ijk] [v ₁ v ₂ v ₃] ^T
6.121	RealMatrix, 2D POLAR, MULπ	2D Vector in Polar notation, multiple of pi radians	[rθ _i] [v ₁ v ₂] ^π (πr)
6.221	RealMatrix, 2D POLAR, D.MS	2D Vector in Polar notation, sexagesimal degrees	[rθ _i] [v ₁ v ₂] [°] (°)
6.321	RealMatrix, 2D POLAR, Degree	2D Vector in Polar notation, degrees	[rθ _i] [v ₁ v ₂] [°] (°)
6.421	RealMatrix, 2D POLAR, Grad	2D Vector in Polar notation, gradians	[rθ _i] [v ₁ v ₂] ^g (g)
6.521	RealMatrix, 2D POLAR, Radian	2D Vector in Polar notation, radians	[rθ _i] [v ₁ v ₂] ^r (r)
6.122	RealMatrix, 2D POLAR, MULπ, col	2D Vector in Polar notation, multiple of pi radians (Transposed)	[rθ _i] [v ₁ v ₂] ^{πT} (πr)
6.222	RealMatrix, 2D POLAR, D.MS, col	2D Vector in Polar notation, sexagesimal degrees (Transposed)	[rθ _i] [v ₁ v ₂] ^{°T} (°)
6.322	RealMatrix, 2D POLAR, Degree, col	2D Vector in Polar notation, degrees (Transposed)	[rθ _i] [v ₁ v ₂] ^{°T} (°)
6.422	RealMatrix, 2D POLAR, Grad, col	2D Vector in Polar notation, gradians (Transposed)	[rθ _i] [v ₁ v ₂] ^{gT} (g)
6.522	RealMatrix, 2D POLAR, Radian, col	2D Vector in Polar notation, radians (Transposed)	[rθ _i] [v ₁ v ₂] ^{rT} (r)
6.131	RealMatrix, 3D SPH, MULπ	3D Vector in Spherical notation, multiple of pi radians	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^π (πr)
6.231	RealMatrix, 3D SPH, D.MS	3D Vector in Spherical notation, sexagesimal degrees	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] [°] (°)
6.331	RealMatrix, 3D SPH, Degree	3D Vector in Spherical notation, degrees	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] [°] (°)
6.431	RealMatrix, 3D SPH, Grad	3D Vector in Spherical notation, gradians	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^g (g)
6.531	RealMatrix, 3D SPH, Radian	3D Vector in Spherical notation, radians	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^r (r)
6.132	RealMatrix, 3D SPH, MULπ, col	3D Vector in Spherical notation, multiple of pi radians (Transposed)	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^{πT} (πr)
6.232	RealMatrix, 3D SPH, D.MS, col	3D Vector in Spherical notation, sexagesimal degrees (Transposed)	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^{°T} (°)
6.332	RealMatrix, 3D SPH, Degree, col	3D Vector in Spherical notation, degrees (Transposed)	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^{°T} (°)
6.432	RealMatrix, 3D SPH, Grad, col	3D Vector in Spherical notation, gradians (Transposed)	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^{gT} (g)
6.532	RealMatrix, 3D SPH, Radian, col	3D Vector in Spherical notation, radians (Transposed)	[ρθ _i ;φ _k] _M [v ₁ v ₂ v ₃] ^{rT} (r)
6.141	RealMatrix, 3D CYL, MULπ	3D Vector in Cylindrical notation, multiple of pi radians	[rθ _i ;k] [v ₁ v ₂ v ₃] ^π (πr)
6.241	RealMatrix, 3D CYL, D.MS	3D Vector in Cylindrical notation, sexagesimal degrees	[rθ _i ;k] [v ₁ v ₂ v ₃] [°] (°)
6.341	RealMatrix, 3D CYL, Degree	3D Vector in Cylindrical notation, degrees	[rθ _i ;k] [v ₁ v ₂ v ₃] [°] (°)
6.441	RealMatrix, 3D CYL, Grad	3D Vector in Cylindrical notation, gradians	[rθ _i ;k] [v ₁ v ₂ v ₃] ^g (g)
6.541	RealMatrix, 3D CYL, Radian	3D Vector in Cylindrical notation, radians	[rθ _i ;k] [v ₁ v ₂ v ₃] ^r (r)
6.142	RealMatrix, 3D CYL, MULπ, col	3D Vector in Cylindrical notation, multiple of pi radians (Transposed)	[rθ _i ;k] [v ₁ v ₂ v ₃] ^{πT} (πr)
6.242	RealMatrix, 3D CYL, D.MS, col	3D Vector in Cylindrical notation, sexagesimal degrees (Transposed)	[rθ _i ;k] [v ₁ v ₂ v ₃] ^{°T} (°)
6.342	RealMatrix, 3D CYL, Degree, col	3D Vector in Cylindrical notation, degrees (Transposed)	[rθ _i ;k] [v ₁ v ₂ v ₃] ^{°T} (°)
6.442	RealMatrix, 3D CYL, Grad, col	3D Vector in Cylindrical notation, gradians (Transposed)	[rθ _i ;k] [v ₁ v ₂ v ₃] ^{gT} (g)
6.542	RealMatrix, 3D CYL, Radian, col	3D Vector in Cylindrical notation, radians (Transposed)	[rθ _i ;k] [v ₁ v ₂ v ₃] ^{rT} (r)
7.n	ComplexMatrix	Complex matrix or vector	[m×n C Matrix]
7.000	ComplexMatrix, RECT	Complex matrix or vector in Rectangular notation	[m×n C Matrix]
7.001	ComplexMatrix, RECT, row	Complex row vector in Rectangular notation	[1×n C Matrix]
7.002	ComplexMatrix, RECT, col	Complex column vector in Rectangular notation	[m×1 C Matrix]
7.110	ComplexMatrix, POLAR, MULπ	Complex matrix or vector in Polar notation, multiple of pi radians	[m×n C Matrix] (πr)
7.210	ComplexMatrix, POLAR, D.MS	Complex matrix or vector in Polar notation, sexagesimal degrees	[m×n C Matrix] (°)
7.310	ComplexMatrix, POLAR, Degree	Complex matrix or vector in Polar notation, degrees	[m×n C Matrix] (°)
7.410	ComplexMatrix, POLAR, Grad	Complex matrix or vector in Polar notation, gradians	[m×n C Matrix] (g)
7.510	ComplexMatrix, POLAR, Radian	Complex matrix or vector in Polar notation, radians	[m×n C Matrix] (r)
7.111	ComplexMatrix, POLAR, MULπ, row	Complex row vector in Polar notation, multiple of pi radians	[1×n C Matrix] (πr)
7.211	ComplexMatrix, POLAR, D.MS, row	Complex row vector in Polar notation, sexagesimal degrees	[1×n C Matrix] (°)
7.311	ComplexMatrix, POLAR, Degree, row	Complex row vector in Polar notation, degrees	[1×n C Matrix] (°)
7.411	ComplexMatrix, POLAR, Grad, row	Complex row vector in Polar notation, gradians	[1×n C Matrix] (g)
7.511	ComplexMatrix, POLAR, Radian, row	Complex row vector in Polar notation, radians	[1×n C Matrix] (r)
7.112	ComplexMatrix, POLAR, MULπ, col	Complex column vector in Polar notation, multiple of pi radians	[m×1 C Matrix] (πr)
7.212	ComplexMatrix, POLAR, D.MS, col	Complex column vector in Polar notation, sexagesimal degrees	[m×1 C Matrix] (°)
7.312	ComplexMatrix, POLAR, Degree, col	Complex column vector in Polar notation, degrees	[m×1 C Matrix] (°)
7.412	ComplexMatrix, POLAR, Grad, col	Complex column vector in Polar notation, gradians	[m×1 C Matrix] (g)
7.512	ComplexMatrix, POLAR, Radian, col	Complex column vector in Polar notation, radians	[m×1 C Matrix] (r)
8.02-8.16	ShortInteger	Short integer	Subscript _{2 - 16}
8.02	ShortInteger, base	Short integer, base 2 (BIN)	Subscript ₂
8.03	ShortInteger, base	Short integer, base 3	Subscript ₃
8.04	ShortInteger, base	Short integer, base 4	Subscript ₄

TYPE	Type (= TI except for compound)	Description	Symbol or notation
8.05	ShortInteger, base	Short integer, base 5	Subscript ₅
8.06	ShortInteger, base	Short integer, base 6	Subscript ₆
8.07	ShortInteger, base	Short integer, base 7	Subscript ₇
8.08	ShortInteger, base	Short integer, base 8 (OCT)	Subscript ₈
8.09	ShortInteger, base	Short integer, base 9	Subscript ₉
8.10	ShortInteger, base	Short integer, base 10 (DEC)	Subscript ₁₀
8.11	ShortInteger, base	Short integer, base 11	Subscript ₁₁
8.12	ShortInteger, base	Short integer, base 12	Subscript ₁₂
8.13	ShortInteger, base	Short integer, base 13	Subscript ₁₃
8.14	ShortInteger, base	Short integer, base 14	Subscript ₁₄
8.15	ShortInteger, base	Short integer, base 15	Subscript ₁₅
8.16	ShortInteger, base	Short integer, base 16 (HEX)	Subscript ₁₆
9	Config	Config	
<i>in : 0/1.0-1.5 ; 0/1.0 ; 0/1.0 out : 1.0-1.5 ; 0 ; 1.0 *</i>	Virtual compound data type	"Triplet" stored in X, Y and Z, interpreted as FMA (fused multiply-add) of $X \times Y + Z$ when used by extended accuracy functions in menu XFCNS ; split screen may show "No error"	
* = X ; Y ; Z typecodes			

C47 Ref page : Date formats

Label	Type	Default	FullName	Description	Annunciator and format	Stack or NIM	NIM only	Remarks
						Input format for $x \rightarrow D$	Input format for $.d$	
DMY	Setting (pgm)	OFF	Day.month.year	Switch on DD.MM.YYYY display mode	DD.MM.YYYY	dd.mmyyyy	dd.mmyyyy	single date digit allowed
							dd.mmyy	fewer year digits allowed, depending on setting YY
							dd.mm	
MDY	Setting (pgm)	OFF	Month/day/year	Switch on MM/DD/YYYY display mode	MM/DD/YYYY	mm.ddyyyy	mm.ddyyyy	single month digit allowed
							mm.ddyy	fewer year digits allowed, depending on setting YY
							mm.dd	
YMD	Setting (pgm)	ON	Year-month-day	Switch on YYYY-MM-DD display mode	YYYY-MM-DD	yyyy.mmdd	yyyy.mmdd	fewer year digits allowed
							yy.mmdd	fewer year digits allowed, depending on setting YY
							.mmdd	
zyx $\rightarrow D$	Function (triadic)		Compose date	Compose date from Z, Y, X according to CLK date format settings DD.MM.YYYY, MM/DD/YYYY or YYYY-MM-DD ; implied conversion set by YY does not apply				
x $\rightarrow D$	Function (monadic)		X to date	Convert date input number to date according to CLK date format settings DD.MM.YYYY, MM/DD/YYYY or YYYY-MM-DD ; implied conversion set by YY does not apply				
.d	Function (monadic)		Decimal (Real) or Date	Convert to decimal (Real) or date value ; untag (ADM) angle ; clear Fractions Mode, #BASE Mode ; convert angles / Times / Dates to Real ; convert NIM input to Date (according to CLK date format settings and implied conversion set by YY ; convert Complex number with zero imaginary part to Real ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM) ; in PEM, .d registers as $\rightarrow$ REAL				
YY	Setting (pgm)	0	Two digit year limit	Set the limit <ccyy> for two digit year conversion in function .d (in NIM only), up to which the specified (tracked) century <cc> is implied and above which the prior century <cc-1> is used				
YYoff	Command		Two digit year off	Switch off two digit year conversion in function .d				
YYtrack	Command		Two digit year tracking	Switch on two digit year conversion tracking to imply the latest century <cc> used in function .d and set the limit for YY to <cc99> to use the full range of years				

C47 Ref page : Delta keyboard R47v0 to C47

Label	FullName	R47v0 key	keyboard	C47 key	keyboard
10 ^x	10 to the power x	10 ^x	@ 25	10 ^x	@ 24
1/x	Reciprocal	1/x	@ 23	1/x	@ 22
α	Alpha input	[α]	@ 51	[α]	@ 26
ARCCOS	Arc cosine	ACOS	@ 53	ACOS	@ 35
ARCSIN	Arc sine	ASIN	@ 52	ASIN	@ 34
ARCTAN	Arc tangent	ATAN	@ 54	ATAN	@ 36
ASSIGN	Assign	ASN	@ 34	ASN	@ 72
BST	Backstep	≡↑	@ 61	≡Δ	@ 51
COS	Cosine	COS	@ 53	COS	@ 35
↓	Down	↓	@ 71	▼	@ 61
DRG	Degrees-radians-gradians	DRG	@ 34		
e ^x	e to the power x	e ^x	@ 26	e ^x	@ 25
FLGS	Flag browser	FLGS	@ 71	FLGS	@ 61
GTO	Go to	GTO	@ 51	GTO	@ 26
#	Number base	#	@ 26	#	@ 22
LBL	Label			LBL	@ 25
LN	Natural logarithm	LN	@ 26	LN	@ 25
LOG	Common logarithm	LOG	@ 25	LOG	@ 24
i	Complex number (rectangular notation)	i	@ 21	i	@ 34
i _Q	Complex number (polar notation)	i _Q	@ 22		
REGS	Register browser	REGS	@ 61	REGS	@ 51
→I	To integer	→I	@ 25	→I	@ 21
R↑	Roll up	R↑	@ 33		
<f>	Shift f	<f>	@ 35		
<g>	Shift g	<g>	@ 36		
Σ+	Sigma+			Σ+	@ 21
SIN	Sine	SIN	@ 52	SIN	@ 34
SNAP	Screenshot			SNAP	@ 81
x ²	Square	x ²	@ 21	x ²	@ 23
√x	Square root	√x	@ 22	√x	@ 23
SST	Single step	≡↓	@ 71	≡∇	@ 61
TAN	Tangent	TAN	@ 54	TAN	@ 36
a b/c	Fractions modes	a ^b /c	@ 83	a ^b /c	@ 21
STOPW	Stopwatch			STOPW	@ 82
→POLAR	To polar	→P	@ 22	→P	@ 36
→RECT	To rectangular	→R	@ 21	→R	@ 35
↑	Up	↑	@ 61	▲	@ 51
USER	USER mode	USER	@ 34	USER	@ 73
XEQ	Execute	XEQ	@ 51	XEQ	@ 26
x!	Factorial x! or Γ(x+1)	x!	@ 23		
√[y]	xth root	√[y]	@ 24	√[y]	@ 33
y ^x	y to the power x	y ^x	@ 24	y ^x	@ 22
f/g	Shift f/g			f/g	@ 71
ADV	Advanced	[ADV]	@ 65	[ADV]	@ 53
α.FN	Alpha functions	[α.FN]	@ 74	[α.FN]	@ 73
CLK	Clock	[CLK]	@ 73	[CLK]	@ 63
DISP	Display settings	[DISP]	@ 43	[DISP]	@ 44
EQN	Equation editor	[EQN]	@ 65	[EQN]	@ 52
FIN	Financial	[FIN]	@ 75	[FIN]	@ 53
FLAG	Flags	[FLAG]	@ 74	[FLAG]	@ 64
HOME	HOME			[HOME]	@ 52
INFO	Information	[INFO]	@ 81	[INFO]	@ 83
INTS	Integers	[INTS]	@ 63	[INTS]	@ 65
I/O	Input/Output	[I/O]	@ 82	[I/O]	@ 75
LOOP	Looping			[LOOP]	@ 74
MATX	Matrix	[MATX]	@ 64	[MATX]	@ 54
MODE	Mode settings			[MODE]	@ 43
REAL	Real	[REAL]	@ 63	[REAL]	@ 64
P.FN	Programming functions	[P.FN]	@ 84	[P.FN]	@ 74
PREF	Preferences	[PREF]	@ 72		
Prefix	Prefixes (UNIT)	[PFX]	@ 44		
PRINT	Printing			[PRINT]	@ 75

Label	FullName	R47v0 key	keyboard	C47 key	keyboard
PROB	Probability	[PROB]	@ 75	[PROB]	@ 65
TEST	Testing			[TEST]	@ 84
TRG	Trigonometry			[TRG]	@ 43
TRG_R47	Trigonometry	[TRG]	@ 43		
CONV	Unit conversions	[CONV]	@ 73	[CONV]	@ 63
X.FN	Extended functions	[X.FN]	@ 64	[X.FN]	@ 54

For C47	MODE replaces R47 menu PREF TRG replaces R47 menu TRG_R47 R47 menu PREF is replaced by MODE R47 menu TRG_R47 is replaced by TRG
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For C47	LBL can be found on [P.FN.1] F1 $\Sigma+$ can be found on [P.FN.1] F1 SNAP can be found on [P.FN.1] F1 STOPW can be found on [P.FN.1] F1 f/g can be found on [P.FN.1] F1 HOME can be found on [P.FN.1] F1 LOOP can be found on [P.FN.1] F1 MODE can be found on [P.FN.1] F1 PRINT can be found on [P.FN.1] F1 TEST can be found on [P.FN.1] F1 TRG can be found on [P.FN.1] F1
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C47 Ref page : Keyboards side by side : https://47calc.com/doc/C47/Reference/C47_Keyboards_side_by_side.pdf

C47 Ref page : Distr param -- DISTR (Distributions) in menu [PROB.1] F6

Menu	Description	Parameters
Binom:	Binomial & Negative binomial probability distribution (discrete)	p = probability (P) ; n = number of samples (N)
Cauch:	Cauchy-Lorentz probability distribution (continuous)	x_0 = location (M) ; γ = scale (S)
χ^2 :	Chi-squared probability distribution (continuous)	ν = degrees of freedom (M)
DisUni:	Discrete uniform probability distribution (discrete)	a = lower limit (M) ; b = upper limit (N)
Expon:	Exponential probability distribution (continuous)	λ = rate parameter (R)
F:	Fisher's F probability distribution (continuous)	d_1 = degree of freedom (M) ; d_2 = degree of freedom (N)
Geom:	Geometric probability distribution (discrete)	p = probability (P)
GEV:	Generalised extreme value probability distribution (continuous)	μ = location (M) ; σ = scale (S) ; ξ = shape (Q)
Hyper:	Hypergeometric probability distribution (discrete)	N = population size (M) ; n = sample size (N) ; K = number of special items in the pool (Q)
Logis:	Logistic probability distribution (continuous)	μ = location (M) ; s = scale (S)
Norml:	Normal & Log normal probability distribution (continuous)	μ = mean (M) ; σ = standard deviation (S)
Pareto:	Pareto probability distribution (continuous) -- see https://en.wikipedia.org/wiki/Pareto_distribution#Pareto_types_I-IV	μ = centre (M) ; σ = spread (S) ; α = shape (Q)
Poiss:	Poisson probability distribution (discrete) -- see https://en.wikipedia.org/wiki/Poisson_distribution#Definitions	λ = expected rate of events (R)
Φ :	Standard normal probability distribution (continuous)	mean = 0 ; standard deviation = 1
t:	Student's t probability distribution (continuous)	ν = degrees of freedom (M)
Uniform:	Uniform probability distribution (continuous)	a = lower limit (M) ; b = upper limit (N)
Weibl:	Weibull probability distribution (continuous)	k = shape (Q) ; λ = scale (S)

C47 Ref page : DMCP menu**DMCP**

1. Program Info
2. Run Program
- 3. Load Program**
4. Load QSPI from FAT
5. Settings >
6. Activate USB Disk
7. Enter System Menu
8. About >

hardware only ; use EXIT to return without RESET -- see
https://technical.swissmicros.com/dm42/doc/dm42_user_manual.h

https://technical.swissmicros.com/dm42/doc/dm42_user_manual.html#dmcp_sys_menu

C47 Ref page : Equation editor (aliases) -- NEW/EDIT in menu [EQN.1] F1/F2

Alias	Function	FullName
SIN	SIN	Sine
sin	SIN	Sine
asin	ARCSIN	Arc sine
arsin	ARCSIN	Arc sine
arcsin	ARCSIN	Arc sine
COS	COS	Cosine
cos	COS	Cosine
acos	ARCCOS	Arc cosine
arcos	ARCCOS	Arc cosine
arccos	ARCCOS	Arc cosine
TAN	TAN	Tangent
tan	TAN	Tangent
atan	ARCTAN	Arc tangent
artan	ARCTAN	Arc tangent
arctan	ARCTAN	Arc tangent
SINH	sinh	Hyperbolic sine
sinh	sinh	Hyperbolic sine
ASINH	arsinh	Inverse hyperbolic sine
asinh	arsinh	Inverse hyperbolic sine
arcsinh	arsinh	Inverse hyperbolic sine
arsinh	arsinh	Inverse hyperbolic sine
COSH	cosh	Hyperbolic cosine
cosh	cosh	Hyperbolic cosine
ACOSH	arcosh	Inverse hyperbolic cosine
acosh	arcosh	Inverse hyperbolic cosine
arccosh	arcosh	Inverse hyperbolic cosine
arcosh	arcosh	Inverse hyperbolic cosine
TANH	tanh	Hyperbolic tangent
tanh	tanh	Hyperbolic tangent
ATANH	artanh	Inverse hyperbolic tangent
atanh	artanh	Inverse hyperbolic tangent
arctanh	artanh	Inverse hyperbolic tangent
artanh	artanh	Inverse hyperbolic tangent
ATAN2	ATAN2	Expanded inverse tangent
atan2	ATAN2	Expanded inverse tangent
ABS	x	Magnitude
abs	x	Magnitude

Alias	Function	FullName
CEIL	ceil	Ceiling
ceil	ceil	Ceiling
EXP	e^x	e to the power x
exp	e^x	e to the power x
FLOOR	floor	Floor
floor	floor	Floor
gd^{-1}	gd^{-1}	Inverse Gudermannian function
gd^{-1}	gd^{-1}	Inverse Gudermannian function
gd^{-1}	gd^{-1}	Inverse Gudermannian function
gd^{-1}	gd^{-1}	Inverse Gudermannian function
gd	gd	Gudermannian function
gd	gd	Gudermannian function
LB	LB	Binary logarithm
lb	LB	Binary logarithm
lg	LOG	Common logarithm
LG2	LB	Binary logarithm
lg	LOG	Common logarithm
LN	LN	Natural logarithm
ln	LN	Natural logarithm
LOG ₁₀	LOG	Common logarithm
LOG ₂	LB	Binary logarithm
LOG	LOG	Common logarithm
LOG10	LOG	Common logarithm
LOG2	LB	Binary logarithm
log ₁₀	LOG	Common logarithm
log ₂	LB	Binary logarithm
log10	LOG	Common logarithm
log	LOG	Common logarithm
log2	LB	Binary logarithm
MAX	MAX	Maximum
max	MAX	Maximum
MIN	MIN	Minimum
min	MIN	Minimum
W^{-1}	W^{-1}	Inverse of Lambert's W function (principal)
W^{-1}	W^{-1}	Inverse of Lambert's W function (principal)
Γ	$\Gamma(x)$	Gamma function
$\sqrt{}$	$\sqrt{x}$	Square root
Z	$\zeta(x)$	Riemann's Zeta for real arguments
conj	conj	Complex conjugate
$\sqrt[3]{}$	$\sqrt[3]{x}$	Cube root
$\sqrt[n]{}$	$\sqrt[n]{x}$	xth root

See Ref : https://47calc.com/doc/C47/Reference/C47_Variable_naming.pdf

C47 Ref page : Errors and messages

Code	Error Message
0	No error
1	An argument exceeds the function domain (may depend on flag CPXRES and SPCRES)
2	Bad time or date input
3	Undefined op-code
4	Overflow at $+\infty$ (depends on flag SPCRES)
5	Overflow at $-\infty$ (depends on flag SPCRES)
6	No such label found
7	No such function
8	Out of range
9	Illegal digit in integer input for this base
10	Input is too long
11	RAM is full
12	Stack clash
13	Operation is undefined in this mode
14	Word size is too small
15	Too few data points for this statistic
16	Distribution parameter out of valid range
17	I/O error
18	Invalid or corrupted data
19	Flash memory is write protected
20	No root found
21	Matrix mismatch
22	Singular matrix
23	Flash memory is full
24	Invalid input data type for this operation
25	No MVAR found in selected program
26	Please enter a NEW name
27	Cannot delete a predefined item
28	No statistic data present
29	Item to be coded
30	Function to be coded for that data type
31	Input data types do not match
32	This system flag is write protected
33	Output would exceed 508 characters
34	This does not work with an empty string
35	No backup data found
36	Undefined source variable
37	This variable is write protected

Code	Error Message
38	No matrix indexed
39	Not enough memory for such a matrix
40	No errors for selected model
41	Large Δ and opposite signs, may be a pole
42	Solver reached local extremum, no root
43	≥ 1 initial guess lies out of the domain
44	The function values seem constant
45	Syntax error in this equation
46	This equation formula is too complex
47	This item cannot be assigned here
48	Invalid name
49	Too many variables
50	Non-programmable command, please remove
51	No global label in this program
52	Invalid input data type for polar/rect mode
53	Bad input
54	No program specified
55	Cannot write file
56	Function has changed, please replace
57	Variable required, please select variable
58	HEX/DEC/OCT/BIN not usable with iCPX
59	Undefined menu name
60	Operation aborted
61	Reserved variable name
62	Invalid register type/angle
63	Printing Is Disabled
64	No string in alpha register
65	No equation defined
66	Nesting too deep
100	Loading state file ...
101	Saving state file ...
102	Loading stats ...
103	Solving for real/complex root ...
104	Calculating graph coordinates ...
105	Re-calculating sums ...
106	Solving for real root ...
107	Backup restored
108	State file loaded
109	Programs and equations loaded
110	appended
111	Global and local registers loaded
112	(w/ local flags

Code	Error Message
113	System settings loaded
114	Statistical data loaded
115	User variables loaded
116	Program file loaded
117	All global user flags cleared
118	All data, programs and definitions cleared
119	All user menus cleared
120	All user variables cleared
121	All user programs deleted
122	All user menus deleted
123	All user variables deleted
124	Data file loaded
125	Data file saved
126	Not available on the simulator
127	Only available on the simulator
128	Undo failed: likely no memory

C47 Ref page : Flags named

Flag	Type	Default	Fullname	Extended description
1024 ⁿ	Flag	CLEAR	Binary prefixes	SET for binary prefixes in UNIT display mode; CLEAR for decimal prefixes in UNIT display mode (Info : Binary prefixes designate powers of 1024, applicable to long integers (will be indicated by Z:) and reals in UNIT display mode)
3DPHYS	Flag	CLEAR	Physics or Math	SET for Physics conventions in spherical polar vectors; CLEAR for Math conventions in spherical polar vectors (Info : The notation convention is indicated by the TI subscript of the spherical polar vector : _p for Physics, _m for Math (determines ordering of vector elements, works on whole stack))
3Dxyz	Flag	CLEAR	xyz or ijk vector display	SET for xyz (rθz) display of vectors; CLEAR for ijk (rθk) display of vectors (Info : Indicated by TI subscript of vector elements : _{xyz} or _{ijk})
ALPHA	Flag	CLEAR	Alpha Input Mode	SET for alpha input mode; CLEAR for alpha input mode inactive
ALP.IN	Flag	CLEAR	Alpha Entry	SET for alpha entry; CLEAR for alpha entry inactive
ASLIFT	Flag (system)	SET	Automatic Stack Lift	SET for automatic stack lift; CLEAR for automatic stack lift inactive (Info : SBI is SIM only)
AUTOFF	Flag	SET	Automatic shutdown	SET for automatic shutdown; CLEAR for automatic shutdown inactive (Info : Automatic shutdown delay is 10 m)
AUTXEQ	Flag	CLEAR	Auto execute program	SET for auto execute program; CLEAR for auto execute program inactive (Info : Automatically starts program when calculator turns on)
BASE _{HP}	Flag	SET	Classic (HP) style base	SET for applying number base to the whole stack; CLEAR for applying number base to X only (Info : Shortint values only)
BCD	Flag	CLEAR	Binary coded decimal	SET for binary coded decimal (BCD) display of Long integer in #BASE Mode; CLEAR for binary coded decimal display inactive (Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript _{bcd})
BOLD	Flag	CLEAR	Bold font mode	SET for bold font mode; CLEAR for regular font mode
CARRY	Flag	CLEAR	Carry (bit)	SET for carry (bit); CLEAR for carry (bit) inactive (Info : SBI _c is shown if flag SBoc is SET)
CONV _{HP}	Flag	SET	Classic (HP) conversions	SET for <to> $\leftrightarrow$ <to> unit conversion buttons; CLEAR for <from> $\rightarrow$ $\leftarrow$ <from> unit conversion buttons
CONV _{US}	Flag	CLEAR	US or UK units	SET for US unit preference; CLEAR for UK unit preference
CPX _j	Flag	CLEAR	Complex _j	SET for displaying _j as the imaginary number; CLEAR for displaying _i as the imaginary number (Info : _i or _j displayed in stack and on soft buttons)
CPXmul	Flag	CLEAR	Complex multiplier	SET for displaying Complex multiplier; CLEAR for not displaying Complex multiplier (Info : If CLEAR, trailing _i or _j is used ; complex multiplier is set by MULT _x)
CPXRES	Flag	SET	Complex results	SET for Complex results; CLEAR for Real results only (Info : CPXRES is auto-set when entering complex input ; SBI _C ; R is shown if flag SBcr is SET)

Flag	Type	Default	Fullname	Extended description
DENANY	Flag	CLEAR	Denominator any	SET for any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMX)) in fraction display mode; CLEAR for fixed denominator in fraction display mode (Info : DENANY and DENFIX are linked (both cannot be SET at the same time) ; SBI [+×] is shown if flag SBfrac is SET)
DENFIX	Flag	CLEAR	Denominator fixed	SET for fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMX)) in fraction display mode; CLEAR for any denominator in fraction display mode (Info : DENFIX and DENANY are linked (both cannot be SET at the same time) ; SBI [+f] is shown if flag SBfrac is SET)
dLrgLI	Flag	SET	Large Long integers display	SET for (large) Long integers to always display in large text; CLEAR for (large) Long integers to display in small text (Info : dLrgLI is overruled by dZ.0)
DMY	Flag (system)	CLEAR	Day.month.year	SET for DD.MM.YYYY display mode; CLEAR for DD.MM.YYYY display mode inactive (Format : DD.MM.YYYY ; Info : SBI is shown if flag SBdate is SET)
dZ.0	Flag	CLEAR	Display Long integers as Real	SET for displaying Long integers as Real; CLEAR for not displaying Long integers as Real (Info : dZ.0 overrules dLrgLI ; Prefix : Z : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:" even if dZ.0 is CLEAR)
ENDPMT	Flag (system)	SET	TVM end payments	SET for TVM end payments; CLEAR for TVM begin payments (Info : SBI END ; BEG is shown if flag SBtmv is SET)
ENGOVR	Flag	CLEAR	Engineering/Scientific display large R	SET for displaying large Real numbers in engineering notation; CLEAR for displaying large Real numbers in scientific notation
eRPN	Flag	SET	Entry RPN mode	SET for interactive Entry RPN mode; CLEAR for interactive Entry RPN mode inactive (Info : If eRPN is SET, in Numeric Input Mode, ENTER pushes the input value onto the stack, and if CLEAR, then it also duplicates X to Y ; without input or in Program Entry Mode, ENTER always duplicates X to Y ; only if eRPN is CLEAR, automatic stack lift is disabled after ENTER; stack size SBI (8 or 4) is displayed in normal font if eRPN is SET and inverted if CLEAR ; SBI 8 or 4 is shown if flag SBss is SET)
fg.FUL	Flag	SET	Menu f,g-highlighting Full	SET for menu f,g-highlighting full; CLEAR for menu f,g-highlighting full inactive (Info : fg.FUL and fg.LIM are linked (both cannot be SET at the same time))
fg.GR	Flag	CLEAR	Menu f,g-highlighting Grey	SET for menu f,g-highlighting grey; CLEAR for menu f,g-highlighting grey inactive
fg.LIM	Flag	CLEAR	Menu f,g-highlighting Limited	SET for menu f,g-highlighting limited; CLEAR for menu f,g-highlighting limited inactive (Info : fg.LIM and fg.FUL are linked (both cannot be SET at the same time))
FRACT	Flag	CLEAR	Fractions mode	SET for fractions mode; CLEAR for fractions mode inactive (Info : FRACT and IRFRAC are linked (both cannot be SET at the same time) ; /n or /max denotes maximum denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC; SBI ≈ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]))
FRCSRN	Flag	CLEAR	Fraction show register name	SET for displaying register name in fractions mode; CLEAR for not displaying register name in fractions mode (Prefix : x, y, z, t < or = or > or ≈)

Flag	Type	Default	Fullname	Extended description
FRCYC	Flag	CLEAR	Fraction mode full cycle	SET for full cycle on key a b/c (g[Σ+]); CLEAR for limited cycle on key a b/c (g[Σ+]) (Info : When FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle)
GROW	Flag	CLEAR	Grow (matrix edit)	SET for grow (matrix edit); CLEAR for wrap (matrix edit) (Info : SBI is shown if flag SBmx is SET)
g.2Tp	Flag	SET	Double tap function keys	SET for double tap function keys for g-shift; CLEAR for double tap function keys inactive (Info : Blocked for navigation FN-keys (arrows) in editors)
HOMEb	Flag	CLEAR	HOME menu shown	SET for HOME menu shown; CLEAR for HOME menu not shown (Info : HOMEb and MyMb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT)
HOMEf ^g	Flag	SET	HOME menu f/g shortcut	SET for HOME menu activated by triple and longerpress f/g-shift; CLEAR for HOME menu f/g shortcut inactive (Info : HOMEf ^g and MyMf ^g are linked (both cannot be SET at the same time) ; HOMEf ^g pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key)
HP12C	Flag	CLEAR	HP12C standard precision	SET for HP12C standard precision of 2 decimals; CLEAR for full C47 accuracy (Info : The HP12C standard precision means that PMT is rounded to 2 decimals before amortisation is computed, so the schedule matches a printed bank statement)
IGN1ER	Flag	CLEAR	Ignore one error	SET for calculator ignoring next error; CLEAR for calculator not ignoring error(s) (Info : IGN1ER is cleared subsequently)
INTING	Flag (system)	CLEAR	Integrator running	SET for integrator running; CLEAR for integrator not running
IRFRAC	Flag	CLEAR	Irrational fractions mode	SET for irrational fractions mode; CLEAR for irrational fractions mode inactive ; IRFRAC gives fractional results only if a simple fraction exists ; on battery power, matrices and vectors are ignored to prevent heavy calculations (Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ , π^{-2} , π^{-1} , $\sqrt{\pi}$, π , π^2 , e^{-2} , e^{-1} , e and e^2 (with tolerance 10^{-24}) ; Prefix $\approx$ + <approximation> ; multiplication symbol $\times$ or $\cdot$ according to flag MULT $\times$; SBI $\approx$ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]))
IRFR	Flag (system)	CLEAR	Irrational fractions mode preferred	SET for irrational fractions mode preferred; CLEAR for irrational fractions mode not preferred (Info : IRFR is SET by IRFRAC and CLEARED by FRACT to preserve state when toggling fraction modes using a b/c and .d)
KEY _{A-F}	Flag	SET	A-F keys	SET for row 2 keys to enter digits A-F in #BASE Mode; CLEAR for row 2 keys to work normally (Info : Entering digits A-F switches the calculator to hexadecimal mode ; when KEY _{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle)
KEY.LP	Flag	SET	Longpress f and g shortcuts	SET for longpress shortcuts for single shift keys; CLEAR for longpress f and g shortcuts inactive (Info : KEY.LP pertains to R47v0 f g layout and R47v2 f ^g g layout only and also enables longpress assignment to single shift keys)

Flag	Type	Default	Fullname	Extended description
LEAD.0	Flag	CLEAR	Leading zeros	SET for leading zeros (shortint bases 2, 4, 8, 16); CLEAR for no leading zeros (shortint bases 2, 4, 8, 16)
LOWBAT	Flag (system)	CLEAR	Low Battery	SET for low battery voltage; CLEAR for no low battery voltage (Info : SBI  is shown if flag SBbatV is SET)
MDY	Flag (system)	CLEAR	Month/day/year	SET for MM/DD/YYYY display mode; CLEAR for MM/DD/YYYY display mode inactive (Format : MM/DD/YYYY ; Info : SBI is shown if flag SBdate is SET)
MNUUp1	Flag	SET	Menu opens on p1	SET for menu opens on p1; CLEAR for menu opens on page last used
MONIT	Flag	SET	Iteration monitoring	SET for displaying iteration status; CLEAR for not displaying iteration status (Info : Pertains to executing programmable sums, solvers and integrator)
MULT×	Flag	SET	Multiplication symbol	SET for displaying multiplication symbol ×; CLEAR for displaying multiplication symbol · (Info : Multiplication symbol is used in exponential and complex notation ; symbol may be displayed in annunciator(s) related to FRACT settings)
MyMb	Flag	SET	MyMenu shown	SET for MyMenu shown; CLEAR for MyMenu not shown (Info : MyMb and HOMEb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT)
MyMf ^g	Flag	CLEAR	MyMenu f/g shortcut	SET for MyMenu activated by triple and longerpress f/g-shift; CLEAR for MyMenu f/g shortcut inactive (Info : MyMf ^g and HOMEf ^g are linked (both cannot be SET at the same time) ; MyMf ^g pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key)
NUM	Flag	CLEAR	Numlock	SET for numlock; CLEAR for numlock inactive
NUM.IN	Flag	CLEAR	Numeric entry	SET for numeric entry; CLEAR for numeric entry inactive
OVERFL	Flag	CLEAR	Overflow	SET for overflow; CLEAR for no overflow (Info : SBI ^o is shown if flag SBoc is SET)
PFX.All	Flag	CLEAR	Show all SI prefixes	SET for showing full range of SI prefixes in UNIT display mode; CLEAR for showing limited range of SI prefixes in UNIT display mode (Info : Full range is 10 ⁻³⁰ to 10 ³⁰ ; limited range is 10 ⁻¹⁵ to 10 ¹⁵ ; not applicable when flag 1024 ⁿ is SET ; Ref : https://47calc.com/doc/C47/Reference/C47_UNIT_prefix.pdf)
PLbox	Flag	SET	Box markers	SET for box markers; CLEAR for box markers inactive (Info : If PLbox is SET, PLCros and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected)
PLcros	Flag	CLEAR	Cross markers	SET for cross markers; CLEAR for cross markers inactive (Info : If PLCros is SET, PLbox and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected)
PLcurve	Flag	CLEAR	[future] Curve smoothing	SET for [future] curve smoothing; CLEAR for [future] curve smoothing inactive (Info : Reserved for future use)
PLcxp	Flag	CLEAR	Complex plot	SET for Complex plot; CLEAR for Complex plot inactive (Info : PLCxp and PLimp are linked (both cannot be SET at the same time))
PLdiff	Flag	CLEAR	Add differential curve	SET for adding the graphical point-to-point differential of the main graph; CLEAR for not adding the differential curve (Info : Δ Numerical slope is displayed)
PLimp	Flag	CLEAR	Plot imaginary part	SET for plotting imaginary part; CLEAR for plotting real part (Info : PLimp and PLCxp are linked (both cannot be SET at the same time))
PLintg	Flag	CLEAR	Add integral curve	SET for adding the graphical integral curve, calculated from the point-to-point discrete integral; CLEAR for not adding the integral curve (Info : Vertical placement of the integral is at RMS of the graph points ; ∫ _o Trapezoid integral is displayed)

Flag	Type	Default	Fullname	Extended description
PLline	Flag	SET	Draw line	SET for connecting graph points using line segments; CLEAR for not connecting graph points using line segments (Info : If PLline is CLEARed, PLbox may be SET if necessary (when no curve markers are selected))
PLnvec	Flag	CLEAR	Clockwise vectors	SET for clockwise vectors; CLEAR for clockwise vectors inactive (Info : Treat coordinate pairs as navigation vectors, clockwise from the positive y-axis as reference ; PLnvec and PLvec are linked (both cannot be SET at the same time))
PLplus	Flag	CLEAR	Plus markers	SET for plus markers; CLEAR for plus markers inactive (Info : If PLplus is SET, PLbox and PLCros are CLEARed ; PLline is SET when all three curve markers are deselected)
PLrms	Flag	CLEAR	Add RMS curve	SET for adding the graphical root mean square curve, accumulated from left to right; CLEAR for not adding the RMS curve (Info : ■ Root mean square is displayed)
PLshad	Flag	CLEAR	Shade curve	SET for shading the trapezoid integral from the graph points; CLEAR for not shading the curve (Info : ∫ Trapezoid integral is displayed)
PLvec	Flag	CLEAR	Anti-clockwise vectors	SET for anti-clockwise vectors; CLEAR for anti-clockwise vectors inactive (Info : Treat coordinate pairs as vectors, anti-clockwise from the positive x-axis as reference ; PLvec and PLnvec are linked (both cannot be SET at the same time))
PLxy:1	Flag	CLEAR	Forcing autoscale	SET for forcing autoscale on x- and y-axis to be the same; CLEAR for not forcing autoscale on x- and y-axis to be the same
PLx.ax	Flag	CLEAR	Autoscaling to show x-axis	SET for autoscaling to show x-axis; CLEAR for not autoscaling to show x-axis
PLy.ax	Flag	CLEAR	Autoscaling to show y-axis	SET for autoscaling to show y-axis; CLEAR for not autoscaling to show y-axis
POLAR	Flag	CLEAR	Polar notation	SET for polar notation; CLEAR for rectangular notation (Info : SBI $\angle$; $\odot$ is shown if flag SBcpx is SET)
PROPF	Flag	SET	Proper fractions	SET for proper fractions (mixed fractions); CLEAR for improper fractions
QUIET	Flag	CLEAR	Quiet	SET for beeper disabled; CLEAR for beeper enabled
RP _{HP}	Flag	SET	Classic (HP) Rect/Polar	SET for x : Re ; y : Im (RECT) ; r ; θ (POLAR) in X, Y; CLEAR for y : Im ; x : Re (RECT) ; θ ; r (POLAR) in X, Y (Info : RP _{HP} CLEAR conforms to the way the C47 deals with complex numbers)
RUNTIM	Flag (system)	CLEAR	Stopwatch running	SET for stopwatch running; CLEAR for stopwatch not running (Info : SBI $\odot$ is shown if flag SBstw is SET)
SBadm	Flag	SET	Show degree symbol	SET for displaying degree symbol ($^\circ$) in status bar; CLEAR for not displaying degree symbol ($^\circ$) in status bar (Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang)
SBang	Flag	CLEAR	Show angle symbol	SET for displaying angle symbol ($\angle$) in status bar; CLEAR for not displaying angle symbol ($\angle$) in status bar (Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang)
SBbatV	Flag	CLEAR	Show battery depletion	SET for displaying battery depletion (⏻) in status bar; CLEAR for not displaying battery depletion (⏻) in status bar (Info : If SBbatV is CLEAR, the regular icon (⏻) will show, but only when the battery is low (flag LOWBAT is SET) ; when SBbatV is SET the special battery symbol has length proportional to 2.054 V to 3.045 V)
SBcpx	Flag	SET	Show complex mode	SET for displaying Complex mode ($\angle$; $\odot$) in status bar; CLEAR for not displaying Complex mode ($\angle$; $\odot$) in status bar

Flag	Type	Default	Fullname	Extended description
SBcr	Flag	CLEAR	Show complex results	SET for displaying Complex results (C ; R) in status bar; CLEAR for not displaying Complex results (C ; R) in status bar
SBdate	Flag	SET	Show date	SET for displaying date (CLK ; YY) in status bar; CLEAR for not displaying date (CLK ; YY) in status bar (Info : SBdate, SBtime and SBwoy are linked, only two out of three can be SET at most)
SBfrac	Flag	SET	Show Fractions Mode and #BASE Mode	SET for displaying Fractions Mode and #BASE Mode (a^b/n ; b/n ; [+≈] ; $a^b/c \times I$; $b/c \times I$; [+≈] ; #BASE ; #KEY _{A-F}) in status bar; CLEAR for not displaying Fractions Mode and #BASE Mode (a^b/n ; b/n ; [+≈] ; $a^b/c \times I$; $b/c \times I$; [+≈] ; #BASE ; #KEY _{A-F}) in status bar
SBint	Flag	SET	Show integer mode	SET for displaying integer mode (<w>:<m>) in status bar; CLEAR for not displaying integer mode (<w>:<m>) in status bar (Info : <w> in SBI indicates word size (menu BITSET) ; <m> in SBI indicates sign mode (menu BITSET))
SBmx	Flag	CLEAR	Show matrix mode	SET for displaying matrix mode (wrap ; grow) in status bar; CLEAR for not displaying matrix mode (wrap ; grow) in status bar
SBoc	Flag	SET	Show overflow/carry mode	SET for displaying overflow/carry mode (° ; c) in status bar; CLEAR for not displaying overflow/carry mode (° ; c) in status bar
SBprn	Flag	SET	Show printing	SET for displaying printing (⌂) in status bar; CLEAR for not displaying printing (⌂) in status bar
SBser	Flag	SET	Show serial I/O	SET for displaying serial I/O (⌘) in status bar; CLEAR for not displaying serial I/O (⌘) in status bar
SBshfR	Flag	CLEAR	Show shift on the right	SET for displaying shift on the right (f ; 9) in status bar; CLEAR for displaying shift on the left (f ; 9) in status bar
SBss	Flag	CLEAR	Show stack size	SET for displaying stack size (8 ; 4) in status bar; CLEAR for not displaying stack size (8 ; 4) in status bar
SBstw	Flag	SET	Show stopwatch running	SET for displaying stopwatch running (⌚) in status bar; CLEAR for not displaying stopwatch running (⌚) in status bar
SBtime	Flag	CLEAR	Show time	SET for displaying time (HH24:MM ; HH:MMam/pm) in status bar; CLEAR for not displaying time (HH24:MM ; HH:MMam/pm) in status bar (Info : SBtime, SBdate and SBwoy are linked, only two out of three can be SET at most)
SBtvm	Flag	SET	Show TVM mode	SET for displaying TVM mode (END ; BEG) in status bar; CLEAR for not displaying TVM mode (END ; BEG) in status bar
SBwoy	Flag	CLEAR	Show Week of Year and day number	SET for displaying Week of Year and day number (Ww#-d#) in status bar; CLEAR for not displaying Week of Year and day number (Ww#-d#) in status bar (Info : SBwoy, SBdate and SBtime are linked, only two out of three can be SET at most)
SH.4s	Flag	CLEAR	Shift time-out of 4s	SET for shift time-out of 4s; CLEAR for shift time-out of 4s inactive (Info : For layouts containing key [f/g] only)
SIG0	Flag	SET	Apply SIG zeros	SET for applying SIG zeros; CLEAR for not applying SIG zeros (Info : 'Apply SIG zeros' means displaying zeros for the integer part and trailing zeros for the fractional part ; zeros are required for the strict interpretation of SIG as implemented in prior C47/C43 and WP34S ; if SIG0 is CLEAR, SIG may be understood as 'maximum digits' and displays the resulting value in a more commonly used way)

Flag	Type	Default	Fullname	Extended description
SLOW	Flag	CLEAR	Slow mode	SET for slow mode; CLEAR for slow mode inactive (Info : Slow mode limits battery drain)
SOLVING	Flag (system)	CLEAR	Solving	SET for solver running; CLEAR for solver not running
SPCRES	Flag	SET	Special results	SET for special results; CLEAR for special results inactive (Info : Special results are: infinity ($\pm\infty$) and not-a-number (NaN), an error will not occur for such values when SPCRES is SET ; also, $\pm 0.$ may be used)
SSIZE8	Flag	SET	Stack Size 8	SET for 8 register stack; CLEAR for 4 register stack (Info : SBI 8 ; 4 is shown if flag SBss is SET)
TDM24	Flag	SET	Time display 24h	SET for 24h time display; CLEAR for 12h time display (Format : HH24:MM ; HH:MMam/pm; Info : SBI is shown if flag SBtime is SET)
USB	Flag (system)	CLEAR	USB Power	SET for calculator running on USB power; CLEAR for calculator running on battery power
USER	Flag	CLEAR	USER mode	SET for USER mode; CLEAR for Normal Mode
VMDISP	Flag (system)	CLEAR	Variable menu displayed	SET for variable menu displayed; CLEAR for variable menu not displayed
WRPEDG	Flag (system)	CLEAR	Wrap edge	SET for wrap edge; CLEAR for wrap edge inactive
WRPEND	Flag (system)	CLEAR	Wrap end	SET for wrap end; CLEAR for wrap end inactive
YMD	Flag (system)	SET	Year-month-day	SET for YYYY-MM-DD display mode; CLEAR for YYYY-MM-DD display mode inactive (Format : YYYY-MM-DD ; Info : SBI is shown if flag SBdate is SET)
α CAP	Flag (system)	CLEAR	Alpha capslock	SET for alpha capslock; CLEAR for alpha capslock inactive
$\leftarrow$ DROP	Flag	CLEAR	[$\leftarrow$] executes DROPx or CLX	SET for [$\leftarrow$] executing DROPx (when not in NIM); CLEAR for [$\leftarrow$] executing CLX (when not in NIM)
$\boxtimes$ ACT	Flag (system)	CLEAR	Print port active	SET for infrared print port active; CLEAR for infrared print port inactive (Info : If flag $\boxtimes$ ACT is SET, the infrared port is enabled ; if CLEAR, the infrared port is disabled)
$\boxtimes$ EN	Flag	CLEAR	Printing enabled	SET for printing enabled; CLEAR for printing disabled
$\boxtimes$ NORM	Flag	CLEAR	Printer mode Normal/Trace	SET for printer mode Normal (flag $\boxtimes$ TRACE is CLEAR) or printer mode Stack trace (flag $\boxtimes$ TRACE is SET); CLEAR for printer mode Manual (flag $\boxtimes$ TRACE is CLEAR) or printer mode Trace (flag $\boxtimes$ TRACE is SET) (Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : $\boxtimes$ TRACE and $\boxtimes$ NORM)
$\boxtimes$ TRACE	Flag	CLEAR	Printer mode Trace/Stack trace	SET for printer mode Trace (flag $\boxtimes$ NORM is CLEAR) or printer mode Stack trace (flag $\boxtimes$ NORM is SET); CLEAR for printer mode Manual (flag $\boxtimes$ NORM is CLEAR) or printer mode Normal (flag $\boxtimes$ NORM is SET) (Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : $\boxtimes$ TRACE and $\boxtimes$ NORM)

C47 Ref page : Flags -- FLGS (Flag browser) on key g[▼] -- page 1

(status bar)										flags 00..99									
00	01	02	03	04	05	06	07	08	09										
10	11	12	13	14	15	16	17	18	19										
20	21	22	23	24	25	26	27	28	29										
30	31	32	33	34	35	36	37	38	39										
40	41	42	43	44	45	46	47	48	49										
50	51	52	53	54	55	56	57	58	59										
60	61	62	63	64	65	66	67	68	69										
70	71	72	73	74	75	76	77	78	79										
80	81	82	83	84	85	86	87	88	89										
90	91	92	93	94	95	96	97	98	99										

Flag/setting	Full name
RMODE	Set rounding mode ()
SDIGS	Set significant digits
ULP	Unit in the last place <i>Shown for X is real and set number rang</i>

(status bar)										lettered flags														
Global flag status (continued):																								
XYZTABCDL					IJK					MNPQRS					EFGH					OUVV				
[100...108					109...111					211...216					217...220					221...224				
No local flags or registers allocated.																								
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15									
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31									

(RMODE)	Abbreviation	Meaning
0	½E	round half even
1	½↑	round half up
2	½↓	round half down
3	←0→	round away from zero
4	→0←	round towards zero
5	⌈x⌉	ceiling
6	⌊x⌋	floor

Range	Meaning
00-99	General Purpose Flags
100-111	Lettered flags XYZTABCDLIJK
112-143	Local flags .00 to .31 (allocated by LocR)
144-210	Illegal (Error : Out of range)
211-224	General/special purpose lettered flags

(status bar)

status overview

nnnnn bytes free in RAM

Global user flags set:

No local flags or registers allocated.

RMODE= $\frac{1}{2}$ E SDIGS=34 ULP of reg X = 10^{-6176}

Browse using [▲] and [▼]

Next page : https://47calc.com/doc/C47/Reference/C47_Flags_p2.pdf
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Number	SHORTCUT (FF)	Flag
100		Flag X
101		Flag Y
102		Flag Z
103		Flag T
104	{A}	Flag A
105	{B}	Flag B
106	{C}	Flag C
107	{D}	Flag D
108	{L}	Flag L
109	{I}	Flag I
110	{J}	Flag J
111	{K}	Flag K
211	{M}	Flag M
212	{N}	Flag N
213		Flag P
214		Flag Q
215		Flag R
216		Flag S
217	{E}	Flag E
218		Flag F
219	{G}	Flag G
220	{H}	Flag H
221	{O}	Flag O
222		Flag U
223		Flag V
224		Flag W

Flag	Number
Flag A	104
Flag B	105
Flag C	106
Flag D	107
Flag E	217
Flag F	218
Flag G	219
Flag H	220
Flag I	109
Flag J	110
Flag K	111
Flag L	108
Flag M	211
Flag N	212
Flag O	221
Flag P	213
Flag Q	214
Flag R	215
Flag S	216
Flag T	103
Flag U	222
Flag V	223
Flag W	224
Flag X	100
Flag Y	101
Flag Z	102

C47 Ref page : Flags -- FLGS (Flag browser) on key g[▼] -- page 2

(status bar)		system flags			
1024 ⁿ	3DPHYS	3Dxyz	ALPHA	ALP.IN	ASLIFT
AUTOFF	AUTXEQ	BASE _{HP}	BCD	BOLD	CARRY
CONV _{HP}	CONV _{us}	CPX _j	CPXmul	CPXRES	DENANY
DENFIX	dLrgLI	DMY	dZ.0	ENDPMT	ENGOVR
eRPN	fg.FUL	fg.GR	fg.LIM	FRACT	FRCSRN
FRCYC	GROW	g.2Tp	HOMEb	HOME _f ^g	HP12C
IGN1ER	INTING	IRFRAC	IRFR	KEY _{A-F}	KEY.LP
LEAD.0	LOWBAT	MDY	MNU _p 1	MONIT	MULT×
MyMb	MyM _f ^g	NUM	NUM.IN	OVERFL	PFX.All
PLbox	PLcros	PLcurve	PLcxp	PLdiff	PLimp

(status bar)		system flags			
PLintg	PLline	PLnvec	PLplus	PLrms	PLshad
PLvec	PLxy:1	PLx.ax	PLY.ax	POLAR	PROPFR
QUIET	RP _{HP}	RUNTIM	SBadm	SBang	SBbatV
SBcpx	SBCr	SBdate	SBfrac	SBint	SBmx
SBoc	SBprn	SBser	SBshfR	SBss	SBstw
SBtime	SBtvm	SBwoy	SH.4s	SIG0	SLOW
SOLVING	SPCRES	SSIZE8	TDM24	USB	USER
VMDISP	WRPEDG	WRPEND	YMD	αCAP	←DROP
📄ACT	📄EN	📄NORM	📄TRACE		

Previous page : https://47calc.com/doc/C47/Reference/C47_Flags_p1.pdf

Ref : https://47calc.com/doc/C47/Reference/C47_Flags_named.pdf

C47 Ref page : Font browser -- FBR in menu [α.FN.1] F1
 Use x→α in menu [α.FN.1] F3 ; blue characters are FBR-only

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0020	^s _p	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
0030	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0040	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0050	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
0060		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
Numeric font. Press ↓ or EXIT																

1/41

^s designates the space character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0070	p	q	r	s	t	u	v	w	x	y	z				~	⓪
00A0		ı	¢	£		¥		§								
00B0	°	±				μ		•								ı
00D0								×	∅							
00E0															î	
Numeric font. Press ↑, ↓ or EXIT																
																2/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00F0								÷								
0130						ĵ		ĥ								
0170						ŵ		ŷ								
0230			ȳ	ȳ												
02B0	h			r									,			
Numeric font. Press ↑, ↓ or EXIT																
																3/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
02E0				×												
0370									̄	̂						̄
0380	̄	̄	̄	̄								̂		̂		
0390		A	B	Γ	Δ	E	Z	H	Θ	I	K	Λ	M	N	Ξ	O
03A0	Π	P	û	Σ	T	Y	Φ	X	Ψ	Ω						

Numeric font. Press ↑, ↓ or EXIT

4/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
03B0		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
03C0	π	ρ		σ	τ	υ	φ	χ	ψ	ω						
03D0		ϑ				φ		Ο	ο				Ƒ	Ƒ		
03E0	Ϡ	ϡ														
1D40	Τ													g		
Numeric font. Press ↑, ↓ or EXIT																
																5/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1DA0	f															
1E90													f			g
2000																
2010									(	)			“	”		”
2020																

Numeric font. Press ↑, ↓ or EXIT

6/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2070				E												
2080	0	1	2	3	4	5	6	7	8	9	+	-				*
2090															∞	
20A0													€			∞
2100			©												h	ħ
Numeric font. Press ↑, ↓ or EXIT																
																7/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2110	I			l		N					Q			R		
2120					Z	z										
2140						D		e	i	j						
2160	0	1	2	3	4	5	6	7	8	9	+	-				
2190	←	↑	→	↓												
Numeric font. Press ↑, ↓ or EXIT																
																8/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
21C0	➔				➤				⬆		⬇					
21D0			➡		↔											
2200						∅										∏
2210		Σ								.	√	³√	×√		∞	
2220		¼										∫				
Numeric font. Press ↑, ↓ or EXIT																
																9/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2240									≈							
2260	≠				≤	≥										
2290						⊕	α	δ	μ		⊙					
22C0						•										
2390					≡					☰						
Numeric font. Press ↑, ↓ or EXIT																
																10/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
23A0		[		[	]		]									
23E0							À									
23F0		⌚														
2420								⌘	•	;				UK	US	
2460	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Numeric font. Press ↑, ↓ or EXIT																
																11/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2470					0	1	2	3	4	5	6	7	8	9	10	
2480			a	b	c	d	e	f	g	h	i	j	k	l	m	n
2490	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d
24A0	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
24B0	u	v	w	x	y	z	A	B	C	D	E	F	G	H	I	J
Numeric font. Press ↑, ↓ or EXIT																
																12/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
24C0	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
24D0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
24E0	Q	R	S	T	U	V	W	X	Y	Z	0					
24F0						1	2	3	4	5	6	7	8	9	-	+
2670											⌂					
Numeric font. Press ↑, ↓ or EXIT																
																13/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2780									,	.						
29D0							⌘									
2B60	←	↑	→	↓												
2C60					π	π	πr									V
Numeric font. Press ↑, ↓ or EXIT																
																14/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0020	^s _p			#								+	,	-	.	/
0030	0	1	2	3	4	5	6	7	8	9						
0040		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0050	P	Q	R	S	T	U	V	W	X	Y	Z					-
0060		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o

Numeric font bold. Press ↑, ↓ or EXIT

15/41

^s designates the space character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0070	p	q	r	s	t	u	v	w	x	y	z					
00B0								.								
00D0								x								
2080	0	1	2	3	4	5	6	7	8	9						
2120					ℤ											
Numeric font bold. Press ↑, ↓ or EXIT																
																16/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2140									<i>i</i>	<i>j</i>						
2160	0	1	2	3	4	5	6	7	8	9	+	-				
2210															∞	
2220		4														
2240									≈							
Numeric font bold. Press ↑, ↓ or EXIT																
																17/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2460	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2470				0	1	2	3	4	5	6	7	8	9	10		
Numeric font bold. Press ↑, ↓ or EXIT																
																18/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0020	^s p	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
0030	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0040	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0050	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
0060		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0070	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
00A0		i	¢	£		¥		§				«	¬			
00B0	°	±					μ					»	¼	½		¿
Standard font. Press ↑, ↓ or EXIT																
19/41																

^s designates the space character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00C0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
00D0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
00E0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
00F0	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ
0100		ā	Ă	ă	Ą	ą	Ć	ć					Č	č	Ď	ď
0110	Đ	đ	Ē	ē	Ě	ě	È	é	Ė	ė	Ě	ě			Ğ	ğ
0120								Ħ			Ī	ī	Ĭ	ĭ	Į	į
0130	İ	ı				Ĵ		Ķ			Í			Ĺ	ĺ	
Standard font. Press ↑, ↓ or EXIT																
20/41																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0140		Ł	ł	Ń	ń			Ň	ň				Ō	ō	Ǫ	ǫ
0150			Œ	œ	Ř	ř		Ř	ř	Ś	ś				Ŧ	ŧ
0160	Š	š	Ț	ț	Ť	ť			Ů	ů	Ū	ū	Ŭ	ŭ	Ů	ů
0170			Ț	ț	Ŵ	ŵ	Ŷ	ŷ	Ÿ	Ž	ž	Ž	ž	Ž	ž	Ā
0230			Ț	ț												
0280																Ț
0290										Ț						Ț
02B0	h			r									,			

Standard font. Press ↑, ↓ or EXIT

21/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
02E0				×												
0370									̄	̂						̄
0380	Ū	Ȫ	Ū	̄								Ŷ		Ẑ		
0390	İ	À	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
03A0	Π	Ρ	Ū	Σ	Τ	Υ	Φ	Χ	Ψ	Ω	İ	Ȫ	ά	έ	ή	ί
03B0	Û	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
03C0	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ï	ü	ó	ú	ώ	
03D0		θ					φ		ο	ο			Ƒ	Ƒ		
Standard font. Press ↑, ↓ or EXIT																
																22/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
03E0	3	4														
0450	(α) m	* n	-1 d	* k	* i	=	2 p	2 a	2 a	x	A					
1D00					C	D										
1D10												T				
1D20			z													
1D40	T													9		
1DA0	f															
1E90														f		g
Standard font. Press ↑, ↓ or EXIT																
																23/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2000																
2010									‘	’		‘	“	”		”
2020					.		...	l								
2070				E												
2080	0	1	2	3	4	5	6	7	8	9	+	-				*
2090															∞	∞
20A0													€			
2100			©												h	h
Standard font. Press ↑, ↓ or EXIT																
																24/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2110	I			l		N					Q			R		
2120					Z	z										
2130									T							
2140						D		e	i	j						
2160	0	1	2	3	4	5	6	7	8	9	+	-				
2190	←	↑	→	↓	↔	↕										
21B0						↶										
21C0	→				↷				△		▽	≡				
Standard font. Press ↑, ↓ or EXIT																
																25/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
21D0			⇒		⇔											
21E0	↔	↑	↔	↓				↑		↓						
2200		∫	∂	∃	∂	∅		∇	€	€		∃	∂		∫	∏
2210		Σ		±				°	•	✓	3✓	×✓	α	∞	⊥	
2220	∠	4	4					Λ	γ	∩	∪	∫	∫	∫	∫	∫
2230	∫						:									
2240				≈					≈							
2250					≡				≡	≡						
Standard font. Press ↑, ↓ or EXIT																
																26/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2260	≠	≡			≦	≧					«	»				
2280			Ƈ		Ɔ											
2290						⊕	α	δ	μ	⊙	⊗					
22A0			┐		└											
22B0												ŷ	Ȧ	Ȫ		
22C0						•										
2310											⌚	⌚				
2380													↩			
Standard font. Press ↑, ↓ or EXIT																
																27/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2390				⋯						📄						
23A0		⌈	⌋	⌌	⌍	⌎	⌏									
23B0						⌐										
23E0							⌑									
23F0		⌒										⌔				
2400					⌕						⌖					
2410												⌗				
2420		⌘	⌙	⌚		⌛	⌜	⌝	⌞	⌟	⌠	⌡	⌢	⌣	⌤	⌥
Standard font. Press ↑, ↓ or EXIT																
																28/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2430																
2460	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2470														10		
2480			a	b	c	d	e	f	g	h	i	j	k	l	m	n
2490	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d
24A0	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
24B0	u	v	w	x	y	z	A	B	C	D	E	F	G	H	I	J
24C0	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Standard font. Press ↑, ↓ or EXIT																
																29/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
24D0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
24E0	Q	R	S	T	U	V	W	X	Y	Z	0						
2590																	
25A0																	
25B0																	
25C0																	
25E0																	
2610																	
Standard font. Press ↑, ↓ or EXIT																	
																30/41	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2670											♻️	♻️			♻️	
2710				✓												
2780									,	.						
29B0																⊗
29D0							⌘									
29F0	x y	z														
2B60	←	↑	→	↓												
					π	π	π									∇
Standard font. Press ↑, ↓ or EXIT																
																31/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0020	^s _p	!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
0030	Ø	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
0040	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
0050	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
0060	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
0070	P	q	r	s	t	u	v	w	x	y	z	{		}	~	
00A0		i	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	­	®	¯
00B0	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
Tiny font. Press ↑, ↓ or EXIT 32/41																

^s designates the space character

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00C0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
00D0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
00E0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
00F0	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ
0100		ā	ă	ǎ	Ȧ	Ȧ	Ó	Ć	Ĉ	Ĉ	Č	Č	Č	Č	Ď	ď
0110	Đ	đ	Ē	ē	Ě	ě	È	è	Ě	ě	Ě	ě	Ĝ	ğ	Ğ	ğ
0120	Ġ	ğ	Ġ	ğ	Ĥ	Ĥ	Ĥ	ħ	İ	İ	İ	İ	İ	İ	İ	İ
0130	İ	ı								Ł	í			Ł	ł	
Tiny font. Press ↑, ↓ or EXIT																
																33/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0140		Ł	ł	Ń	ń			Ň	ň				Ŏ	ŏ	Ǫ	ǫ
0150			Œ	œ	Ř	ř			Ř	ř	Ś	ś			Ş	ş
0160	Š	š	Ŧ	ŧ	Ţ	ţ			Ū	ū	Ū	ū	Ŭ	ŭ	Ų	ų
0170			Ų	ų	Ŵ	ŵ	Ŷ	ŷ	Ÿ	Ž	ž	Ž	ž	Ž	ž	
0190			ƒ													
0230			Ƴ	ƴ												
0370									Ẃ	ẃ						Ẅ
0390	İ	Ā	Ḃ	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
Tiny font. Press ↑, ↓ or EXIT																
																34/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
03A0	Π	Ρ		Σ	Τ	Υ	Φ	Χ	Ψ	Ω	İ	Ų	Ǻ	Ǽ	Ǿ	ı
03B0	Û	α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
03C0	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ĩ	ü	ó	ú	ô	
03D0									Q	Q			F	F		
03E0	ᵐ	λ														
2000																
2010									‘	’	,	“	”	„	“	”
2020							...	1								
Tiny font.	Press ↑, ↓ or EXIT															35/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2070				E												
2080	0	1	2	3	4	5	6	7	8	9	+	-				*
2090															∞	∞
20A0													€			
2100			C												h	h
2110						H					Q			R		
2120					Z											
2140									i	j						
Tiny font. Press ↑, ↓ or EXIT																
																36/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2160	0	1	2	3	4	5	6	7	8	9	+	-				
2190	←	↑	→	↓		⊕										
21C0	→				±					△		▽	≡	≠		
21D0			⇒													
21E0	←	↑	→	↓				↑		↓						
2200		©	ð	☹	☹	☹	△	▽	€	¢		≡	⊕		□	π
2210				±					▪	▪	√	√	√	α	ω	ℓ
2220	∠	¼	½		†		‡	^	v	n	u	f	f	f	f	f
Tiny font. Press ↑, ↓ or EXIT																
																37/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2230	✱															
2240				≈					≈							
2250					:=				≡	≡						
2260	≠	≡			≤	≥					⊕	⊗				
2290						⊗	⊗	⊗	⊗	⊗	⊗					
22A0			⊥		⊥	⊥										
22B0												√	√	√		
22C0																
Tiny font. Press ↑, ↓ or EXIT																
																38/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2310											☼	⌚				
2380													↩			
2390										🏠						
23A0		┌	┐	└	┘	┌	┐									
23B0						└										
23F0		☼														
2420		↙	↗	└		↘	↗	⌘	⌘	;	☼	↕	☼	⌘	⌘	☼
2430	▲	↘	↙	▲	⤵											
Tiny font. Press ↑, ↓ or EXIT																
																39/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
2460	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2470														10		
2480			a	b	c	d	e	f	g	h	i	j	k	l	m	n
2490	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c	d
24A0	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
24B0	u	v	w	x	y	z	A	B	C	D	E	F	G	H	I	J
24C0	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
24D0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Tiny font. Press ↑, ↓ or EXIT																
																40/41

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
24E0	Q	R	S	T	U	V	W	X	Y	Z						
2670											Δ	C			N	
2710				✓												
2780									,	▪						
2B60	+	+	+	+												
					π	π	π									ϑ
Tiny font. Press ↑ or EXIT																
																41/41

C47 Ref page : Formulas

Nr	Label	Fullname	Description	Image	Formula
10	$\Delta\%$	Delta percent	Delta percentage from Y to X, keeping Y on stack	Formula_DELTAPC.png	$\Delta\% = 100 * \frac{X - Y}{Y}$
20	$\Delta\%\bar{x}_1$	Delta percentage to mean	Delta percentage from $\bar{x}$ to x using statistics matrix (STATS)	Formula_DPCMEAN.png	$\Delta\%\bar{x} = 100 * \frac{X - \bar{x}}{\bar{x}}$
30	$i\Pi_n$	Integer product (RPN)	Integer product using RPN program selected with __ TamLblOnly menu ; $i\Pi_n$ (from Z to Y in steps of X) ; interrupt by [EXIT]	Formula_iPiIn.png	$i\Pi_n = \prod_{n=Z, \text{ step } X}^Y F(n)$
40	$i\Sigma_n$	Integer sum (RPN)	Integer sum using RPN program selected with __ TamLblOnly menu ; $i\Sigma_n$ (from Z to Y in steps of X) ; interrupt by [EXIT]	Formula_iSIGMAIn.png	$i\Sigma_n = \sum_{n=Z, \text{ step } X}^Y F(n)$
50	%	Percent	X Percent of Y, keeping Y on stack	Formula_PC.png	$\% = \frac{X}{100} * Y$
60	%MRR	Mean rate of return	Mean rate of return in percentage per period : %MRR = $100 * (x/y - 1) ^ (1/z)$	Formula_PCMRR.png	$\%MRR = 100 * \sqrt[z]{\frac{X - Y}{Y}}$
70	%+MG	Sales price having margin	Find sales price having margin of X percent over cost Y : %+MG = $Y / (1 - X/100)$	Formula_PCPMG.png	$\%+MG = \frac{Y}{1 - \frac{X}{100}}$
80	%Σ	Percentage of sum	Percentage of x to Σx : %Σ = $100 * x / \Sigma x$	Formula_PCSIGMA.png	$\%\Sigma = \frac{100 * X}{\Sigma X}$
90	%T	Percentage of total	Percentage of total, keeping Y on stack	Formula_PCT.png	$\%T = 100 * \frac{X}{Y}$
100	Π_n	Real product (RPN)	Real product using RPN program selected with __ TamLblOnly menu ; Π_n (from Z to Y in steps of X) ; interrupt by [EXIT]	Formula_PIn.png	$\ln(\epsilon_p) = \sqrt{\frac{n-1}{n}} \ln(\epsilon)$
110	ϵ	Scattering factor for a lognormal sample	Scattering factor for a lognormal sample	Formula_SCATTFACT.png	$\ln(\epsilon_x) = \sqrt{\frac{\sum_{i=1}^n \ln^2(x_i) - 2n \ln(\bar{x}_G)}{n - 1}}$
120	ϵ_m	Scattering factor of the geometric mean	Scattering factor of the geometric mean	Formula_SCATTFACTm.png	$\epsilon_m = \epsilon^{\frac{1}{\sqrt{n}}}$
130	ϵ_p	Scattering factor for a lognormal population	Scattering factor for a lognormal population	Formula_SCATTFACTp.png	$\ln(\epsilon_p) = \sqrt{\frac{n-1}{n}} \ln(\epsilon)$
140	Σ_n	Real sum (RPN)	Real sum using RPN program selected with __ TamLblOnly menu ; Σ_n (from Z to Y in steps of X) ; interrupt by [EXIT]	Formula_SIGMAIn.png	$\Sigma_n = \sum_{n=Z, \text{ step } X}^Y F(n)$

Nr	Label	Fullname	Description	Image	Formula
150	s_m	Standard error of the mean	Standard error of the mean	Formula_SM.png	$s_m = \frac{s_x}{\sqrt{n}}$
160	s_{mw}	Standard error of the weighted mean	Standard error of the weighted mean	Formula_SMW.png	$s_{mw} = \frac{1}{\sum_{i=1}^n y_i} \sqrt{\frac{\sum_{i=1}^n y_i \sum_{i=1}^n x_i^2 y_i - (\sum_{i=1}^n x_i y_i)^2}{\sum_{i=1}^n y_i - 1}}$
170	σ	Population standard deviation	Population standard deviation	Formula_STDDEV.png	$\sigma_x = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}$
180	σ_w	Weighted population standard deviation	Weighted population standard deviation	Formula_STDDEVPOP.png	$\sigma_w = \sqrt{\frac{\sum_{i=1}^n y_i (x_i - \bar{x}_w)^2}{\sum_{i=1}^n y_i}}$
190	s	Sample standard deviation	Sample standard deviation	Formula_STDDEVWEIGHTED.png	$s_x = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2}$
200	s_w	Weighted population standard deviation	Weighted population standard deviation	Formula_SW.png	$s_w = \sqrt{\frac{\sum_{i=1}^n y_i \sum_{i=1}^n x_i^2 y_i - (\sum_{i=1}^n x_i y_i)^2}{\sum_{i=1}^n y_i (\sum_{i=1}^n y_i - 1)}}$
210	$\bar{x}$	Arithmetic means	Arithmetic means, x and y	Formula_XBAR.png	$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$
220	$\bar{x}_G$	Geometric mean	Data evaluation of geometric mean	Formula_XG.png	$\bar{x}_G = \sqrt[n]{\prod_{i=1}^n x_i}$
230	$\bar{x}_H$	Harmonic mean	Data evaluation of harmonic mean	Formula_XH.png	$\bar{x}_H = \frac{n}{\sum_{i=1}^n \frac{1}{x_i}}$
240	$\bar{x}_{RMS}$	Quadratic mean	Data evaluation of quadratic mean	Formula_XRMS.png	$\bar{x}_{RMS} = \sqrt{\frac{1}{n} \sum_{i=1}^n x_i^2}$
250	$\bar{x}_w$	Weighted mean	Data evaluation of weighted mean	Formula_XW.png	$\bar{x}_w = \frac{\sum_{i=1}^n x_i y_i}{\sum_{i=1}^n y_i}$
260	EFF→I/a	Nominal TVM annual rate	Calculate Nominal TVM annual rate from the Effective TVM annual rate in X and copy value to I/a (variable I%/a)	Formula_EFFTOL.png	$I/a = 100 \cdot cp/a \cdot \left(\sqrt[n]{\frac{EFF/a}{100}} + 1 - 1 \right)$
270	I→EFF/a	Effective TVM annual rate	Calculate Effective TVM annual rate from the TVM annual interest rate in I/a (variable I%/a)	Formula_IT0EFF.png	$EFF/a = 100 \cdot \left[\left(\frac{I/a}{100 \cdot cp/a} + 1 \right)^{cp/a} - 1 \right]$

C47 Ref page : Fractions

Label	Fullname	Type	Default	Annunciator	Extended description
MULT×	Multiplication symbol	Flag	SET	<no annunciator>	SET for displaying multiplication symbol ×; CLEAR for displaying multiplication symbol ·; Info : Multiplication symbol is used in exponential and complex notation; symbol may be displayed in annunciator(s) related to FRACT settings
FDIGS	Set significant digits for fractions	Setting (pgm)	34	[+≈]	Set the number of significant digits (1-34) used by the approximations of the fraction modes; SBI ≈ indicates fractions can be approximated to be close enough (displayed if FDIGS < 34); TAM : FDIGS __ TamNonReg menu; Info : SBI [+≈] is shown if flag SBfrac is SET
.d	Decimal (Real) or Date	Function (monadic)			Convert to decimal (Real) or date value; untag (ADM) angle; clear Fractions Mode, #BASE Mode; convert angles / Times / Dates to Real; convert NIM input to Date (according to CLK date format settings and implied conversion set by YY; convert Complex number with zero imaginary part to Real; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM); when editing short integers, key .d removes the base (Normal Mode and PEM); in PEM, .d registers as →REAL; TI : decimal h: or yyyy.mmdd; Ref : https://47calc.com/doc/C47/Reference/C47_Date_formats.pdf
a b/c	Fractions modes	Setting (cyclic, pgm, stack)	OFF	a^b/n ; b/n ; [+≈]; $a^b/c \times I$; $b/c \times I$; [+≈]	Set and cycle fractions modes: proper (mixed), improper fractions (denominator determined by DMX, DENFIX, DENANY); or fractional approximations including irrationals; exit fractions mode via .d (g[LOG]); starts in mode last used or as set by flags PROPFR, FRACT and IRFRAC; When FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle; Shortcut : <a> [.] [.] <c>; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time); SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ , π^{-2} , π^{-1} , $\sqrt{\pi}$, π , π^2 , e^{-2} , e^{-1} , e and e^2 (with tolerance 10^{-24}); Prefix ≈ + <approximation>; multiplication symbol × or · according to flag MULT×; SBI ≈ indicates FDIGS < 34; SBI is shown if flag SBfrac is SET; Ref : https://47calc.com/doc/C47/Reference/C47_Fractions.pdf
DMX	Set max denominator for fractions [TAM]	Setting (pgm)	64	/nnnn; /max	Set max denominator for fractions [TAM variant]; maximum value of 32500 is set by button DMXmax on [TamNonRegMax.1] F2, stored as 0 and displayed as DMXmax; TAM : DMX ____ TamNonRegMax menu; range is [2, 9999] or 0, indicating DMXmax = 32500; SBI is shown if flag SBfrac is SET
DMX	Max denominator for fractions	Variable (longint, dropped)	64	/nnnn; /max	Dropped LongInteger variable (read only) for the maximum denominator for fractions (DMX); set interactively from menu DISP (DMX TAM variant); Info : Range is [2, 9999] or 0, indicating DMXmax = 32500; SBI is shown if flag SBfrac is SET
DENFIX	Denominator fixed	Flag	CLEAR	[+f]	SET for fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] ff5 (DMX)) in fraction display mode; CLEAR for any denominator in fraction display mode; Info : DENFIX and DENANY are linked (both cannot be SET at the same time); SBI [+f] is shown if flag SBfrac is SET
DENANY	Denominator any	Flag	CLEAR	[+×]	SET for any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] ff5 (DMX)) in fraction display mode; CLEAR for fixed denominator in fraction display mode; Info : DENANY and DENFIX are linked (both cannot be SET at the same time); SBI [+×] is shown if flag SBfrac is SET
PROPFR	Proper fractions	Flag	SET	a^b/n ; b/n ; [+≈]; $a^b/c \times I$; $b/c \times I$; [+≈]	SET for proper fractions (mixed fractions); CLEAR for improper fractions

Label	Fullname	Type	Default	Annunciator	Extended description
FRACT	Fractions mode	Flag	CLEAR	a^b/n ; b/n ; [+ $\approx$]	SET for fractions mode; CLEAR for fractions mode inactive ; Info : FRACT and IRFRAC are linked (both cannot be SET at the same time) ; /n or /max denotes maximum denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] fF5 (DMX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC; SBI $\approx$ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT])
IRFRAC	Irrational fractions mode	Flag	CLEAR	$a^b/c \times I$; $b/c \times I$; [+ $\approx$]	SET for irrational fractions mode; CLEAR for irrational fractions mode inactive ; IRFRAC gives fractional results only if a simple fraction exists ; on battery power, matrices and vectors are ignored to prevent heavy calculations ; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI $\times I$ or $\cdot I$ indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ , π^{-2} , π^{-1} , $\sqrt{\pi}$, π , π^2 , e^{-2} , e^{-1} , e and e^2 (with tolerance 10^{-24}) ; Prefix $\approx$ + <approximation> ; multiplication symbol $\times$ or $\cdot$ according to flag MULT $\times$; SBI $\approx$ indicates FDIGS < 34; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT])
IRFR	Irrational fractions mode preferred	Flag (system)	CLEAR	<no annunciator>	SET for irrational fractions mode preferred; CLEAR for irrational fractions mode not preferred ; Info : IRFR is SET by IRFRAC and CLEARED by FRACT to preserve state when toggling fraction modes using a b/c and .d

Unlike the normal fraction mode which always gives fractional results with < and > indicators, IRFRAC gives a fractional result only if a simple fraction exists, otherwise leaving the stack register in decimal if not ; DMX and PROPFR are respected, the other fraction flags are not applicable

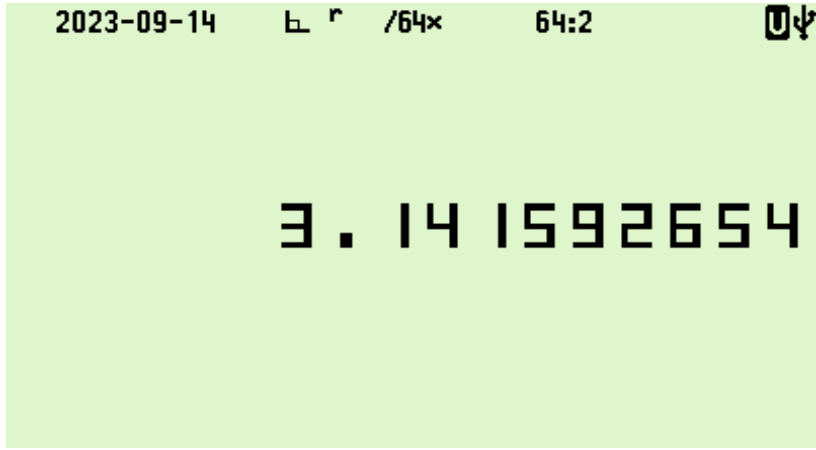
	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7
DMX	1200	1200	1200	1200	1200	1200	1200
SBI	/1200 $\times$	$b/1200 \times$	$b/1200f$	$b/1200$	$b/1200 \times I$	$b/1200 \times I$	$b/1200 \times I$
FRACT	--	FRACT	FRACT	FRACT	--	--	--
IRFRAC	--	--	--	--	IRFRAC	IRFRAC	IRFRAC
PROPFR	--	--	--	--	--	--	--
DENANY	--	--	--	DENANY	--	--	DENANY
DENFIX	--	--	DENFIX	--	--	DENFIX	--
1/950	0.00105263...	> 1/1200	> 1/1200	< 1/950	1/950	1/950	1/950
1/1201	0.00083264...	< 1/1200	< 1/1200	< 1/1200	8.326...E-04	8.326...E-04	8.326...E-04
1/301	0.00332226...	< 1/300	< 4/1200	> 1/301	1/301	1/301	1/301
1/45	0.02222222...	< 9/400	< 27/1200	< 1/45	1/45	1/45	1/45
$\pi/45$	0.06981317...	< 7/100	< 84/1200	< 71/1017	$\pi/45$	$\pi/45$	$\pi/45$

DENANY	DENFIX	PROPFR	IRFRAC	SBI (DMX = 1234)	Meaning
--	--	--	--	$b/1234 \times$	Means improper fractions possible, denominator can be 1234, 617 or 2
--	DENFIX	PROPFR	--	$a^b/1234f$	Means proper (mixed) fractions possible, denominator can only be 1234
DENANY	--	PROPFR	--	$a^b/1234$	Means proper (mixed) fractions possible, denominator can be any integer 2-1234
--	--	--	IRFRAC	$b/1234 \times I$	Means improper fractions possible, denominator can be any integer 2-1234 with a multiplier of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ , π^{-2} , π^{-1} , $\sqrt{\pi}$, π , π^2 , e^{-2} , e^{-1} , e and e^2 (with tolerance 10^{-24})

C47 Ref page : HP35

To start HP35-mode, enter:
[XEQ] 'OPENM [ENTER] 'DEV [ENTER] and press HP35

To return to C47 enter:
[XEQ] 'OPENM [ENTER] 'DEV [ENTER] and press 47



3 . 14 1592654

In HP35-mode, this configuration is set as indicated ; restored by RCLCFG 35 on return

Label	Fullname	Setting value
STOCFG	Store config	35
<none>	Set big display font size	
<none>	Clear pending key input	
CLRMOD	Clear modes	
CLSTK	Clear stack	
π	pi	
i R	input Real number	ON
SIG	SIGnificant digits notation	9
MyMb	MyMenu shown	OFF
HOMEb	HOME menu shown	OFF
RNG	Set number range	99
SDIGS	Set significant digits	16
dSTACK	Stack display lines	1
RAD	Set ADM to RAD	ON
SSIZE4	Stack size 4	ON
CPXRES	Complex results	CLEAR
SPCRES	Special results	CLEAR
eRPN	Entry RPN mode	CLEAR
fg.OFF	Menu f,g-highlighting Off	ON
<none>	Clear any pending TI	
IPGRP	IP group size	3
FPGRP	FP group size	3
IPGRP1	IP first group size	0
IPGRP1x	IP first group extension	0
IPART	Select IP separator	NONE
FPART	Select FP separator	NONE
RADIX	Select radix	WDOT •
R↑	Roll up	R↓
USER	USER mode	ON

This mode was inspired by the classic LED look:



C47 Ref page : Keyboard layers schema

	10	20	30	40	50	60	70	80	90
	NORMAL	NIM	AIM	TAM	SIM	aSIM	PEM	EIM	Unused
1	unshifted keyboard (11)		alpha keyboard (31)	TAM keyboard (41)	normalSIM keyboard shortcut (51)	alphaSIM keyboard shortcut (61)			
2	f-shift keyboard (12)		alpha f-shift (32)	#TAM keyboard (42)					
3	g-shift keyboard (13)		alpha g-shift (33)						
4	doublepress keyboard (14)	.	.				.	.	
5	triplepress keyboard (15)	.	alpha triplepress keyboard (35)				PEM triplepress keyboard (75)	.	
6	longpress keyboard (16)	NIM longpress keyboard (26)	alpha longpress keyboard (36)				PEM longpress keyboard (76)	EIM longpress keyboard (86)	
7	longerpress keyboard (17)	NIM longerpress keyboard (27)	alpha longerpress keyboard (37)				PEM longerpress keyboard (77)	EIM longerpress keyboard (87)	
8	.	.	.				PEM longestpress keyboard (78)	.	
9			unused (39)						

C47 Ref page : Keyboards side by side -- C47 and R47v0

C47	<table><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr><tr><td>F1</td><td>F2</td><td>F3</td><td>F4</td><td>F5</td><td>F6</td></tr><tr><td>$\Sigma+$</td><td>$1/x$</td><td>$\sqrt{x}$</td><td>LOG</td><td>LN</td><td>XEQ</td></tr><tr><td>ST0</td><td>RCL</td><td>R+</td><td>SIN</td><td>COS</td><td>TAN</td></tr><tr><td>ENTER</td><td></td><td>$x\div y$</td><td>$+/-$</td><td>E</td><td>$\leftarrow$</td></tr><tr><td>$\uparrow$</td><td></td><td>7</td><td>8</td><td>9</td><td>$\div$</td></tr><tr><td>$\downarrow$</td><td></td><td>4</td><td>5</td><td>6</td><td>$\times$</td></tr><tr><td>f/g</td><td></td><td>1</td><td>2</td><td>3</td><td>$-$</td></tr><tr><td>EXIT</td><td></td><td>0</td><td>.</td><td>R/S</td><td>+</td></tr><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr></table>	1	2	3	4	5	6	F1	F2	F3	F4	F5	F6	$\Sigma+$	$1/x$	$\sqrt{x}$	LOG	LN	XEQ	ST0	RCL	R+	SIN	COS	TAN	ENTER		$x\div y$	$+/-$	E	$\leftarrow$	$\uparrow$		7	8	9	$\div$	$\downarrow$		4	5	6	$\times$	f/g		1	2	3	$-$	EXIT		0	.	R/S	+	1	2	3	4	5	6	unshifted	<table><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr><tr><td>F1</td><td>F2</td><td>F3</td><td>F4</td><td>F5</td><td>F6</td></tr><tr><td>x^2</td><td>$\sqrt{x}$</td><td>$1/x$</td><td>y^x</td><td>LOG</td><td>LN</td></tr><tr><td>ST0</td><td>RCL</td><td>R+</td><td>DRG</td><td><f></td><td><g></td></tr><tr><td>ENTER</td><td></td><td>$x\div y$</td><td>CHS</td><td>EEX</td><td>$\leftarrow$</td></tr><tr><td>XEQ</td><td></td><td>7</td><td>8</td><td>9</td><td>$\div$</td></tr><tr><td>$\uparrow$</td><td></td><td>4</td><td>5</td><td>6</td><td>$\times$</td></tr><tr><td>$\downarrow$</td><td></td><td>1</td><td>2</td><td>3</td><td>$-$</td></tr><tr><td>EXIT</td><td></td><td>0</td><td>.</td><td>R/S</td><td>+</td></tr><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr></table>	1	2	3	4	5	6	F1	F2	F3	F4	F5	F6	x^2	$\sqrt{x}$	$1/x$	y^x	LOG	LN	ST0	RCL	R+	DRG	<f>	<g>	ENTER		$x\div y$	CHS	EEX	$\leftarrow$	XEQ		7	8	9	$\div$	$\uparrow$		4	5	6	$\times$	$\downarrow$		1	2	3	$-$	EXIT		0	.	R/S	+	1	2	3	4	5	6	R47v0
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C47 Ref page : KEYMAP in menu [CAT.1]fF6

C47	primaryNM
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unshifted keyboard mapping (USER KEYS)					
$\Sigma+$	1/x	$\sqrt{x}$	LOG	LN	XEQ
STO	RCL	R↓	SIN	COS	TAN
ENTER		x↗y	CHS	EEX	←
↑	7	8	9	÷	
↓	4	5	6	×	
f/g	1	2	3	-	
EXIT	0	.	R/S	+	
[↑] [↓] Browse - [.] Toggle STD/USER View					

Browse keyboard map (default USER mode) ; also showing special NORMAL hotkey assignment from menu $\Sigma+$ KEY ; if KEYMAP is activated when in Alpha Input Mode or Equation Input Mode, the alpha keyboard mappings are shown only (default NORMAL mode, starting with alpha g-shift) ; Press and hold key [.] to view USER or NORMAL (STD) keys ; browse using [$\blacktriangle$] and [$\blacktriangledown$] ; press [EXIT] to exit Keyboard map ; NORMAL keys show dimmed in USER view

C47 Ref page : KeyType

	1	2	3	4	5	6	
1	F1	F2	F3	F4	F5	F6	1
1	11	12	13	14	15	16	1
1	13	13	13	13	13	13	1
2	$\Sigma+$	$1/x$	$\sqrt{x}$	LOG	LN	XEQ	2
2	21	22	23	24	25	26	2
2	12	12	12	12	12	12	2
3	STO	RCL	R↓	SIN	COS	TAN	3
3	31	32	33	34	35	36	3
3	12	12	12	12	12	12	3
4	ENTER		$x \rightarrow y$	+/-	E	←	4
4	41		42	43	44	45	4
4	12		12	10	10	12	4
5	▲		7	8	9	÷	5
5	51		52	53	54	55	5
5	12		7	8	9	12	5
6	▼		4	5	6	×	6
6	61		62	63	64	65	6
6	12		4	5	6	12	6
7	f/g		1	2	3	-	7
7	71		72	73	74	75	7
7	11		1	2	3	12	7
8	EXIT		0	.	R/S	+	8
8	81		82	83	84	85	8
8	12		0	10	12	12	8
	1		2	3	4	5	

KEY?

Test key was pressed : if it is NOT pressed, the next program stap will be executed and if it IS pressed, the next program step will be skipped and the keycode is stored in the register specified ; keycode range is 11-85, where the first digit is row, second digit is column number

KEY? should not to be used in short loops, keeps calculator running on full power ; [R/S] and [EXIT] interrupt a program and KEY? will not work for those keys

KTYP

Get key type for key code returned by KEY?

C47 Ref page : Legend colours

Legend for the reference
documentation colour coding

Note

Menu button	Is also indicated in Index column in indexes
Hardware only	Colour coding used in menu pages only Is also indicated in Type and Description
SIM only	Colour coding used in menu pages only Is also indicated in Type and Description
Not yet implemented or not available on either SIM or hardware	Is also indicated in Type and Description On the real hardware, not yet implemented is indicated by a diagonal strike (Error : 29 -- Item to be coded)
primaryNM	Is also indicated in Index column in indexes
f	Is also indicated in Index column in indexes
g	Is also indicated in Index column in indexes
alpha	Is also indicated in Index column in indexes
alpha f	Is also indicated in Index column in indexes
alpha g	Is also indicated in Index column in indexes
TAM	Is also indicated in Index column in indexes
#TAM	Is also indicated in Index column in indexes
Catalog Only Item	Is also indicated by * at left of table entry in doc page "C47 Function catalog : CAT.FCNS"
Catalog Only Menu	Also indicated in Description of menus
Special LongpressNM shortcut*	May indicate a special longpress, longerpress or longestpress shortcut not on the calculator's (shifted) keyboard ; shift key functions are displayed in the normal colour with the symbol * added
SIM, shortcut, or special	Is also indicated in Description of items
Not in current layout menus	Only colour coded in Full index and menu pages Indicated as Cat Only elsewhere
Legacy	Is also indicated in Type

C47 Ref page : Prime numbers

Label	Fullname	Description	Additionalinfo
NEXTP	Next prime	Next prime of the integer X	Prime numbers are calculated only if $X < 10^{308}$, or NEXTP raises Error 1 -- An argument exceeds the function domain (may depend on flag CPXRES and SPCRES)
PRIME?	Primality test	Test X is a prime number (must be integer) -- see https://en.wikipedia.org/wiki/Miller%E2%80%93Rabin_primality_test ; [https://en.wikipedia.org/wiki/Miller%E2%80%93Rabin_primality_test]	Miller-Rabin probabilistic primality test is used (25 repetitions) ; PRIME? is correct up to 3 317 044 064 679 887 385 961 980 ; above that limit there are no false negatives, but there is a very low probability of false positives (albeit no known cases)
FACTORS	Prime factors	Prime factors of the integer input in X ; factors are calculated in Long integer, stored as Real number (34 digits) and returned as a 2 row matrix (row 1 contains the primes, row 2 contains the powers) ; shows status, number being tested and last factor found ; interrupt by [EXIT] ; registers G, H, K are used to store the last three factors, in Long integer (register K stores the remaining number to be factorised after interrupt) -- see https://en.wikipedia.org/wiki/Pollard's_rho_algorithm ; https://en.wikipedia.org/wiki/Shanks%27s_square_forms_factorization ; [https://en.wikipedia.org/wiki/Pollard's_rho_algorithm ; https://en.wikipedia.org/wiki/Shanks%27s_square_forms_factorization]	Pollard's rho algorithm and Shanks's square forms factorization are used ; prime factors will be accurate up to 3 317 044 064 679 887 385 961 980 ; for input values > 34 digits, the long integer factors are saved in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; during execution, status info may be shown: Factors: Small prime trial: p = Factors: Perfect Sq trial: p = Factors: Shanks/Pollard↑: n = Factors: Shanks/Pollard↓: n =
M.FACT	Multiply (prime) factors	Multiply (prime) factors from a 2 row matrix in X (row 1 contains the factors, row 2 contains the powers)	E.g. use FACTORS matrix as input in X
$\zeta(x)$	Riemann's Zeta for real arguments	Riemann's Zeta for real arguments -- see http://mathworld.wolfram.com/RiemannZetaFunction.html ; [http://mathworld.wolfram.com/RiemannZetaFunction.html]	
ϕ_E	Euler's totient function	Euler's totient function using either a FACTORS matrix or Long integer as input in X -- see https://en.wikipedia.org/wiki/Euler's_totient_function ; [https://en.wikipedia.org/wiki/Euler's_totient_function]	

C47 Ref page : Regional

Menu button	Setting	FullName	DEFLT ◇	CHINA ◇	EUROP ◇	INDIA ◇	JAPAN ◇	UK ◇	USA ◇
[CLK.2] F1	CLK12	12 hour clock	.	.	.	.	.	CLK12	CLK12
[CLK.2] F2	CLK24	24 hour clock	CLK24	CLK24	CLK24	CLK24	CLK24	.	.
[CLK.2] F4	DMY	Day.month.year	.	.	DMY	DMY	.	DMY	.
[CLK.2] F5	MDY	Month/day/year	.	.	.	.	.	.	MDY
[CLK.2] F6	YMD	Year-month-day	YMD	YMD	.	.	YMD	.	.
[DISP.1] gF1	IPART _L	IP separator (integer part)	SPC _L	COM,	SPC _L	COM,	SPC _L	SPC _L	COM,
[IPART.1] gF1	IPGRP	IP group size	3	4	3	2	3	3	3
[IPART.1] gF3	IPGRP1x	IP first group extension	0	0	0	0	0	0	9
[IPART.1] gF2	IPGRP1	IP first group size	0	0	0	3	0	0	0
[FPART.1] gF1	FPGRP	FP group size	3	4	3	2	3	3	3
[DISP.1] gF3	FPART _L	FP separator (fractional part)	SPC _L	COM,	SPC _L	COM,	SPC _L	SPC _L	COM,
[DISP.1] gF2	RADIX _L	Radix	PER.	PER.	COM,	PER.	PER.	PER.	PER.
[CLK.3] F2	J/G	Set Julian-Gregorian transition	1752-09-14	1949-10-01	15.10.1582	14.09.1752	1873-01-01	14.09.1752	09/14/1752

◇ : all group settings comply

◇ : ≥1 group settings differ

Y	1752	1949	1582	1752	1873	1752	1752
M	09	10	10	09	01	09	09
D	14	01	15	14	01	14	14

C47 Ref page : Registers -- REGS (Register browser) on key g [▲]

(status bar)
R99:
R98:
R97:
R96:
R95:
R94:
R93:
R92:
R91:
R90:

(status bar)
R03:
R02:
R01:
R00:
W:
V:
U:
O:
H:
G:

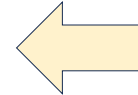
(status bar)
F:
E:
S:
R:
Q:
P:
N:
M:
K:
J:
...
...

(status bar)
I:
L:
D:
C:
B:
A:
T:
Z:
Y:
X:

REGS control keys
 [.] : Switch register/variable view,
 [R/S] : Switch contents/storage view,
 [RCL] : Recall bottom item,
 [▲], [▼], [A-Z], [0-9] : Navigate,
 [EXIT] : Exit Register browser ;
 Ref : https://n7calc.com/doc/C47/Reference/C47_Registers.pdf
 Lettered registers are numbered the same way as the lettered flags, see FLOS Browser
 (Ref : https://n7calc.com/doc/C47/Reference/C47_Flags_p1.pdf)

Nr	Register	Registers 00-99 General Purpose, R10-R37 prefilled with test values
00	R00	General purpose register R00
...	...	...
09	R09	General purpose register R09
10	R10	Reg 11, 12 & 13 have: The 3 cubes = 3.
11	R11	569936821221962380720
12	R12	-569936821113563493509
13	R13	-472715493453327032
14	R14	Reg 15, 16 & 17 have: The 3 cubes = 42.
15	R15	-48539738812075974
16	R16	80435759145617515
17	R17	12602123287335631
18	R18	37 digits of pi, Reg19 / Reg20.
19	R19	2646583125139304345
20	R20	842458597426513207
21	R21	Primes: Carol
22	R22	18814388241046527
23	R23	Primes: Kynea
24	R24	1844674082299486207
25	R25	Primes: repunit
26	R26	7369130657357778596659
27	R27	Primes: Woodal
28	R28	19584598277569926302400511
29	R29	Primes: Woodal
30	R30	477691310895204141824805622882488319
31	R31	Primes: Woodal
32	R32	2252517985944666614089154317747131957458142670447890973300731390393510002687
33	R33	pi.(10^100) (101 digits) longinteger
34	R34	31415926535897932384626433832795028841971693993751058209749445923078164062862089986280348253421170680
35	R35	0. ; The current configuration is stored in register 35 when setting the HP-35 profile in menu DEV
36	R36	100 primes' product 2x3x...x541
37	R37	4711930799906184953162487834760260420205747734096755201886348396164153358450342212052892567055446819...
38	R38	Heart:16x(sin(t)^3)+ix(13xcos(t)-5xcos(2t)-2xcos(3t)-cos(4t))
39..99	R39..R99	General purpose register R39..R99
Nr	Register	Registers 81-99 General purpose, plus special usage
81..99	R81..R99	General purpose register R81..R99 plus special usage in menu ELEC, cpxSlv and (R98) XFCNS
Nr	Letter	Registers 100-111 Special usage
100	X	Stack level 1
101	Y	Stack level 2
102	Z	Stack level 3
103	T	Stack level 4
104	A	Stack level 5
105	B	Stack level 6
106	C	Stack level 7
107	D	Stack level 8
108	L	Last X
109	I	General purpose register I ; also used to store current row of indexed matrix
110	J	General purpose register J ; also used to store current column of indexed matrix
111	K	General purpose register K ; special purpose : see table to the right
Nr	Register	Register 112-210 Local registers (scope is the current routine level)
112..210	R.00..R.99	Local registers R.00..R.99 for 1 routine (when allocated by LocR) ; example: DSE .00
Nr	Register	Register 211-224 General purpose, plus special usage as distribution parameter
211	M	General purpose register M ; also used to store distribution parameter : mean, median, location, degree of freedom 1, centre, lower limit
212	N	General purpose register N ; also used to store distribution parameter : degree of freedom 2, quantity, upper limit
213	P	General purpose register P ; also used to store distribution parameter : probability
214	Q	General purpose register Q ; also used to store distribution parameter : shape, 3rd integer
215	R	General purpose register R ; also used to store distribution parameter : rate
216	S	General purpose register S ; also used to store distribution parameter : scale, spread
217	E	General purpose register E
218	F	General purpose register F
219	G	General purpose register G ; also used to store third to last long integer prime factor for FACTORS
220	H	General purpose register H ; also used to store second to last long integer prime factor for FACTORS
221	O	General purpose register O
222	U	General purpose register U
223	V	General purpose register V
224	W	General purpose register W

Nr	Register	Special use in HP35 (https://n7calc.com/doc/C47/Reference/C47_HP35.pdf)
35	R35	The current configuration is stored in register 35 when setting the HP-35 tribute profile in menu DEV



Shaded values for the numbered registers are loaded by running the program PROGRAMS/tstData.p47 (use READP)
 For the simulator, the values can also be loaded using switch --testData

Nr	Register	Special usage in ELEC menu functions on Z, V and I ; in menu XFCNS for storing Virtual compound data types
90	R90	V.x ; triplet <R90> × R91 + R92
91	R91	V.y ; triplet R90 × <R91> + R92
92	R92	V.z ; triplet R90 × R91 + <R92>
93	R93	I.x ; triplet <R93> × R94 + R95
94	R94	I.y ; triplet R93 × <R94> + R95
95	R95	I.z ; triplet R93 × R94 + <R95>
96	R96	Z.x ; triplet <R96> × R97 + R98
97	R97	Z.y ; triplet R96 × <R97> + R98
98	R98	Z.z ; triplet R96 × R97 + <R98>

Register	Number	Registers General purpose, plus special usage
A	104	Stack level 5
B	105	Stack level 6
C	106	Stack level 7
D	107	Stack level 8
E	217	General purpose register E
F	218	General purpose register F
G	219	General purpose register G ; also used to store third to last long integer prime factor for FACTORS
H	220	General purpose register H ; also used to store second to last long integer prime factor for FACTORS
I	109	General purpose register I ; also used to store current row of indexed matrix
J	110	General purpose register J ; also used to store current column of indexed matrix
K	111	General purpose register K ; also used in VarMNU to store variable name when MVAR-defined button (<var...>) is pressed without NIM input ; also used to store last long integer prime factor for FACTORS or the remaining number to be factorised ; also used as the default alpha register for commands compatible with the HP-42S/DM42(n) calculator
L	108	Last X
M	211	General purpose register M ; also used to store distribution parameter : mean, median, location, degree of freedom 1, centre, lower limit
N	212	General purpose register N ; also used to store distribution parameter : degree of freedom 2, quantity, upper limit
O	221	General purpose register O
P	213	General purpose register P ; also used to store distribution parameter : probability
Q	214	General purpose register Q ; also used to store distribution parameter : shape, 3rd integer
R	215	General purpose register R ; also used to store distribution parameter : rate
S	216	General purpose register S ; also used to store distribution parameter : scale, spread
T	103	Stack level 4
U	222	General purpose register U
V	223	General purpose register V
W	224	General purpose register W
X	100	Stack level 1
Y	101	Stack level 2
Z	102	Stack level 3

Separate table for distribution parameters is on Ref : https://n7calc.com/doc/C47/Reference/C47_Distr_param.pdf

C47 Ref page : Shortcuts ; also see : https://47calc.com/doc/Application%20Notes/AN0018_C47_R47_Keyboard.pdf

Label	Fullname	Type	Combo	Regular location	Description
-	Minus	Character	alpha g [-]	[αMath.1] gF5	Minus
;	Semicolon	Character	alpha f [0]	[αMisc.1] gF5	Character ;
:	Colon	Character	alpha f [0]	[αMisc.1] gF6	Character : ; in the equation editor, the colon can be used to name an expression (<name> : <expression>)
!	Exclamation mark	Character	alpha f [R/S]	[αMisc.2] F1	In edit equation, used as Factorial x! or Γ(x+1)
.	Full stop	Character	alpha g [.]	[αMisc.1] gF3	Character .
...EL	Store X into matrix element	Command (TAM)	[STO] - Config	[TamSto.1] gF1	Presented in menu TamSto to store X into current element of indexed matrix
...EL	Recall matrix element	Command (TAM)	[RCL] - ...EL	[TamRcl.1] gF1	Presented in menu TamRcl to recall current element of indexed matrix
...IJ	Set current matrix index	Command (TAM)	[STO] - ...IJ	[TamSto.1] gF2	Presented in menu TamSto to set current matrix index (row I and column J)
...IJ	Recall current matrix index	Command (TAM)	[RCL] - ...IJ	[TamRcl.1] gF2	Presented in menu TamRcl to recall current matrix index (row I and column J)
...Max	Store maximum	Command (TAM)	[STO] - [▲]	[TamSto.1] fF6	Presented in menu TamSto to store maximum of X and register or variable
...Max	Recall maximum	Command (TAM)	[RCL] - [▲]	[TamRcl.1] fF6	Presented in menu TamRcl to recall maximum of X and register or variable
...Min	Store minimum	Command (TAM)	[STO] - [▼]	[TamSto.1] fF5	Presented in menu TamSto to store minimum of X and register or variable
...Min	Recall minimum	Command (TAM)	[RCL] - [▼]	[TamRcl.1] fF5	Presented in menu TamRcl to recall minimum of X and register or variable
...VEL _{nn}	Store X into vector element	Command (TAM)	[STO] - ...VEL _{nn}	[TamSto.1] fF3	Presented in menu TamSto to store X into element n (TAM) of vector or matrix in Y
...VEL _{nn}	Recall vector element	Command (TAM)	[RCL] - ...VEL _{nn}	[TamRcl.1] fF3	Presented in menu TamRcl to recall element n (TAM) of vector or matrix in X
[M] ⁻¹	Invert matrix	Function (monadic)	[1/x]	[MATX.2] F1	Invert matrix in X (exists only when M ≠ 0)
/	Slash	Character	alpha g [R/S]	[αMath.1] gF2	Character /
#	Number sign	Character	alpha f [.]	[αMisc.1] F2	Number sign, used for Short integer (8.02-8.16) base
^	Circumflex accent	Character	alpha g [1/x]	[αMath.2] F1 (Exponent)	Raise to power
→CYL	Tag as Cylindrical	Function (monadic)	→P cycles through →SPH, then →CYL	[VECTOR.1] F3	Tag a 3D vector as having cylindrical coordinates
→SPH	Tag as Spherical	Function (monadic)	→P cycles through →SPH, then →CYL	[VECTOR.1] F2	Tag a 3D vector as having spherical coordinates, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) and indicated by the TI subscript of the spherical polar vector : _p for Physics, _m for Math (determines ordering of vector elements, works on whole stack)
↑ (α ^{SUP})	Superscript	Alpha-shift	alpha g [▲]		Superscript
↓ (α _{SUB})	Subscript	Alpha-shift	alpha g [▼]		Subscript
↵	Carriage return	Character	alpha g [ENTER] ; alpha longer [ENTER] ; EIM longer [ENTER]	[αMisc.1] F1	Character ↵
↔	Left right arrow	Character	alpha g [x↔y]	[αMisc.3] F1	Character ↔
+	Plus	Character	alpha g [+]	[αMath.1] gF6	Plus
±	Plus-minus	Character	alpha g [+/-]	[αMath.2] gF6	Character ±
×	Obelus	Character	alpha g [÷]	[αMath.1] gF3	Character ×
×	Cross	Character	alpha g [x]	[αMath.1] gF4	Character ×
<f>lipchar	Flip case (one character)	Alpha-shift (special)	alpha f + <char>	alpha f [f/g]	Set next alpha entry to flip lower/UPPER case (one character)
<g>	Shift g	g-shift	double [f/g] ; longpress [f/g]		Shift g (blue)
<ON>	Switch on	Command	Switched OFF - [EXIT]		Switch on calculator
<E>	Exponent sign (AIM)	Character	alpha g [E]	[αMath.4] F3	Character E (displays as outline E in numeric font)
	Bar	Character	alpha g [STO]	[NEW (EQ_EDIT).2] fF5	Open or close absolute value
√	Square root	Character	alpha g [√x]	[NEW (EQ_EDIT).1] F4	Square root
A	Local label A	EasyAccess (TAM)	LBL [A]		Easy access to local label A
a b/c	Fractions modes	Setting (cyclic, pgm, stack)	<a> [.] [.] <c>	g [Σ+]	Set and cycle fractions modes : proper (mixed), improper fractions (denominator determined by DMX, DENFIC, DENANY) ; or fractional approximations including irrationals ; exit fractions mode via .d (g[LOG]) ; starts in mode last used or as set by flags PROPFR, FRACT and IRFRAC ; when FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle
ALPHA	Alpha input	MENU	alpha triple [f/g] (because HOME _F is SET ; not available in TamAlpha) ; alpha longer [f/g] (because HOME _F is SET)		Alpha menu to enter, edit and clear alpha input
π	Superscript pi	Character	alpha g [▲] π (alpha g [R4])		Character π
B	Local label B	EasyAccess (TAM)	LBL [B]		Easy access to local label B
BIN	Binary	Setting (pgm)	#TAM [1/x] (B)	[BASE.1] F4	Convert X to binary and toggle binary mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY _{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle
BST	Backstep	Command (nonpgm)	[▲]	f [▲]	Backstep

Label	Fullname	Type	Combo	Regular location	Description
C	Local label C	EasyAccess (TAM)	LBL {C}		Easy access to local label C
CAPS	Alpha capslock	Setting	alpha f[▲] / alpha f[▼]	[ALPHA.1]gF1	Switch on alpha capslock ; not programmable
CASE DN	Alpha lock downwards	Alpha-shift	alpha f[▼]		Move down alpha lock from N to A to a
CASE UP	Alpha lock upwards	Alpha-shift	alpha f[▲]		Move up alpha lock from A to a to N
CLA	Clear alpha	Command	alpha f[←]; alpha g[←]; alpha long [←]; EIM long [←]		In Alpha Input Mode, clear alpha input buffer ; in Equation Input Mode, clear equation (alpha) input buffer
CLN	Clear number	Command	NIM long [←]		Clear numeric input buffer
CLRMOD	Clear modes	Command	longerpress [EXIT]; NIM longer [EXIT]; alpha longer [EXIT]; PEM longest [EXIT]; EIM longer [EXIT]	[CLR.1]gF2	Clear all menus, entry, fraction and base modes
CLSTK	Clear stack	Command	longpress [←]	[CLR.1]F6	Clear stack registers : when stack size is 8, clears XYZT ABCD ; when stack size is 4, clears XYZT ; if setting iLI is ON, the stack is filled with 0 (Long integers)
Config	Store config	Command (TAM)	[STO] - Config	[TamSto.1]fF1	Presented in menu TamSto to store config in register or variable
Config	Recall config	Command (TAM)	[RCL] - Config	[TamRcl.1]fF1	Presented in menu TamRcl to recall config from register or variable
COS	Cosine (string)	Character	alpha g[COS] ("COS")		Cosine
D	Local label D	EasyAccess (TAM)	LBL {D}	[TamLabel.1]F4	Easy access to local label D
DEC	Decimal (short integer)	Setting (pgm)	#TAM [LOG] (D)	[BASE.1]F2	Convert X to decimal (short integer) and toggle decimal (short integer) mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY _{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle
DEC	Decimal (short integer)	Setting (pgm)	#TAM [ENTER]	[BASE.1]F2	Convert X to decimal (short integer) and toggle decimal (short integer) mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY _{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle
di<g>pit	Set numeric (one digit)	Alpha-shift (special)	alpha g + <char>	alpha g[f/g]	Set next alpha entry to numeric (one digit) or other alpha g-shifted character
DROPx	Drop X	Command	double [←] (if <DROP is CLEAR -- default)	[STK.1]F1	Drop X from stack
E	Local label E	EasyAccess (TAM)	LBL {E}	[TamLabel.1]F5	Easy access to local label E
e	eEuler	Character	alpha f[-]	[αMath.3]gF4	Character e
EDIT	Edit item	Command	longerpress [←]; alpha longer [←]; PEM long [←]; EIM longer [←]	[P.FN.1]gF1	Edit item in X (any data type, except Config) in Normal Mode ; edit text strings, numbers or function parameters in the current step in Program Entry Mode ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM)
Flag A	Flag A	EasyAccess (TAM)	FF {A}	[FLG.1]fF3	Easy access to Flag A (104)
Flag B	Flag B	EasyAccess (TAM)	FF {B}	[FLG.1]fF4	Easy access to Flag B (105)
Flag C	Flag C	EasyAccess (TAM)	FF {C}	[FLG.1]fF5	Easy access to Flag C (106)
Flag D	Flag D	EasyAccess (TAM)	FF {D}	[FLG.1]fF6	Easy access to Flag D (107)
Flag E	Flag E	EasyAccess (TAM)	FF {E}	[FLG.2]F1	Easy access to Flag E (217)
Flag G	Flag G	EasyAccess (TAM)	FF {G}	[FLG.2]F3	Easy access to Flag G (219)
Flag H	Flag H	EasyAccess (TAM)	FF {H}	[FLG.2]F4	Easy access to Flag H (220)
Flag I	Flag I	EasyAccess (TAM)	FF {I}	[FLG.1]gF1	Easy access to Flag I (109)
Flag J	Flag J	EasyAccess (TAM)	FF {J}	[FLG.1]gF2	Easy access to Flag J (110)
Flag K	Flag K	EasyAccess (TAM)	FF {K}	[FLG.1]fF1	Easy access to Flag K (111)
Flag L	Flag L	EasyAccess (TAM)	FF {L}	[FLG.1]fF2	Easy access to Flag L (108)
Flag M	Flag M	EasyAccess (TAM)	FF {M}	[FLG.1]F1	Easy access to Flag M (211)
Flag N	Flag N	EasyAccess (TAM)	FF {N}	[FLG.1]F2	Easy access to Flag N (212)
Flag O	Flag O	EasyAccess (TAM)	FF {O}	[FLG.2]F5	Easy access to Flag O (221)
FP	Fractional Part	Function (monadic)	#TAM [XEQ] (F) for closed number	[REAL.1]F2	Fractional Part of real number
G	Local label G	EasyAccess (TAM)	LBL {G}		Easy access to local label G
GTO.	Go to label or step	Command (nonpgm)	GTO - [...] or [XEQ] - [...] to enter GTO.		GTO. to go to (local) label or step ; GTO.. to move the program pointer to the end of program memory
GTO↑	Go to program start	Command (nonpgm)	GTO (g[XEQ]) - [▲]		GTO↑ to go to the start of the (previous) program or jump to the start of program memory
GTO↓	Go to program end	Command (nonpgm)	GTO (g[XEQ]) - [▼]		GTO↓ to go to the next program or jump to the end of program memory
H	Local label H	EasyAccess (TAM)	LBL {H}		Easy access to local label H
HEX	Hexadecimal	Setting (pgm)	#TAM [RCL] (H)	[BASE.1]F1	Convert X to hexadecimal and toggle hexadecimal mode ; if KEY _{A-F} is SET, digits A-F can be entered by pressing row 2 keys
HOME	HOME	MENU	triple [f/g] (because HOME [Ⓐ] is SET) ; longerpress [f/g] (because HOME [Ⓐ] is SET)	g[7]	User menu to quickly access user selected menus and functions ; all buttons are user assignable ('riveted' look) ; initially populated for basic scitech options ; reset using HOME.R
I	Local label I	EasyAccess (TAM)	LBL {I}		Easy access to local label I
IP	Integer Part	Function (monadic)	#TAM [R÷] (I) for closed number	[REAL.1]F1	Integer Part of number (returns Real number)
J	Local label J	EasyAccess (TAM)	LBL {J}		Easy access to local label J
K	Local label K	EasyAccess (TAM)	LBL {K}		Easy access to local label K
L	Local label L	EasyAccess (TAM)	LBL {L}		Easy access to local label L

Label	Fullname	Type	Combo	Regular location	Description
LAP→R	Store lap time in register	Command	[.] (STOPW active)	[STOPW.1] F4	Store lap time in register, increment CRA (Current Register Address) and reset lap timer ; subscript shows CRA
LAP→Σ	Add lap time to STATS	Command	[+] (STOPW active)	[STOPW.1] F2	Add lap time to STATS (statistics matrix) and reset lap timer ; subscript shows number of data points
LN	Natural logarithm (string)	Character	alpha g [LN] ("LN")		Natural logarithm (base e)
LOG	Common logarithm (string)	Character	alpha g [LOG] ("LOG")		Common logarithm (base 10)
MSQRT	Square root of matrix	Function (monadic)	[√X]	[MATX.2] F2	Square root of matrix in X : if M = MSQRT(X), $M \times M = X$, where $\times$ denotes matrix multiplication
MyMenu	MyMenu	MENU (item, nonpgm)	longpress [EXIT] ; NIM long [EXIT]		User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.C47
MyMenu	MyMenu	MENU	PEM longer [EXIT] ; longpress [EXIT] ; NIM long [EXIT] ; during assignment, pressing USER (f[2]) opens MyMenu		User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.C47
Myα	MyAlpha	MENU	alpha long [EXIT] ; EIM long [EXIT]	[ALPHA.1] fF1	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R
NUM	Numlock	Setting	alpha f [▲] / alpha f [▼]	[ALPHA.1] gF2	Switch on numlock ; not programmable - in PEM, use flag NUM
OCT	Octal	Setting (pgm)	#TAM [E] (0)	[BASE.1] F3	Convert X to octal and toggle octal mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY _{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle
P.FN	Programming functions	MENU	PEM long [EXIT] ; PEM triple [f/g] (because either HOME _F or MyM _F is SET and either HOME _E or MyM _E is SET) ; PEM longer [f/g] (because either HOME _F or MyM _F is SET and either HOME _E or MyM _E is SET)	[P.FN3.1] F6 ; f[3]	User menu to quickly access selected menus and functions for programming ; all buttons are user assignable ('riveted' look) ; initially populated for basic programming options ; reset using PFN.R
R/S	Start/stop stopwatch	Command	[R/S] (STOPW active)	[STOPW.1] F5	Start/stop the stopwatch
RCL	Recall and load to timer	Command (nonpgm)	[RCL] (STOPW active)	[STOPW.1] fF3	Recall register value and load to stopwatch timer (decimal hours or time value)
RCL-	Recall and subtract	Function (monadic)	[RCL] - [-]		Recall register or variable and subtract X
RCL↑	Recall maximum	Command	[RCL] - [▲]		Recall maximum of X and register or variable
RCL↓	Recall minimum	Command	[RCL] - [▼]		Recall minimum of X and register or variable
RCL+	Recall and add	Function (monadic)	[RCL] - [+]		Recall register or variable and add X
RCL÷	Recall and divide	Function (monadic)	[RCL] - [÷]		Recall register or variable and divide by X
RCL×	Recall and multiply	Function (monadic)	[RCL] - [×]		Recall register or variable and multiply by X
RCLCFG	Recall config	Command	[RCL] - Config		Recall config from register or variable
RCELE	Recall matrix element	Command	[RCL] - ...EL	[MATX.3] gF4	Recall current element of indexed matrix
RCLIJ	Recall current matrix index	Command	[RCL] - ...IJ	[MATX.3] F4	Recall current matrix index (row I and column J)
RCLS	Recall stack	Command	[RCL] - Stack		Recall complete stack from 4 or 8 registers
RCLVEL	Recall vector element	Command	[RCL] - ...VEL _{nn}	[MATX.1] gF4	Recall element n (TAM) of vector or matrix in X
RegA	Register A	EasyAccess (TAM)	STO/RCL {A}	[REG.1] fF3 ; TAM [x+]	Easy access to Register A (104) : Stack level 5
RegB	Register B	EasyAccess (TAM)	STO/RCL {B}	[REG.1] fF4 ; TAM [1/x]	Easy access to Register B (105) : Stack level 5
RegC	Register C	EasyAccess (TAM)	STO/RCL {C}	[REG.1] fF5 ; TAM [√x]	Easy access to Register C (106) : Stack level 7
RegD	Register D	EasyAccess (TAM)	STO/RCL {D}	[REG.1] fF6 ; TAM [LOG]	Easy access to Register D (107) : Stack level 8
RegE	Register E	EasyAccess (TAM)	STO/RCL {E}	[REG.2] F1 ; TAM [LN]	Easy access to Register E (217) : General purpose register E
RegG	Register G	EasyAccess (TAM)	STO/RCL {G}	[REG.2] F3 ; TAM [STO]	Easy access to Register G (219) : General purpose register G ; also used to store third to last long integer prime factor for FACTORS
RegH	Register H	EasyAccess (TAM)	STO/RCL {H}	[REG.2] F4 ; TAM [RCL]	Easy access to Register H (220) : General purpose register H ; also used to store second to last long integer prime factor for FACTORS
RegI	Register I	EasyAccess (TAM)	STO/RCL {I}	[REG.1] gF1 ; TAM [R÷]	Easy access to Register I (109) : General purpose register I ; also used to store current row of indexed matrix
RegJ	Register J	EasyAccess (TAM)	STO/RCL {J}	[REG.1] gF2 ; TAM [SIN]	Easy access to Register J (110) : General purpose register J ; also used to store current column of indexed matrix
RegK	Register K	EasyAccess (TAM)	STO/RCL {K}	[REG.1] fF1 ; TAM [COS]	Easy access to Register K (111) : General purpose register K ; also used in VarMNU to store variable name when MVAR-defined button (<var...>) is pressed without NIM input ; also used to store last long integer prime factor for FACTORS or the remaining number to be factorised ; also used as the default alpha register for commands compatible with the HP-42S/DM42(n) calculator
RegL	Register L	EasyAccess (TAM)	STO/RCL {L}	[REG.1] fF2 ; TAM [TAN]	Easy access to Register L (108) : Last X
RegM	Register M	EasyAccess (TAM)	STO/RCL {M}	[REG.1] F1 ; TAM [x2y]	Easy access to Register M (211) : General purpose register M ; also used to store distribution parameter : mean, median, location, degree of freedom 1, centre, lower limit
RegN	Register N	EasyAccess (TAM)	STO/RCL {N}	[REG.1] F2 ; TAM [+/-]	Easy access to Register N (212) : General purpose register N ; also used to store distribution parameter : degree of freedom 2, quantity, upper limit
RegO	Register O	EasyAccess (TAM)	STO/RCL {O}	[REG.2] F5 ; TAM [E]	Easy access to Register O (221) : General purpose register O

Label	Fullname	Type	Combo	Regular location	Description
REGS	Register browser	Browser	[.] : Switch register/variable view, [R/S] : Switch contents/storage view, [RCL] : Recall bottom item, [▲], [▼], ABCDEGHIJKLMNO, 00..99 : Navigate, [EXIT] : Exit Register browser	[STOPW.1] fF2 ; g [▲]	Browse all registers
RESET	Reset stopwatch	Command	[+] (STOPW active)	[STOPW.1] F6	Reset the stopwatch
π	Subscript pi	Character	alpha g [▼] π (alpha g [R+])		Character π
SIN	Sine (string)	Character	alpha g [SIN] ("SIN")		Sine
SNAP	Screenshot	Command	[f/g] + [E] (DMCP-shortcut for screenshot bitmap only)	[I/O.1] gF5 ; g [EXIT]	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound
SST	Single step	Command (nonpgm)	[▼]	f [▼]	Single step
Stack	Store stack	Command (TAM)	[STO] - Stack	[TamSto.1] fF2	Presented in menu TamSto to store entire stack in 4 or 8 registers
Stack	Recall stack	Command (TAM)	[RCL] - Stack	[TamRcl.1] fF2	Presented in menu TamRcl to recall complete stack from 4 or 8 registers
STO-	Subtract X from register	Function (monadic)	[STO] - [-]		Subtract X from register or variable
STO↑	Store maximum	Command	[STO] - [▲]		Store maximum of X and register or variable
STO↓	Store minimum	Command	[STO] - [▼]		Store minimum of X and register or variable
STO+	Add X into register	Function (monadic)	[STO] - [+]		Add X into register or variable ; if X is a text string, the target is converted to text string and X is concatenated
STO÷	Divide X into register	Function (monadic)	[STO] - [÷]		Divide register or variable by X
STO×	Multiply X into register	Function (monadic)	[STO] - [×]		Multiply register or variable by X
STOCFG	Store config	Command	[STO] - Config		Store config in register or variable
STOEL	Store X into matrix element	Command	[STO] - Config	[MATX.3] gF3	Store X into current element of indexed matrix
STOIJ	Set current matrix index	Command	[STO] - ...IJ	[MATX.3] F3	Set current matrix index (row I and column J)
STOPW	Stopwatch	MENU (internal)	[0]... : Direct entry of digit 0... into CRA (Current Register Address), ...[9] : Direct entry of digit ...9 into CRA (Current Register Address), [▲] : Increment CRA (Current Register Address), [▼] : Decrement CRA (Current Register Address), g [EXIT] : Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT (SNAP), [EXIT] : Exit the stopwatch		Stopwatch with running time, counter and countdown (playing BEEP after running down)
STOS	Store stack	Command	[STO] - Stack		Store entire stack in 4 or 8 registers
STOVEL	Store X into vector element	Command	[STO] - ...VEL _n	[MATX.1] gF3	Store X into element n (TAM) of vector or matrix in Y
SUP _{SUB}	Normal-super-subscript	Setting (cyclic)	alpha g [▲] / alpha g [▼]	[ALPHA.1] gF3	Cycle normal-super-subscript (locking)
TamAlpha	TAM mode (alpha)	MENU (TAM)	Activated from TAM menus by α (f [XEQ]) or TAM [XEQ]	[Tam.1] f [XEQ]	Transient Alpha Mode is activated for trailing input (alpha)
TamIndirect	TAM mode (indirect)	MENU (TAM)	Activated from TAM menus by Indirection (→)	[Tam.1] F1 (Indirection)	Transient Alpha Mode is activated for trailing input (indirect)
TamLocalLabel	TAM mode (local label)	MENU (TAM)	Activated from TAM menus by Colon button (:))		Transient Alpha Mode is activated for trailing input (local label)
TAN	Tangent (string)	Character	alpha g [TAN] ("TAN")		Tangent
TIM→R	Store time in register	Command	[ENTER] (STOPW active)	[STOPW.1] F3	Store time in register and increment CRA (Current Register Address) ; subscript shows R/S
TIM→Σ	Add time to STATS	Command	[Σ+] (STOPW active)	[STOPW.1] F1	Add time to STATS (statistics matrix) ; subscript shows number of data points
X.EDIT	Edit X	Command	alpha long [ENTER] ; EIM long [ENTER]	[ALPHA.1] fF2 ; alpha f [ENTER]	Edit contents of stack register X as text
α	Alpha input	MENU (item)	longpress [XEQ] (even when M.14 is ON)	f [XEQ]	Open alpha menu to enter, edit and clear alpha input ; when TAM is active, open menu TamAlpha
α	alpha	Character	alpha g [XEQ]	[α...ω.1] F1	Character α
Δ	DELTA	Character	alpha g [RCL]	[A...Ω.1] F4	Character Δ
π	pi	Character	alpha g [R+]	[α...ω.1] gF5	Greek character π
Σ	SIGMA	Character	alpha g [Σ+]	[A...Ω.2] F2	Character Σ

C47 Ref page : SIM Switches

SIM switch	Description
	<i>Special options</i>
./c47 --background	specify background picture
./c47 --functionkeys	display function key labels
	<i>Orientation</i>
./c47 --landscape	landscape orientation
./c47 --portrait	portrait orientation
./c47 --auto	automatic orientation
	<i>Alternative or sublayouts</i>
./c47 --r47	R47v0 layout (f g)
./c47 --r47v0	R47v0 layout (f g)
./c47 --r47v1	R47v1 layout (f ^g □)
./c47 --r47v2	R47v2 layout (f ^g g)
./c47 --r47v3	R47v3 layout (□ f ^g)
./c47 --dm42	DM42 layout
./c47 --e47	E47 layout (SIM only) (sunsetting)
./c47 --n47	N47 layout (SIM only) (sunsetting)
./c47 --v47	V47 layout (SIM only) (sunsetting)
./c47 --d47	D47 layout (SIM only) (sunsetting)
	<i>Special settings</i>
./c47 --jm	Setting profile: Jaco preferences
./c47 --rj	Setting profile: RJvM preferences
./c47 --hp35	Setting profile: HP-35 tribute
	<i>Special modes</i>
./c47 --deadkeys	typewriter style dead keys
./c47 --swapctrlcode	ctrl fix for Swiss keyboards
./c47 --testPgms	load the test programs testPgms.bin if present; reset calculator with testPgms and create new backup.cfg when exit
./c47 --testData	load the test data in Reg 10 to Reg 38
./c47 --help	list all SIM switches
./c47 --h	see --help

	<i>Dev and Automation</i>
./c47 --mockup	output demo status bar layout
./c47 --dumpMenus1	output all static menus to drive; old file name format 'Menu_140_p1_RIBBONS.bmp'; default folder 'menuDump' (auto headless mode)
./c47 --dumpMenus2	output all static menus to drive; new file name format 'RIBBONS.1.bmp'; default folder 'menuDump' (auto headless mode)
./c47 --dumpMenusAll	RefDB47 superset: every static menu incl. 1stDeriv/2ndDeriv/Sf/Solver/Grapher/SHOW; new file name format; default folder 'menuDump' (auto headless mode)
./c47 --writeexportall	output all PROGS (internal use)
	<i>T47 DSL -- https://tangentsoft.com/rpn/wiki?name=R47:+The+Simulator+DSL</i>
./c47 --script	execute DSL script from file or - for stdin
./c47 --exec	execute DSL commands inline, e.g. ./t47 --exec 'nim 123; x!'
./c47 --e	see --exec, e.g. ./t47 --exec 'nim 3; nim -4; xeq y*'
./c47 --headless	suppress GTK interface startup
./c47 --dslcommands	produce T47 ops table in t47-op-commands.txt

On the simulator, pressing OFF or quitting the application saves the calculator state in : backup.cfg

C47 Ref page : SIM+AIM function table

Label	FullName	Type	Shortcut	Mnemonic
			<none>	n/a
_	Underscore	Character	_ (AIM)	key
-	Subtract	Function (dyadic)	-	key
-	Minus	Character	- (AIM)	key
.	Radix	Symbol	,	key
,	Comma	Character	, (AIM)	key
;	Semicolon	Character	; (AIM)	key
:	Colon	Character	: (AIM)	key
!	Exclamation mark	Symbol	! (AIM)	key
?	Question mark	Character	? (AIM)	key
.	Radix	Symbol	.	key
.	Full stop	Character	. (AIM)	key
.d	Decimal (Real) or Date	Function (monadic)	=	=
.d	Decimal (Real) or Date	Function (monadic)	@	@
.d	Decimal (Real) or Date	Function (monadic)	é	é
.ms	Minutes & seconds	Function (monadic, cyclic)	\$	\$
·k	kilo	Command (nonpgm)	F10	F10
·m	milli	Command (nonpgm)	F9	F9
·M	Mega	Command (nonpgm)	F11	F11
·n	nano	Command (nonpgm)	F7	F7
·u	micro	Command (nonpgm)	F8	F8
'	Apostrophe	Character	' (AIM)	key
"	Quotation mark	Character	" (AIM)	key
(	Left parenthesis	Symbol	((AIM)	key
)	Right parenthesis	Symbol	) (AIM)	key
[	Left square bracket	Character	[(AIM)	key
[a]	Alpha input	MENU (item)	'	'
]	Right square bracket	Character	] (AIM)	key
{	Left curly bracket	Character	{ (AIM)	key
}	Right curly bracket	Character	} (AIM)	key
§	Section	Character	§ (AIM)	key
§ or ±	§ or ±	SIM-key	§ or ` (AIM)	key
@	At	Character	@ (AIM)	key
*	Asterisk	Character	* (AIM)	key
/	Slash	Character	/ (AIM)	key
\	Back slash	Character	\ (AIM)	key
&	Ampersand	Character	& (AIM)	key
#	Number base	Setting (pgm, stack)	#	#
#	Number base	Setting (pgm, stack)	"	"
#	Number sign	Symbol	# (AIM)	key
%	Percent	Function (dyadic)	%	%
%	Percent	Character	% (AIM)	key
` or ~	` or ~	SIM-key	± or ~ (AIM)	key
^	Exponent	Symbol	^ (AIM)	key
°	Degree sign	Character	° (AIM)	key
←	Backspace	Command (nonpgm)	BKSPC	key
↵	Carriage return	Character	TAB (AIM)	key
+	Add	Function (dyadic)	+	key
+	Plus	Character	+ (AIM)	key
+/-	Change sign	Function (monadic)	n	CHS [n]egative
÷	Divide	Function (dyadic)	/	key
×	Multiply	Function (dyadic)	*	key
<	Less than	Character	< (AIM)	key
<f>	Shift f	f-shift	<none>	<none>
<f>	Shift f	f-shift	<none>	<f> : [f]-shift
<g>	Shift g	g-shift	Ctrl	Ctrl
<g>	Shift g	g-shift	g	<g> : [g]-shift
=	Equal	Character	= (AIM)	key
>	Greater than	Character	> (AIM)	key
	Pipe ; Bar	Character	(AIM)	key
x	Magnitude	Function (monadic)		[]x
x	Magnitude	Function (monadic)	Z	Z (integer)
√x	Square root	Function (monadic)	q	s[q]rt
√y	xth root	Function (dyadic)	y	xth root of [y]

Label	FullName	Type	Shortcut	Mnemonic
$\angle$	Argument (angle)	Function (monadic)	A	[A]ssign
↶	Undo	Command (nonpgm)	u	[u]ndo
◻	Black key	Key (black)	<none>	mystery
▲	Up	Command	Up	key
▼	Down	Command	Down	key
→I	To integer	Function (monadic, cyclic)	&	key
→P	To polar	Function (monadic, dyadic)	P	->P
→R	To rectangular	Function (monadic, dyadic)	R	->R
\$	Dollar	Character	\$ (AIM)	key
£	Pound	Character	£ (AIM)	key
0	Digit 0	Digit	0	key
1	Digit 1	Digit	1	key
10 ^x	10 to the power x	Function (monadic)	0	antil[0]g
2	Digit 2	Digit	2	key
3	Digit 3	Digit	3	key
4	Digit 4	Digit	4	key
5	Digit 5	Digit	5	key
6	Digit 6	Digit	6	key
7	Digit 7	Digit	7	key
8	Digit 8	Digit	8	key
9	Digit 9	Digit	9	key
A	A	Character	a (AIM)	A
a	a	Character	A (AIM)	a
à	a grave	Character	à (AIM)	key
Ä	A diaresis	Character	Ä (AIM)	key
ä	a diaresis	Character	ä (AIM)	key
a ^{b/c}	Fractions modes	Setting (cyclic, pgm, stack)	:	:
ACOS	Arc cosine	Function (monadic)	C	arc[C]os
ASIN	Arc sine	Function (monadic)	S	arc[S]in
ATAN	Arc tangent	Function (monadic)	T	arc[T]an
B	B	Character	b (AIM)	B
b	b	Character	B (AIM)	b
C	C	Character	c (AIM)	C
c	c	Character	C (AIM)	c
ç	c cedilla	Character	ç (AIM)	key
COMPLEX	Complex number	Function (dyadic)	X	comple[X]
COS	Cosine	Function (monadic)	c	[c]os
D	D	Character	d (AIM)	D
d	d	Character	D (AIM)	d
[DISP]	Display settings	MENU	I	D[I]SP
DRG	Degrees-radians-gradians	Function (monadic, cyclic, no	>	=>D,R,G
E	Enter exponent	Command	e	[e]xponent
E	E	Character	e (AIM)	E
e	e	Character	E (AIM)	e
e	Euler's	Constant	E	[E]uler's e
é	e accute	Character	é (AIM)	key
è	e grave	Character	è (AIM)	key
e ^x	e to the power x	Function (monadic)	L	anti[L]n
ENTER	Enter	Command	Enter	key
EXIT	Exit	Command	Esc	key
[EXP]	Exponential	MENU	J	key (DISP)
F	F	Character	f (AIM)	F
f	f	Character	F (AIM)	f
f/g	Shift f/g	f/g-shift	Shift	Shift
f/g	Shift f/g	f/g-shift	f	f/g : [f]/g-shift
F1	Function key 1	F-key	F1	key
F2	Function key 2	F-key	F2	key
F3	Function key 3	F-key	F3	key
F4	Function key 4	F-key	F4	key
F5	Function key 5	F-key	F5	key
F6	Function key 6	F-key	F6	key
G	G	Character	g (AIM)	G
g	g	Character	G (AIM)	g
GT0	Go to	Command (PEM)	G	[G]o to
H	H	Character	h (AIM)	H
h	h	Character	H (AIM)	h
[HOME]	HOME	MENU	H	[H]ome

Label	FullName	Type	Shortcut	Mnemonic
i	Complex number (rectangular notation)	Command	i	i
j	Complex number (rectangular notation)	Command	j	j
I	I	Character	i (AIM)	I
i	i	Character	I (AIM)	i
$i_{\odot}$	Complex number (polar notation)	Command	k	z
$1/x$	Reciprocal	Function (monadic)	v	in[v]erse
$1/x$	Reciprocal	Function (monadic)	V	in[V]erse
J	J	Character	j (AIM)	J
j	j	Character	J (AIM)	j
K	K	Character	k (AIM)	K
k	k	Character	K (AIM)	k
L	L	Character	l (AIM)	L
l	l	Character	L (AIM)	l
LASTx	Last X	Command	W	key (x<>y)
LBL	Label	Command (PEM)	b	L[b]L
LN	Natural logarithm	Function (monadic)	l	[l]n
LOG	Common logarithm	Function (monadic)	o	l[o]g
M	M	Character	m (AIM)	M
m	m	Character	M (AIM)	m
[MODE]	Mode settings	MENU	M	[M]ODE
[MyMenu]	MyMenu	MENU	B	[B]ase menu
N	N	Character	n (AIM)	N
n	n	Character	N (AIM)	n
nil	Nothing	Symbol	<none>	n/a
0	0	Character	o (AIM)	0
o	o	Character	O (AIM)	o
ö	o diaeresis	Character	Ö (AIM)	key
ö	o diaeresis	Character	ö (AIM)	key
P	P	Character	p (AIM)	P
p	p	Character	P (AIM)	p
[PFX]	Prefixes (UNIT)	MENU	F	PRE[F]IX
PRGM	Programming	Command	N	RP[N] prgm
Q	Q	Character	q (AIM)	Q
q	q	Character	Q (AIM)	q
R	R	Character	r (AIM)	R
r	r	Character	R (AIM)	r
R/S	Run/Stop	Command	\	key
R/S	Run/Stop	Command	z	z
R↑	Roll up	Command	D	Up [D]
R↓	Roll down	Command	d	[d]own
RCL	Recall	Command	r	[r]cl
RTN	Return	Command (PEM)	<	< return
S	S	Character	s (AIM)	S
s	s	Character	S (AIM)	s
SIN	Sine	Function (monadic)	s	[s]in
ß	sz	Character	ß (AIM)	key
[STK]	Stack	MENU	K	ST[K]
STO	Store	Command	m	[m]emory
SYM (AIM)	Activate symbol input	SIM-shift	<none>	key
T	T	Character	t (AIM)	T
t	t	Character	T (AIM)	t
TAN	Tangent	Function (monadic)	t	[t]an
U	U	Character	u (AIM)	U
u	u	Character	U (AIM)	u
ù	u grave	Character	ù (AIM)	key
Ü	U diaeresis	Character	Ü (AIM)	key
ü	u diaeresis	Character	ü (AIM)	key
USER	USER mode	Setting	U	[U]ser
V	V	Character	v (AIM)	V
v	v	Character	V (AIM)	v
W	W	Character	w (AIM)	W
w	w	Character	W (AIM)	w
X	X	Character	x (AIM)	X
x	x	Character	X (AIM)	x
x!	Factorial x! or $\Gamma(x+1)$	Function (monadic)	!	!
x↔y	Swap X and Y	Command	TAB	key
x↔y	Swap X and Y	Command	w	s[w]ap

Label	FullName	Type	Shortcut	Mnemonic
XEQ	Execute	Command (PEM)	x	[x]eq
x^2	Square	Function (monadic)	Q	s[Q]uare
x^2	Square	Function (monadic)	²	x[^2]
Y	Y	Character	y (AIM)	Y
y	y	Character	Y (AIM)	y
y^x	y to the power x	Function (dyadic)	Y	[Y]^x
y^x	y to the power x	Function (dyadic)	^	y[^]x
Z	Z	Character	z (AIM)	Z
z	z	Character	Z (AIM)	z
μ	mu	Character	μ (AIM)	key
π	pi	Command	p	pi
$\Sigma+$	Sigma+	Command	a	[a]ccumulate

C47 Ref page : Skipping program steps

Label	Fullname	Description
SKIP	Skip	Skip n program steps
RCL.SKP	Recall and skip	Recall value from register or variable and skip the next instruction (intended use is after a test function, which if true, calls RCL.SKP and jumps over the next program step, which means that step is executed only if the test function returns false)
RTN.SKP	Return and skip	Return from subroutine to calling program and skip the instruction following the calling XEQ (intended use is to allow a subroutine to function as a built in test function, which if true, returns using RTN and using RTN.SKP otherwise)
XEQ.SKP	Execute and skip	Execute function or program with global or local label and skip the next instruction (intended use is after a test function, which if true, calls XEQ.SKP and jumps over the next program step, which means that step is executed only if the

C47 Ref page : Solver Result Codes

Real solver

Result code	Meaning
0	(Normal result, TI's are shown)
1	Large Δ and opposite signs, may be a pole
2	Solver reached local extremum, no root
3	≥ 1 initial guess lies out of the domain
4	The function value look static constant
5	No root found

Complex solver

Result code	Meaning
0	(Normal result, TI's are shown)
5	No root found
200	Root found and conjugate confirmed

1

C47 Ref page : Stopwatch -- STOPW on key g[0]

Button	Key	Description
TIM→Σ	[Σ+]	Add time to STATS (statistics matrix) ; subscript shows number of data points
LAP→Σ	[+]	Add lap time to STATS (statistics matrix) and reset lap timer ; subscript shows number of data points
TIM→R	[ENTER]	Store time in register and increment CRA (Current Register Address) ; subscript shows R/S
LAP→R	[.]	Store lap time in register, increment CRA (Current Register Address) and reset lap timer ; subscript shows CRA
R/S	[R/S]	Start/stop the stopwatch
RESET	[←]	Reset the stopwatch

Button	Key	Description
PLSTAT		Plot statistics matrix (STATS)
REGS		Browse all registers
RCL	[RCL]	Recall register value and load to stopwatch timer (decimal hours or time value)
RCL ^Σ	keyType [0]	Recall register value and load to countdown timer (decimal hours or time value)
0.1s		Show running time with tenths of seconds
CLΣ		Clear all statistics data ; delete matrices HIST0 and STATS

Label	Key	Description
0...	[0]...	Direct entry of digit 0... into CRA (Current Register Address)
...9	...[9]	Direct entry of digit ...9 into CRA (Current Register Address)
	[▲]	Increment CRA (Current Register Address)
	[▼]	Decrement CRA (Current Register Address)
SNAP	g[EXIT]	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT (SNAP)
	[EXIT]	Exit the stopwatch

The running (total) timer is positioned top left in the display
The CRA (Current Register Address) is displayed between []
When laps are timed the running lap timer is added top right
and the running (total) timer display shows [†]
The countdown timer may be displayed below the running timer and
shows the superscript ^Σ (also displays elapsed time after countdown)

Use [EXIT] to leave stopwatch (keeps running until stopped)

C47 Ref page : Unit conversions (flag CONV_{HP} default SET)

CLEAR - Flag CONV _{HP} - SET							
Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
Acceleration	ft/s ² →m/s ²	Convert foot per second squared to metre per second squared	m/s ² :	ft/s ² →	m/s ² ←	[FLoads..1] gF6	Force loads conversions
	in/s ² →m/s ²	Convert inch per second squared to metre per second squared	m/s ² :	in/s ² →	m/s ² ←	[FLoads..1] fF6	Force loads conversions
	m/s ² →ft/s ²	Convert metre per second squared to foot per second squared	ft/s ² :	m/s ² →	ft/s ² ←	[FLoads..1] gF5	Force loads conversions
	m/s ² →in/s ²	Convert metre per second squared to inch per second squared	in/s ² :	m/s ² →	in/s ² ←	[FLoads..1] fF5	Force loads conversions
Angle	deg→grad	Convert degree to gradian (untagged)	grad:	deg→	grad←	[Angle..1] F3	Angle and angular velocity conversions
	deg→rad	Convert degree to radian (untagged)	rad:	deg→	rad←	[Angle..1] F1	Angle and angular velocity conversions
	grad→deg	Convert gradian to degree (untagged)	deg:	grad→	deg←	[Angle..1] F4	Angle and angular velocity conversions
	grad→rad	Convert gradian to radian (untagged)	rad:	grad→	rad←	[Angle..1] F5	Angle and angular velocity conversions
	rad→deg	Convert radian to degree (untagged)	deg:	rad→	deg←	[Angle..1] F2	Angle and angular velocity conversions
	rad→grad	Convert radian to gradian (untagged)	grad:	rad→	grad←	[Angle..1] F6	Angle and angular velocity conversions
Angular/Speed	deg/s→rad/s	Convert degree per second to radian per second	rad/s:	deg/s→	rad/s←	[Angle..1] fF5	Angle and angular velocity conversions
	deg/s→RPM	Convert degree per second to rotation per minute	RPM:	deg/s→	RPM←	[Angle..1] fF2	Angle and angular velocity conversions
	rad/s→deg/s	Convert radian per second to degree per second	deg/s:	rad/s→	deg/s←	[Angle..1] fF6	Angle and angular velocity conversions
	rad/s→RPM	Convert radian per second to rotation per minute	RPM:	rad/s→	RPM←	[Angle..1] fF4	Angle and angular velocity conversions
	RPM→deg/s	Convert rotation per minute to degree per second	deg/s:	RPM→	deg/s←	[Angle..1] fF1	Angle and angular velocity conversions
	RPM→rad/s	Convert rotation per minute to radian per second	rad/s:	RPM→	rad/s←	[Angle..1] fF3	Angle and angular velocity conversions
Area							
	acre→ha	Convert acre to hectare	ha:	acre→	ha←	[Area..1] F1	Area conversions
	acre _{US} →ha	Convert US acre to hectare	ha:	acre _{US} →	ha←	[Area..1] fF1	Area conversions
	ft ² →ha	Convert square foot to hectare	ha:	ft ² →	ha←	[Area..1] gF1	Area conversions
	ft ² →m ²	Convert square foot to square metre	m ² :	ft ² →	m ² ←	[Area..1] gF3	Area conversions
	ha→acre	Convert hectare to acre	acre:	ha→	acre←	[Area..1] F2	Area conversions
	ha→acre _{US}	Convert hectare to US acre	acre _{US} :	ha→	acre _{US} ←	[Area..1] fF2	Area conversions
	ha→ft ²	Convert hectare to square foot	ft ² :	ha→	ft ² ←	[Area..1] gF2	Area conversions
	ha→km ²	Convert hectare to square kilometre	km ² :	ha→	km ² ←	[Area..1] gF5	Area conversions
	ha→m ²	Convert hectare to square metre	m ² :	ha→	m ² ←	[Area..1] F3	Area conversions
	in ² →mm ²	Convert square inch to square millimetre	mm ² :	in ² →	mm ² ←	[SecPrp..1] fF3	Section properties conversions
	km ² →ha	Convert square kilometre to hectare	ha:	km ² →	ha←	[Area..1] gF6	Area conversions
	km ² →mi ²	Convert square kilometre to square mile	mi ² :	km ² →	mi ² ←	[Area..1] F6	Area conversions
	km ² →nmi ²	Convert square kilometre to square nautical mile	nmi ² :	km ² →	nmi ² ←	[Area..1] fF6	Area conversions
	m ² →ft ²	Convert square metre to square foot	ft ² :	m ² →	ft ² ←	[Area..1] gF4	Area conversions
	m ² →ha	Convert square metre to hectare	ha:	m ² →	ha←	[Area..1] F4	Area conversions
	m ² →m ²	Convert square metre to m ²	m ² :	m ² →	m ² ←	[Area..1] fF4	Area conversions
	mi ² →km ²	Convert square mile to square kilometre	km ² :	mi ² →	km ² ←	[Area..1] F5	Area conversions
	mm ² →in ²	Convert square millimetre to square inch	in ² :	mm ² →	in ² ←	[SecPrp..1] fF4	Section properties conversions
	m ² →m ²	Convert m ² to square metre	m ² :	m ² →	m ² ←	[Area..1] fF3	Area conversions
	nmi ² →km ²	Convert square nautical mile to square kilometre	km ² :	nmi ² →	km ² ←	[Area..1] fF5	Area conversions
Density	blob/in ³ →kg/m ³	Convert blob per cubic inch to kilogram per cubic metre	kg/m ³ :	lob/in ³ →	kg/m ³ ←	[MatPrp..1] gF6	Material properties conversions
	blob/in ³ →lbs/in ³	Convert blob per cubic inch to pound per cubic inch	lbs/in ³ :	lob/in ³ →	lbs/in ³ ←	[MatPrp..1] gF4	Material properties conversions
	kg/m ³ →blob/in ³	Convert kilogram per cubic metre to blob per cubic inch	blob/in ³ :	kg/m ³ →	lob/in ³ ←	[MatPrp..1] gF5	Material properties conversions
	kg/m ³ →lbs/in ³	Convert kilogram per cubic metre to pound per cubic inch	lbs/in ³ :	kg/m ³ →	lbs/in ³ ←	[MatPrp..1] F4	Material properties conversions
	kg/m ³ →t/mm ³	Convert kilogram per cubic metre to metric tonne per cubic millimetre	t/mm ³ :	kg/m ³ →	t/mm ³ ←	[MatPrp..1] fF5	Material properties conversions
	lbs/in ³ →blob/in ³	Convert pound per cubic inch to blob per cubic inch	blob/in ³ :	lbs/in ³ →	lob/in ³ ←	[MatPrp..1] gF3	Material properties conversions
	lbs/in ³ →kg/m ³	Convert pound per cubic inch to kilogram per cubic metre	kg/m ³ :	lbs/in ³ →	kg/m ³ ←	[MatPrp..1] F3	Material properties conversions
	lbs/in ³ →t/mm ³	Convert pound per cubic inch to metric tonne per cubic millimetre	t/mm ³ :	lbs/in ³ →	t/mm ³ ←	[MatPrp..1] fF3	Material properties conversions
	t/mm ³ →kg/m ³	Convert metric tonne per cubic millimetre to kilogram per cubic metre	kg/m ³ :	t/mm ³ →	kg/m ³ ←	[MatPrp..1] fF6	Material properties conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	t/mm ³ →lbs/in ³	Convert metric tonne per cubic millimetre to pound per cubic inch	lbs/in ³ :	t/mm ³ →	lbs/in ³ ←	[MatPrp:.1] f F4	Material properties conversions
Distance	au→m	Convert astronomical unit to metre	m:	au→	m←	[Length:.1] g F5	Length conversions
	Banana→in	Convert Banana length to inch	in:	Banana→	in←	[FFF+:.1] g F1	Humorous conversions
	Banana→mm	Convert Banana length to millimetre	mm:	Banana→	mm←	[FFF+:.1] f F1	Humorous conversions
	brds→in	Convert beardsecond to inch	in:	brds→	in←	[FFF+:.2] F3	Humorous conversions
	brds→m	Convert beardsecond to metre	m:	brds→	m←	[FFF+:.2] F1	Humorous conversions
	chī→m	Convert chi to metre	m:	chī→	m←	[Length:.2] g F3	Length conversions
	cm→in	Convert Centimetre to inch	in:	cm→	in←	[Length:.3] g F4	Length conversions
	cùn→m	Convert cùn to metre	m:	cùn→	m←	[Length:.2] f F5	Length conversions
	fathom→m	Convert fathom to metre	m:	fathom→	m←	[Length:.3] f F3	Length conversions
	fēn→m	Convert fēn to metre	m:	fēn→	m←	[Length:.2] g F5	Length conversions
	ft→m	Convert foot to metre	m:	ft→	m←	[Length:.1] f F3	Length conversions
	fur→m	Convert furlong to metre	m:	fur→	m←	[FFF+:.1] F1	Humorous conversions
	in→Banana	Convert inch to Banana length	Banana:	in→	Banana←	[FFF+:.1] g F2	Humorous conversions
	in→brds	Convert inch to beardsecond	brds:	in→	brds←	[FFF+:.2] F4	Humorous conversions
	in→cm	Convert inch to Centimetre	cm:	in→	cm←	[Length:.3] g F3	Length conversions
	in→mm	Convert inch to millimetre	mm:	in→	mm←	[SecPrp:.1] F3	Section properties conversions
	km→mi	Convert kilometre to mile	mi:	km→	mi←	[Length:.1] F2	Length conversions
	km→nmi	Convert kilometre to nautical mile	nmi:	km→	nmi←	[Length:.1] f F2	Length conversions
	lǐ→m	Convert lǐ to metre	m:	lǐ→	m←	[Length:.2] F1	Length conversions
	ly→m	Convert light year to metre	m:	ly→	m←	[Length:.1] f F5	Length conversions
	m→au	Convert metre to astronomical unit	au:	m→	au←	[Length:.1] g F6	Length conversions
	m→brds	Convert metre to beardsecond	brds:	m→	brds←	[FFF+:.2] F2	Humorous conversions
	m→chī	Convert metre to chī	chī:	m→	chī←	[Length:.2] g F4	Length conversions
	m→cùn	Convert metre to cùn	cùn:	m→	cùn←	[Length:.2] f F6	Length conversions
	m→fathom	Convert metre to fathom	fathom:	m→	fathom←	[Length:.3] f F4	Length conversions
	m→fēn	Convert metre to fēn	fēn:	m→	fēn←	[Length:.2] g F6	Length conversions
	m→ft	Convert metre to foot	ft:	m→	ft←	[Length:.1] f F4	Length conversions
	m→fur	Convert metre to furlong	fur:	m→	fur←	[FFF+:.1] F2	Humorous conversions
	m→lǐ	Convert metre to lǐ	lǐ:	m→	lǐ←	[Length:.2] F2	Length conversions
	m→ly	Convert metre to light year	ly:	m→	ly←	[Length:.1] f F6	Length conversions
	m→mi	Convert metre to mile	mi:	m→	mi←	[Length:.3] F2	Length conversions
	m→nmi	Convert metre to nautical mile	nmi:	m→	nmi←	[Length:.3] f F2	Length conversions
	m→pc	Convert metre to parsec	pc:	m→	pc←	[Length:.1] F6	Length conversions
	m→survey ft _{US}	Convert metre to US survey foot	survey ft _{US} :	m→	ey ft _{US} ←	[Length:.3] F4	Length conversions
	m→yd	Convert metre to yard	yd:	m→	yd←	[Length:.1] F4	Length conversions
	m→yīn	Convert metre to yīn	yīn:	m→	yīn←	[Length:.2] F4	Length conversions
	m→zhàng	Convert metre to zhàng	zhàng:	m→	zhàng←	[Length:.2] f F4	Length conversions
	mi→km	Convert mile to kilometre	km:	mi→	km←	[Length:.1] F1	Length conversions
	mi→m	Convert mile to metre	m:	mi→	m←	[Length:.3] F1	Length conversions
	mi→nmi	Convert mile to nautical mile	nmi:	mi→	nmi←	[Length:.1] g F2	Length conversions
	mm→Banana	Convert millimetre to Banana length	Banana:	mm→	Banana←	[FFF+:.1] f F2	Humorous conversions
	mm→in	Convert millimetre to inch	in:	mm→	in←	[SecPrp:.1] F4	Section properties conversions
	mm→point	Convert millimetre to point	point:	mm→	point←	[Length:.3] F6	Length conversions
	nmi→km	Convert nautical mile to kilometre	km:	nmi→	km←	[Length:.1] f F1	Length conversions
	nmi→m	Convert nautical mile to metre	m:	nmi→	m←	[Length:.3] f F1	Length conversions
	nmi→mi	Convert nautical mile to mile	mi:	nmi→	mi←	[Length:.1] g F1	Length conversions
	pc→m	Convert parsec to metre	m:	pc→	m←	[Length:.1] F5	Length conversions
	point→mm	Convert point to millimetre	mm:	point→	mm←	[Length:.3] F5	Length conversions
	survey ft _{US} →m	Convert US survey foot to metre	m:	ey ft _{US} →	m←	[Length:.3] F3	Length conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	yd→m	Convert yard to metre	m:	yd→	m←	[Length:.1] F3	Length conversions
	yīn→m	Convert yīn to metre	m:	yīn→	m←	[Length:.2] F3	Length conversions
	zhàng→m	Convert zhàng to metre	m:	zhàng→	m←	[Length:.2] f F3	Length conversions
Energy	Btu→J	Convert British Thermal Unit to Joule	J:	Btu→	J←	[Energy:.1] F5	Energy conversions
	cal→J	Convert calorie to Joule	J:	cal→	J←	[Energy:.1] F3	Energy conversions
	erg→J	Convert erg to Joule	J:	erg→	J←	[Energy:.1] f F3	Energy conversions
	eV→J	Convert electronvolt to Joule	J:	eV→	J←	[Energy:.1] f F1	Energy conversions
	foe→J	Convert foe to Joule	J:	foe→	J←	[Energy:.1] f F5	Energy conversions
	J→Btu	Convert Joule to British Thermal Unit	Btu:	J→	Btu←	[Energy:.1] F6	Energy conversions
	J→cal	Convert Joule to calorie	cal:	J→	cal←	[Energy:.1] F4	Energy conversions
	J→erg	Convert Joule to erg	erg:	J→	erg←	[Energy:.1] f F4	Energy conversions
	J→eV	Convert Joule to electronvolt	eV:	J→	eV←	[Energy:.1] f F2	Energy conversions
	J→foe	Convert Joule to foe	foe:	J→	foe←	[Energy:.1] f F6	Energy conversions
	J→Wh	Convert Joule to Watt-hour	Wh:	J→	Wh←	[Energy:.1] F2	Energy conversions
	Wh→J	Convert Watt-hour to Joule	J:	Wh→	J←	[Energy:.1] F1	Energy conversions
EV economy	km/kWh→kWh/l ₁₀₀ km	Convert kilometre per kiloWatt-hour to kiloWatt-hour per 100 kilometre	kWh/100km:	km/E→	E/l ₁₀₀ km←	[Ymmv:.1] F6	Mileage conversions
	km/ℓ _e →kWh/l ₁₀₀ km	Convert kilometre per litre equivalent to kiloWatt-hour per 100 kilometre	kWh/100km:	km/ℓ _e →	E/l ₁₀₀ km←	[Ymmv:.1] F3	Mileage conversions
	kWh/l ₁₀₀ km→km/kWh	Convert kiloWatt-hour per 100 kilometre to kilometre per kiloWatt-hour	km/kWh:	E/l ₁₀₀ km→	km/E←	[Ymmv:.1] F5	Mileage conversions
	kWh/l ₁₀₀ km→km/ℓ _e	Convert kiloWatt-hour per 100 kilometre to kilometre per litre equivalent	km/ℓ _e :	E/l ₁₀₀ km→	km/ℓ _e ←	[Ymmv:.1] F4	Mileage conversions
	kWh/l ₁₀₀ km→kWh/l ₁₀₀ mi	Convert kiloWatt-hour per 100 kilometre to kiloWatt-hour per 100 mile	kWh/100mi:	E/l ₁₀₀ km→	E/l ₁₀₀ mi←	[Ymmv:.1] f F6	Mileage conversions
	kWh/l ₁₀₀ mi→kWh/l ₁₀₀ km	Convert kiloWatt-hour per 100 mile to kiloWatt-hour per 100 kilometre	kWh/100km:	E/l ₁₀₀ mi→	E/l ₁₀₀ km←	[Ymmv:.1] f F5	Mileage conversions
	kWh/l ₁₀₀ mi→mi/kWh	Convert kiloWatt-hour per 100 mile to mile per kiloWatt-hour	mi/kWh:	E/l ₁₀₀ mi→	mi/E←	[Ymmv:.1] g F5	Mileage conversions
	kWh/l ₁₀₀ mi→mpg _{UK}	Convert kiloWatt-hour per 100 mile to mpg gasoline equivalent UK	mpg _{UK} :	E/l ₁₀₀ mi→	mpg _{UK} ←	[Ymmv:.1] g F4	Mileage conversions
	kWh/l ₁₀₀ mi→mpg _{US}	Convert kiloWatt-hour per 100 mile to mpg gasoline equivalent US	mpg _{US} :	E/l ₁₀₀ mi→	mpg _{US} ←	[Ymmv:.1] f F4	Mileage conversions
	mi/kWh→kWh/l ₁₀₀ mi	Convert mile per kiloWatt-hour to kiloWatt-hour per 100 mile	kWh/100mi:	mi/E→	E/l ₁₀₀ mi←	[Ymmv:.1] g F6	Mileage conversions
	mpg _{UK} →kWh/l ₁₀₀ mi	Convert mpg gasoline equivalent UK to kiloWatt-hour per 100 mile	kWh/100mi:	mpg _{UK} →	E/l ₁₀₀ mi←	[Ymmv:.1] g F3	Mileage conversions
	mpg _{US} →kWh/l ₁₀₀ mi	Convert mpg gasoline equivalent US to kiloWatt-hour per 100 mile	kWh/100mi:	mpg _{US} →	E/l ₁₀₀ mi←	[Ymmv:.1] f F3	Mileage conversions
Fixed pair	dB→fld	Convert decibel to field ratio	fld:	dB→	fld←	[Misc:.1] F6	Miscellaneous conversions
	dB→pwr	Convert decibel to power ratio	pwr:	dB→	pwr←	[Misc:.1] f F6	Miscellaneous conversions
	fld→dB	Convert field ratio to decibel	dB:	fld→	dB←	[Misc:.1] F5	Miscellaneous conversions
	HMS→HR	Convert sexagesimal format hours to decimal hours	decimal h:	HMS→	HR←	[Misc:.1] F1	Miscellaneous conversions
	HR→HMS	Convert decimal hours to sexagesimal format hours	hh.mmss:	HR→	HMS←	[Misc:.1] F2	Miscellaneous conversions
	in ⁴ →mm ⁴	Convert inch to the power 4 to millimetre to the power 4	mm ⁴ :	in ⁴ →	mm ⁴ ←	[SecPrp:.1] f F5	Section properties conversions
	in ⁶ →mm ⁶	Convert inch to the power 6 to millimetre to the power 6	mm ⁶ :	in ⁶ →	mm ⁶ ←	[SecPrp:.1] g F5	Section properties conversions
	kg/m→lbs/ft	Convert kilogram per metre to pound per foot	lbs/ft:	kg/m→	lbs/ft←	[SecPrp:.1] F2	Section properties conversions
	lbs/ft→kg/m	Convert pound per foot to kilogram per metre	kg/m:	lbs/ft→	kg/m←	[SecPrp:.1] F1	Section properties conversions
	mm ⁴ →in ⁴	Convert millimetre to the power 4 to inch to the power 4	in ⁴ :	mm ⁴ →	in ⁴ ←	[SecPrp:.1] f F6	Section properties conversions
	mm ⁶ →in ⁶	Convert millimetre to the power 6 to inch to the power 6	in ⁶ :	mm ⁶ →	in ⁶ ←	[SecPrp:.1] g F6	Section properties conversions
	pwr→dB	Convert power ratio to decibel	dB:	pwr→	dB←	[Misc:.1] f F5	Miscellaneous conversions
Force	kgf→lbf	Convert kilogram force to pound force	lbf:	kgf→	lbf←	[FLoads:.1] f F4	Force loads conversions
	kgf→N	Convert kilogram force to Newton	N:	kgf→	N←	[FLoads:.1] g F3	Force loads conversions
	lbf→kgf	Convert pound force to kilogram force	kgf:	lbf→	kgf←	[FLoads:.1] f F3	Force loads conversions
	lbf→N	Convert pound force to Newton	N:	lbf→	N←	[FLoads:.1] F3	Force loads conversions
	N→kgf	Convert Newton to kilogram force	kgf:	N→	kgf←	[FLoads:.1] g F4	Force loads conversions
	N→lbf	Convert Newton to pound force	lbf:	N→	lbf←	[FLoads:.1] F4	Force loads conversions
Fuel economy	km/ℓ→ℓ/l ₁₀₀ km	Convert kilometre per litre to litre per 100 kilometre	ℓ/100km:	km/ℓ→	ℓ/l ₁₀₀ km←	[Ymmv:.1] F2	Mileage conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	ℓ/100km→km/ℓ	Convert litre per 100 kilometre to kilometre per litre	km/ℓ:	ℓ/100km→	km/ℓ←	[Ymmv:.1] F1	Mileage conversions
	ℓ/100km→mpg _{UK}	Convert litre per 100 kilometre to mile per gallon UK	mpg _{UK} :	ℓ/100km→	mpg _{UK} ←	[Ymmv:.1] g F1	Mileage conversions
	ℓ/100km→mpg _{US}	Convert litre per 100 kilometre to mile per gallon US	mpg _{US} :	ℓ/100km→	mpg _{US} ←	[Ymmv:.1] f F1	Mileage conversions
	mpg _{UK} →ℓ/100km	Convert mile per gallon UK to litre per 100 kilometre	ℓ/100km:	mpg _{UK} →	ℓ/100km←	[Ymmv:.1] g F2	Mileage conversions
	mpg _{US} →ℓ/100km	Convert mile per gallon US to litre per 100 kilometre	ℓ/100km:	mpg _{US} →	ℓ/100km←	[Ymmv:.1] f F2	Mileage conversions
Linear Force Density	kgf/m→N/m	Convert kilogram force per metre to Newton per metre	N/m:	kgf/m→	N/m←	[Floads:.1] f F1	Force loads conversions
	lbf/ft→N/m	Convert pound force per foot to Newton per metre	N/m:	lbf/ft→	N/m←	[Floads:.1] F1	Force loads conversions
	N/m→kgf/m	Convert Newton per metre to kilogram force per metre	kgf/m:	N/m→	kgf/m←	[Floads:.1] f F2	Force loads conversions
	N/m→lbf/ft	Convert Newton per metre to pound force per foot	lbf/ft:	N/m→	lbf/ft←	[Floads:.1] F2	Force loads conversions
Mass	blob→kg	Convert blob to kilogram ; this is the same conversion as lbf·s ² /in→kg on	kg:	blob→	kg←	[Mass:.1] g F5	Mass conversions
	carat→g	Convert carat to gram	g:	carat→	g←	[Mass:.2] f F1	Mass conversions
	cwt→kg	Convert hundredweight to kilogram	kg:	cwt→	kg←	[Mass:.1] F3	Mass conversions
	fir→kg	Convert firkin to kilogram	kg:	fir→	kg←	[FFF+:.1] f F3	Humorous conversions
	fir→lbs	Convert firkin to pound	lbs:	fir→	lbs←	[FFF+:.1] g F3	Humorous conversions
	g→carat	Convert gram to carat	carat:	g→	carat←	[Mass:.2] f F2	Mass conversions
	g→oz	Convert gram to ounce	oz:	g→	oz←	[Mass:.1] F6	Mass conversions
	g→tr oz	Convert gram to troy ounce	tr oz:	g→	tr oz←	[Mass:.1] f F6	Mass conversions
	jīn→kg	Convert jīn to kilogram	kg:	jīn→	kg←	[Mass:.2] f F3	Mass conversions
	kg→blob	Convert kilogram to blob ; this is the same conversion as kg→lbf·s ² /in on	blob:	kg→	blob←	[Mass:.1] g F6	Mass conversions
	kg→cwt	Convert kilogram to hundredweight	cwt:	kg→	cwt←	[Mass:.1] F4	Mass conversions
	kg→fir	Convert kilogram to firkin	fir:	kg→	fir←	[FFF+:.1] f F4	Humorous conversions
	kg→jīn	Convert kilogram to jīn	jīn:	kg→	jīn←	[Mass:.2] f F4	Mass conversions
	kg→lbf·s ² /ft	Convert kilogram to lbf·s ² /ft (slug) ; this is the same conversion as kg→s	lbf·s ² /ft:	kg→	bf·s ² /ft←	[Mass:.2] g F2	Mass conversions
	kg→lbf·s ² /in	Convert kilogram to lbf·s ² /in (slinch or blob) ; this is the same conversio	lbf·s ² /in:	kg→	bf·s ² /in←	[Mass:.2] g F4	Mass conversions
	kg→lbs	Convert kilogram to pound	lbs:	kg→	lbs←	[Mass:.1] F2	Mass conversions
	kg→liǎng	Convert kilogram to liǎng	liǎng:	kg→	liǎng←	[Mass:.2] f F6	Mass conversions
	kg→long ton	Convert kilogram to long ton	long ton:	kg→	ng ton←	[Mass:.2] F2	Mass conversions
	kg→short cwt	Convert kilogram to short hundredweight	short cwt:	kg→	rt cwt←	[Mass:.1] f F4	Mass conversions
	kg→short ton	Convert kilogram to short ton	short ton:	kg→	rt ton←	[Mass:.2] F4	Mass conversions
	kg→slinch	Convert kilogram to slinch ; this is the same conversion as kg→lbf·s ² /in o	slinch:	kg→	slinch←	[Mass:.1] g F4	Mass conversions
	kg→slug	Convert kilogram to slug ; this is the same conversion as kg→lbf·s ² /ft on	slug:	kg→	slug←	[Mass:.1] g F2	Mass conversions
	kg→stone	Convert kilogram to stone	stone:	kg→	stone←	[Mass:.1] f F2	Mass conversions
	kg→tonne	Convert kilogram to metric tonne	tonne:	kg→	tonne←	[Mass:.2] F6	Mass conversions
	lbf·s ² /ft→kg	Convert lbf·s ² /ft (slug) to kilogram ; this is the same conversion as slug-	kg:	bf·s ² /ft→	kg←	[Mass:.2] g F1	Mass conversions
	lbf·s ² /in→kg	Convert lbf·s ² /in (slinch or blob) to kilogram ; this is the same conversio	kg:	bf·s ² /in→	kg←	[Mass:.2] g F3	Mass conversions
	lbs→fir	Convert pound to firkin	fir:	lbs→	fir←	[FFF+:.1] g F4	Humorous conversions
	lbs→kg	Convert pound to kilogram	kg:	lbs→	kg←	[Mass:.1] F1	Mass conversions
	liǎng→kg	Convert liǎng to kilogram	kg:	liǎng→	kg←	[Mass:.2] f F5	Mass conversions
	long ton→kg	Convert long ton to kilogram	kg:	ng ton→	kg←	[Mass:.2] F1	Mass conversions
	oz→g	Convert ounce to gram	g:	oz→	g←	[Mass:.1] F5	Mass conversions
	short cwt→kg	Convert short hundredweight to kilogram	kg:	rt cwt→	kg←	[Mass:.1] f F3	Mass conversions
	short ton→kg	Convert short ton to kilogram	kg:	rt ton→	kg←	[Mass:.2] F3	Mass conversions
	slinch→kg	Convert slinch to kilogram ; this is the same conversion as lbf·s ² /in→kg o	kg:	slinch→	kg←	[Mass:.1] g F3	Mass conversions
	slug→kg	Convert slug to kilogram ; this is the same conversion as lbf·s ² /ft→kg on	kg:	slug→	kg←	[Mass:.1] g F1	Mass conversions
	stone→kg	Convert stone to kilogram	kg:	stone→	kg←	[Mass:.1] f F1	Mass conversions
	tonne→kg	Convert metric tonne to kilogram	kg:	tonne→	kg←	[Mass:.2] F5	Mass conversions
	tr oz→g	Convert troy ounce to gram	g:	tr oz→	g←	[Mass:.1] f F5	Mass conversions
Power	hp _E →W	Convert electrical horsepower to Watt	W:	hp _E →	W←	[Power:.1] F1	Power conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	hp _M →W	Convert metric horsepower to Watt	W:	hp _M →	W←	[Power:.1] F5	Power conversions
	hp _{UK} →W	Convert UK horsepower to Watt	W:	hp _{UK} →	W←	[Power:.1] F3	Power conversions
	W→hp _E	Convert Watt to electrical horsepower	hp _E :	W→	hp _E ←	[Power:.1] F2	Power conversions
	W→hp _M	Convert Watt to metric horsepower	hp _M :	W→	hp _M ←	[Power:.1] F6	Power conversions
	W→hp _{UK}	Convert Watt to UK horsepower	hp _{UK} :	W→	hp _{UK} ←	[Power:.1] F4	Power conversions
Pressure	atm→Pa	Convert atmosphere to Pascal	Pa:	atm→	Pa←	[F&p:.1] fF1	Force & Pressure conversions
	bar→Pa	Convert bar to Pascal	Pa:	bar→	Pa←	[F&p:.1] gF1	Force & Pressure conversions
	inHg→Pa	Convert inch of Mercury to Pascal	Pa:	inHg→	Pa←	[F&p:.1] F3	Force & Pressure conversions
	ksi→MPa	Convert kilo-pound force per square inch to MegaPascal	MPa:	ksi→	MPa←	[MatPrp:.1] fF1	Material properties conversions
	lbf/ft ² →Pa	Convert pound force per square foot to Pascal	Pa:	lbf/ft ² →	Pa←	[PLoads:.1] F1	Pressure loads conversions
	mmHg→Pa	Convert millimetre of Mercury to Pascal	Pa:	mmHg→	Pa←	[F&p:.1] F1	Force & Pressure conversions
	MPa→ksi	Convert MegaPascal to kilo-pound force per square inch	ksi:	MPa→	ksi←	[MatPrp:.1] fF2	Material properties conversions
	Pa→atm	Convert Pascal to atmosphere	atm:	Pa→	atm←	[F&p:.1] fF2	Force & Pressure conversions
	Pa→bar	Convert Pascal to bar	bar:	Pa→	bar←	[F&p:.1] gF2	Force & Pressure conversions
	Pa→inHg	Convert Pascal to inch of Mercury	inHg:	Pa→	inHg←	[F&p:.1] F4	Force & Pressure conversions
	Pa→lbf/ft ²	Convert Pascal to pound force per square foot	lbf/ft ² :	Pa→	lbf/ft ² ←	[PLoads:.1] F2	Pressure loads conversions
	Pa→mmHg	Convert Pascal to millimetre of Mercury	mmHg:	Pa→	mmHg←	[F&p:.1] F2	Force & Pressure conversions
	Pa→psi	Convert Pascal to pound force per square inch	psi:	Pa→	psi←	[MatPrp:.1] F2	Material properties conversions
	Pa→torr	Convert Pascal to torr	torr:	Pa→	torr←	[F&p:.1] gF4	Force & Pressure conversions
	psi→Pa	Convert pound force per square inch to Pascal	Pa:	psi→	Pa←	[MatPrp:.1] F1	Material properties conversions
	torr→Pa	Convert torr to Pascal	Pa:	torr→	Pa←	[F&p:.1] gF3	Force & Pressure conversions
Speed	ft/s→km/h	Convert foot per second to kilometre per hour	km/h:	ft/s→	km/h←	[Speed:.1] fF1	Speed conversions
	ft/s→m/s	Convert foot per second to metre per second	m/s:	ft/s→	m/s←	[Speed:.1] fF5	Speed conversions
	ft/s→mph	Convert foot per second to mile per hour	mph:	ft/s→	mph←	[Speed:.1] fF3	Speed conversions
	fur/ftn→km/h	Convert furlong per fortnight to kilometre per hour	km/h:	ur/ftn→	km/h←	[FFF+:.1] fF5	Humorous conversions
	fur/ftn→m/s	Convert furlong per fortnight to metre per second	m/s:	ur/ftn→	m/s←	[FFF+:.1] F5	Humorous conversions
	fur/ftn→mph	Convert furlong per fortnight to mile per hour	mph:	ur/ftn→	mph←	[FFF+:.1] gF5	Humorous conversions
	km/h→ft/s	Convert kilometre per hour to foot per second	ft/s:	km/h→	ft/s←	[Speed:.1] fF2	Speed conversions
	km/h→fur/ftn	Convert kilometre per hour to furlong per fortnight	fur/ftn:	km/h→	ur/ftn←	[FFF+:.1] fF6	Humorous conversions
	km/h→knot	Convert kilometre per hour to knot	knot:	km/h→	knot←	[Speed:.1] gF2	Speed conversions
	km/h→m/s	Convert kilometre per hour to metre per second	m/s:	km/h→	m/s←	[Speed:.1] F2	Speed conversions
	km/h→mph	Convert kilometre per hour to mile per hour	mph:	km/h→	mph←	[Speed:.1] F3	Speed conversions
	knot→km/h	Convert knot to kilometre per hour	km/h:	knot→	km/h←	[Speed:.1] gF1	Speed conversions
	knot→m/s	Convert knot to metre per second	m/s:	knot→	m/s←	[Speed:.1] gF5	Speed conversions
	knot→mph	Convert knot to mile per hour	mph:	knot→	mph←	[Speed:.1] gF3	Speed conversions
	m/s→ft/s	Convert metre per second to foot per second	ft/s:	m/s→	ft/s←	[Speed:.1] fF6	Speed conversions
	m/s→fur/ftn	Convert metre per second to furlong per fortnight	fur/ftn:	m/s→	ur/ftn←	[FFF+:.1] F6	Humorous conversions
	m/s→km/h	Convert metre per second to kilometre per hour	km/h:	m/s→	km/h←	[Speed:.1] F1	Speed conversions
	m/s→knot	Convert metre per second to knot	knot:	m/s→	knot←	[Speed:.1] gF6	Speed conversions
	m/s→mph	Convert metre per second to mile per hour	mph:	m/s→	mph←	[Speed:.1] F6	Speed conversions
	mph→ft/s	Convert mile per hour to foot per second	ft/s:	mph→	ft/s←	[Speed:.1] fF4	Speed conversions
	mph→fur/ftn	Convert mile per hour to furlong per fortnight	fur/ftn:	mph→	ur/ftn←	[FFF+:.1] gF6	Humorous conversions
	mph→km/h	Convert mile per hour to kilometre per hour	km/h:	mph→	km/h←	[Speed:.1] F4	Speed conversions
	mph→knot	Convert mile per hour to knot	knot:	mph→	knot←	[Speed:.1] gF4	Speed conversions
	mph→m/s	Convert mile per hour to metre per second	m/s:	mph→	m/s←	[Speed:.1] F5	Speed conversions
Temperature	°C→°F	Convert degrees Celsius to degrees Fahrenheit	°F:	°C→	°F←	[Temp:.1] F1	Temperature conversions
	°C→K	Convert degrees Celsius to Kelvin	K:	°C→	K←	[Temp:.1] F3	Temperature conversions
	°F→°C	Convert degrees Fahrenheit to degrees Celsius	°C:	°F→	°C←	[Temp:.1] F2	Temperature conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	°F→°R	Convert degrees Fahrenheit to degrees Rankine	°R:	°F→	°R←	[Temp.:1] fF2	Temperature conversions
	°F→K	Convert degrees Fahrenheit to Kelvin	K:	°F→	K←	[Temp.:1] F5	Temperature conversions
	°R→°F	Convert degrees Rankine to degrees Fahrenheit	°F:	°R→	°F←	[Temp.:1] fF1	Temperature conversions
	°R→K	Convert degrees Rankine to Kelvin	K:	°R→	K←	[Temp.:1] fF3	Temperature conversions
	eV/k _B →K	Convert electronvolt/Boltzmann constant to Kelvin	K:	eV/k _B →	K←	[Temp.:1] fF5	Temperature conversions
	K→°C	Convert Kelvin to degrees Celsius	°C:	K→	°C←	[Temp.:1] F4	Temperature conversions
	K→°F	Convert Kelvin to degrees Fahrenheit	°F:	K→	°F←	[Temp.:1] F6	Temperature conversions
	K→°R	Convert Kelvin to degrees Rankine	°R:	K→	°R←	[Temp.:1] fF4	Temperature conversions
	K→eV/k _B	Convert Kelvin to electronvolt/Boltzmann constant	eV/k _B :	K→	eV/k _B ←	[Temp.:1] fF6	Temperature conversions
Time	ftn→s	Convert fortnight to second	s:	ftn→	s←	[FFF+:.1] F3	Humorous conversions
	s→ftn	Convert second to fortnight	ftn:	s→	ftn←	[FFF+:.1] F4	Humorous conversions
	s→year	Convert second to year	year:	s→	year←	[Misc.:1] fF2	Miscellaneous conversions
	year→s	Convert year to second	s:	year→	s←	[Misc.:1] fF1	Miscellaneous conversions
Torque/moment	ft-lbf→N-m	Convert foot-pound force to Newton-metre	N-m:	ft-lbf→	N-m←	[MLoads.:1] F1	Moment loads conversions
	in-lbf→N-m	Convert inch-pound force to Newton-metre	N-m:	in-lbf→	N-m←	[MLoads.:1] F3	Moment loads conversions
	N-m→ft-lbf	Convert Newton-metre to foot-pound force	ft-lbf:	N-m→	ft-lbf←	[MLoads.:1] F2	Moment loads conversions
	N-m→in-lbf	Convert Newton-metre to inch-pound force	in-lbf:	N-m→	in-lbf←	[MLoads.:1] F4	Moment loads conversions
Volume	barrel→m ³	Convert barrel to cubic metre	m ³ :	barrel→	m ³ ←	[Volume.:1] gF3	Volume conversions
	cup _{UK} →floz _{UK}	Convert UK imperial cup to UK fluid ounce	floz _{UK} :	cup _{UK} →	floz _{UK} ←	[Chef.:1] fF6	Cooking unit conversions
	cup _{UK} →mℓ	Convert UK imperial cup to millilitre	mℓ:	cup _{UK} →	mℓ←	[Chef.:1] F6	Cooking unit conversions
	cup _{US} →floz _{US}	Convert US customary cup to US fluid ounce	floz _{US} :	cup _{US} →	floz _{US} ←	[Chef.:2] fF6	Cooking unit conversions
	cup _{US} →mℓ	Convert US customary cup to millilitre	mℓ:	cup _{US} →	mℓ←	[Chef.:2] F6	Cooking unit conversions
	floz _{UK} →cup _{UK}	Convert UK fluid ounce to UK imperial cup	cup _{UK} :	floz _{UK} →	cup _{UK} ←	[Chef.:1] fF5	Cooking unit conversions
	floz _{UK} →gal _{UK}	Convert UK fluid ounce to UK gallon	gal _{UK} :	floz _{UK} →	gal _{UK} ←	[Volume.:1] gF1	Volume conversions
	floz _{UK} →in ³	Convert UK fluid ounce to cubic inch	in ³ :	floz _{UK} →	in ³ ←	[Volume.:1] F3	Volume conversions
	floz _{UK} →mℓ	Convert UK fluid ounce to millilitre	mℓ:	floz _{UK} →	mℓ←	[Chef.:1] gF1	Cooking unit conversions
	floz _{UK} →tbsp _{UK}	Convert UK fluid ounce to UK imperial tablespoon	tbsp _{UK} :	floz _{UK} →	tbsp _{UK} ←	[Chef.:1] fF3	Cooking unit conversions
	floz _{UK} →tsp _{UK}	Convert UK fluid ounce to UK imperial teaspoon	tsp _{UK} :	floz _{UK} →	tsp _{UK} ←	[Chef.:1] fF1	Cooking unit conversions
	floz _{US} →cup _{US}	Convert US fluid ounce to US customary cup	cup _{US} :	floz _{US} →	cup _{US} ←	[Chef.:2] fF5	Cooking unit conversions
	floz _{US} →gal _{US}	Convert US fluid ounce to US gallon	gal _{US} :	floz _{US} →	gal _{US} ←	[Volume.:2] gF1	Volume conversions
	floz _{US} →in ³	Convert US fluid ounce to cubic inch	in ³ :	floz _{US} →	in ³ ←	[Volume.:2] F3	Volume conversions
	floz _{US} →mℓ	Convert US fluid ounce to millilitre	mℓ:	floz _{US} →	mℓ←	[Chef.:2] gF1	Cooking unit conversions
	floz _{US} →Tbsp _{US}	Convert US fluid ounce to US customary tablespoon	Tbsp _{US} :	floz _{US} →	Tbsp _{US} ←	[Chef.:2] fF3	Cooking unit conversions
	floz _{US} →tsp _{US}	Convert US fluid ounce to US customary teaspoon	tsp _{US} :	floz _{US} →	tsp _{US} ←	[Chef.:2] fF1	Cooking unit conversions
	ft ³ →gal _{UK}	Convert cubic foot to UK gallon	gal _{UK} :	ft ³ →	gal _{UK} ←	[Volume.:1] fF4	Volume conversions
	ft ³ →gal _{US}	Convert cubic foot to US gallon	gal _{US} :	ft ³ →	gal _{US} ←	[Volume.:2] fF4	Volume conversions
	ft ³ →ℓ	Convert cubic foot to litre	ℓ:	ft ³ →	ℓ←	[Volume.:1] F5	Volume conversions
	gal _{UK} →floz _{UK}	Convert UK gallon to UK fluid ounce	floz _{UK} :	gal _{UK} →	floz _{UK} ←	[Volume.:1] gF2	Volume conversions
	gal _{UK} →ft ³	Convert UK gallon to cubic foot	ft ³ :	gal _{UK} →	ft ³ ←	[Volume.:1] fF3	Volume conversions
	gal _{UK} →ℓ	Convert UK gallon to litre	ℓ:	gal _{UK} →	ℓ←	[Volume.:1] fF5	Volume conversions
	gal _{US} →floz _{US}	Convert US gallon to US fluid ounce	floz _{US} :	gal _{US} →	floz _{US} ←	[Volume.:2] gF2	Volume conversions
	gal _{US} →ft ³	Convert US gallon to cubic foot	ft ³ :	gal _{US} →	ft ³ ←	[Volume.:2] fF3	Volume conversions
	gal _{US} →ℓ	Convert US gallon to litre	ℓ:	gal _{US} →	ℓ←	[Volume.:2] fF5	Volume conversions
	in ³ →floz _{UK}	Convert cubic inch to UK fluid ounce	floz _{UK} :	in ³ →	floz _{UK} ←	[Volume.:1] F4	Volume conversions
	in ³ →floz _{US}	Convert cubic inch to US fluid ounce	floz _{US} :	in ³ →	floz _{US} ←	[Volume.:2] F4	Volume conversions
	in ³ →mℓ	Convert cubic inch to millilitre	mℓ:	in ³ →	mℓ←	[Volume.:1] F1	Volume conversions
	in ³ →mm ³	Convert cubic inch to cubic millimetre	mm ³ :	in ³ →	mm ³ ←	[SecPrp.:1] gF3	Section properties conversions
	ℓ→ft ³	Convert litre to cubic foot	ft ³ :	ℓ→	ft ³ ←	[Volume.:1] F6	Volume conversions

CLEAR - Flag CONV_{HP} - SET

Category	Label	Description	TI	From-Single	To-Single	Menu/Button	Menu Name
	ℓ→gal _{UK}	Convert litre to UK gallon	gal _{UK} :	ℓ→	gal _{UK} ←	[Volume:.1] f F6	Volume conversions
	ℓ→gal _{US}	Convert litre to US gallon	gal _{US} :	ℓ→	gal _{US} ←	[Volume:.2] f F6	Volume conversions
	ℓ→qt _{UK}	Convert litre to UK quart	qt _{UK} :	ℓ→	qt _{UK} ←	[Volume:.1] g F6	Volume conversions
	ℓ→qt _{US}	Convert litre to US quart	qt _{US} :	ℓ→	qt _{US} ←	[Volume:.2] g F6	Volume conversions
	m ³ →barrel	Convert cubic metre to barrel	barrel:	m ³ →	barrel←	[Volume:.1] g F4	Volume conversions
	ml→cup _{UK}	Convert millilitre to UK imperial cup	cup _{UK} :	ml→	cup _{UK} ←	[Chefi:.1] F5	Cooking unit conversions
	ml→cup _{US}	Convert millilitre to US customary cup	cup _{US} :	ml→	cup _{US} ←	[Chefi:.2] F5	Cooking unit conversions
	ml→floz _{UK}	Convert millilitre to UK fluid ounce	floz _{UK} :	ml→	floz _{UK} ←	[Chefi:.1] g F2	Cooking unit conversions
	ml→floz _{US}	Convert millilitre to US fluid ounce	floz _{US} :	ml→	floz _{US} ←	[Chefi:.2] g F2	Cooking unit conversions
	ml→in ³	Convert millilitre to cubic inch	in ³ :	ml→	in ³ ←	[Volume:.1] F2	Volume conversions
	ml→pint _{UK}	Convert millilitre to UK imperial pint	pint _{UK} :	ml→	pint _{UK} ←	[Chefi:.1] g F4	Cooking unit conversions
	ml→pint _{US}	Convert millilitre to US liquid pint	pint _{US} :	ml→	pint _{US} ←	[Chefi:.2] g F4	Cooking unit conversions
	ml→qt _{UK}	Convert millilitre to UK quart	qt _{UK} :	ml→	qt _{UK} ←	[Chefi:.1] g F6	Cooking unit conversions
	ml→qt _{US}	Convert millilitre to US quart	qt _{US} :	ml→	qt _{US} ←	[Chefi:.2] g F6	Cooking unit conversions
	ml→tbsp _{UK}	Convert millilitre to UK imperial tablespoon	tbsp _{UK} :	ml→	tbsp _{UK} ←	[Chefi:.1] F3	Cooking unit conversions
	ml→Tbsp _{US}	Convert millilitre to US customary tablespoon	Tbsp _{US} :	ml→	Tbsp _{US} ←	[Chefi:.2] F3	Cooking unit conversions
	ml→tsp _{UK}	Convert millilitre to UK imperial teaspoon	tsp _{UK} :	ml→	tsp _{UK} ←	[Chefi:.1] F1	Cooking unit conversions
	ml→tsp _{US}	Convert millilitre to US customary teaspoon	tsp _{US} :	ml→	tsp _{US} ←	[Chefi:.2] F1	Cooking unit conversions
	mm ³ →in ³	Convert cubic millimetre to cubic inch	in ³ :	mm ³ →	in ³ ←	[SecPrp:.1] g F4	Section properties conversions
	pint _{UK} →ml	Convert UK imperial pint to millilitre	ml:	pint _{UK} →	ml←	[Chefi:.1] g F3	Cooking unit conversions
	pint _{US} →ml	Convert US liquid pint to millilitre	ml:	pint _{US} →	ml←	[Chefi:.2] g F3	Cooking unit conversions
	qt _{UK} →ℓ	Convert UK quart to litre	ℓ:	qt _{UK} →	ℓ←	[Volume:.1] g F5	Volume conversions
	qt _{UK} →ml	Convert UK quart to millilitre	ml:	qt _{UK} →	ml←	[Chefi:.1] g F5	Cooking unit conversions
	qt _{US} →ℓ	Convert US quart to litre	ℓ:	qt _{US} →	ℓ←	[Volume:.2] g F5	Volume conversions
	qt _{US} →ml	Convert US quart to millilitre	ml:	qt _{US} →	ml←	[Chefi:.2] g F5	Cooking unit conversions
	tbsp _{UK} →floz _{UK}	Convert UK imperial tablespoon to UK fluid ounce	floz _{UK} :	tbsp _{UK} →	floz _{UK} ←	[Chefi:.1] f F4	Cooking unit conversions
	tbsp _{UK} →ml	Convert UK imperial tablespoon to millilitre	ml:	tbsp _{UK} →	ml←	[Chefi:.1] F4	Cooking unit conversions
	Tbsp _{US} →floz _{US}	Convert US customary tablespoon to US fluid ounce	floz _{US} :	Tbsp _{US} →	floz _{US} ←	[Chefi:.2] f F4	Cooking unit conversions
	Tbsp _{US} →ml	Convert US customary tablespoon to millilitre	ml:	Tbsp _{US} →	ml←	[Chefi:.2] F4	Cooking unit conversions
	tsp _{UK} →floz _{UK}	Convert UK imperial teaspoon to UK fluid ounce	floz _{UK} :	tsp _{UK} →	floz _{UK} ←	[Chefi:.1] f F2	Cooking unit conversions
	tsp _{UK} →ml	Convert UK imperial teaspoon to millilitre	ml:	tsp _{UK} →	ml←	[Chefi:.1] F2	Cooking unit conversions
	tsp _{US} →floz _{US}	Convert US customary teaspoon to US fluid ounce	floz _{US} :	tsp _{US} →	floz _{US} ←	[Chefi:.2] f F2	Cooking unit conversions
	tsp _{US} →ml	Convert US customary teaspoon to millilitre	ml:	tsp _{US} →	ml←	[Chefi:.2] F2	Cooking unit conversions

C47 Ref page : UNIT prefix -- Prefix (Prefixes (UNIT)) in menu [HOME.1] g F3

Exponent	Prefix	Fullname	Description	Label	Menu button
	Unit (prefix) notation		Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024 ⁿ is SET, binary prefixes are shown if available and long integer values are indicated by Z ; prefixes can be selected directly from menu Prefix	UNIT	[MLoads:.1] g F6
	Binary prefixes		Switch on binary prefixes in UNIT display mode ; not programmable - in PEM, use flag 1024 ⁿ	1024 ⁿ	[Prefix.1] g F6
	Show all SI prefixes		SET for showing full range of SI prefixes in UNIT display mode ; CLEAR for showing limited range of SI prefixes in UNIT display mode	PFX.All	[CFLG (SYS.FL).3] g F6
-30	q	quecto	Factor 2 ⁻³⁰		<none>
-27	r	ronto	Factor 2 ⁻²⁷		<none>
-24	y	yocto	Factor 2 ⁻²⁴		<none>
-21	z	zepto	Factor 2 ⁻²¹		<none>
-18	a	atto	Factor 2 ⁻¹⁸		<none>
-15	f	femto	Factor 10 ⁻¹⁵	·f	[Prefix.1] f F5
-12	p	pico	Factor 10 ⁻¹²	·p	[Prefix.1] f F4
-9	n	nano	Factor 10 ⁻⁹	·n	[Prefix.1] f F3
-6	μ	micro	Factor 10 ⁻⁶	·μ	[Prefix.1] f F2
-3	m	milli	Factor 10 ⁻³	·m	[Prefix.1] f F1
3	k	kilo	Factor 10 ³	·k	[Prefix.1] F1
6	M	Mega	Factor 10 ⁶	·M	[Prefix.1] F2
9	G	Giga	Factor 10 ⁹	·G	[Prefix.1] F3
12	T	Tera	Factor 10 ¹²	·T	[Prefix.1] F4
15	P	Peta	Factor 10 ¹⁵	·P	[Prefix.1] F5
18	E	Exa	Factor 2 ¹⁸		<none>
21	Z	Zetta	Factor 2 ²¹		<none>
24	Y	Yotta	Factor 2 ²⁴		<none>
27	R	Ronna	Factor 2 ²⁷		<none>
30	Q	Quetta	Factor 2 ³⁰		<none>
(Binary)	Binary prefixes		Switch on binary prefixes in UNIT display mode ; not programmable - in PEM, use flag 1024 ⁿ	1024 ⁿ	[Prefix.1] g F6
10	Ki	Kilo binary	Factor 10 ¹⁰	·Ki	[Prefix.1] g F1
20	Mi	Mega binary	Factor 10 ²⁰	·Mi	[Prefix.1] g F2
30	Gi	Giga binary	Factor 10 ³⁰	·Gi	[Prefix.1] g F3
40	Ti	Tera binary	Factor 10 ⁴⁰	·Ti	[Prefix.1] g F4
50	Pi	Peta binary	Factor 10 ⁵⁰	·Pi	[Prefix.1] g F5
60	Ei	Exa binary	Factor 2 ⁶⁰		<none>
70	Zi	Zetta binary	Factor 2 ⁷⁰		<none>

C47 Ref page : Variable naming

MainType	Label	Fullname	Info
Character	+	Plus	Not allowed
Character	-	Minus	Not allowed
Character	x	Cross	Not allowed
Character	:	Colon	Not allowed
Character	/	Slash	Not allowed in equations
Symbol	^	Exponent	Not allowed
Symbol	(	Left parenthesis	Not allowed
Symbol	)	Right parenthesis	Not allowed
Character	=	Equal	Not allowed
Character	;	Semicolon	Not allowed
Character		Pipe ; Bar	Not allowed
Symbol	!	Exclamation mark	Not allowed
Character	'	Space	Not allowed
Symbol	π	pi	In equations this is parsed as the number π

MainType	Label	Fullname	Info
Variable	ACC	Accuracy of the integrator	Reserved Real variable -- not allowed
Variable	$\uparrow$ Lim	Upper limit for integrator	Reserved Real variable -- not allowed
Variable	$\downarrow$ Lim	Lower limit for integrator	Reserved Real variable -- not allowed
Variable	$\uparrow$ EST	Upper estimate for solver	Reserved Real variable -- not allowed
Variable	$\downarrow$ EST	Lower estimate for solver	Reserved Real variable -- not allowed
Variable	$\uparrow$ X	Upper limit for X-axis	Reserved Real variable -- not allowed
Variable	$\downarrow$ X	Lower limit for X-axis	Reserved Real variable -- not allowed
Variable	$\uparrow$ Y	Upper limit for Y-axis	Reserved Real variable -- not allowed
Variable	$\downarrow$ Y	Lower limit for Y-axis	Reserved Real variable -- not allowed
Variable	FV	TVM future value	Reserved Real variable -- not allowed
Variable	I%/a	TVM annual interest rate	Reserved Real variable -- not allowed
Variable	NPPER	TVM number of payments	Reserved Real variable -- not allowed
Variable	PPER/a	TVM payment period	Reserved Real variable -- not allowed
Variable	PMT	TVM payment	Reserved Real variable -- not allowed
Variable	PV	TVM present value	Reserved Real variable -- not allowed
Variable	CPER/a	TVM compounding periods	Reserved Real variable -- not allowed
Variable	GRAMOD	Graphics display mode	Reserved LongInteger variable -- not allowed
Variable	HISTO	Histogram matrix	Reserved Matrix variable (cannot be deleted) -- not allowed
Variable	STATS	Statistics matrix	Reserved Matrix variable (cannot be deleted) -- not allowed
Variable	Mat_A	Matrix A	Reserved Matrix variable -- not allowed
Variable	Mat_B	Matrix B	Reserved Matrix variable -- not allowed
Variable	Mat_X	Matrix X	Reserved Matrix variable -- not allowed

Variables can now use any name starting with a letter, not including the characters indicated in the table above, maximum length : 7 characters

All alphabetic single characters (upper- or lowercase) are now allowed as well as function or constant names

For example: X, Y, A, B, a, c, s, RCL, SIN are now all valid variable names

In equations

reserved variables are not allowed

dyadic functions now come with the (:) suffix

constants picked from the CNST menu are prefixed by # to differentiate them from variables

constants in previous backup or state files are automatically updated with the # prefix

if entered manually the constant names have to be prefixed by # (alpha f[.])

Note that equations are checked for errors when pressing ENTER and EIM stays active until the equation is valid, or EXIT is pressed, discarding the input

User menu names can be anything following the above rule for variable names, but cannot be an existing menu name

Note that the restrictions listed above do not apply to LBLs !

C47 Ref page : Vector display

Vector type	Full TI	Minimum TI	Full stack display	Minimum stack display	Element TI (stack levels)
Flag 3Dxyz = CLEAR (default)					
2D.Rectangular	$[ij]$	ij	$[ij] \ [v_1 \ v_2]$	$ij \ [v_1 \ v_2]$	$[i]=; [j]=$
3D.Rectangular	$[ijk]$	ijk	$[ijk] \ [v_1 \ v_2 \ v_3]$	$ijk \ [v_1 \ v_2 \ v_3]$	$[i]=; [j]=; [k]=$
2D.Polar	$[r\theta_{ij}]$	$r\theta$	$[r\theta_{ij}] \ [v_1 \ v_2]^p$	$r\theta \ [v_1 \ v_2]^p$	$[r]=; [\theta_{ij}]=$
3D.Cylindrical	$[r\theta_{ij}k]$	$r\theta k$	$[r\theta_{ij}k] \ [v_1 \ v_2 \ v_3]^c$	$r\theta k \ [v_1 \ v_2 \ v_3]^c$	$[r]=; [\theta_{ij}]=; [k]=$
3D.Spherical.M	$[\rho\theta_{ij}\phi_k]_M$	$\rho\theta\phi$	$[\rho\theta_{ij}\phi_k]_M \ [v_1 \ v_2 \ v_3]^s$	$\rho\theta\phi \ [v_1 \ v_2 \ v_3]^s$	$[\rho]=; [\theta_{ij}]=; [\phi_k]=$
3D.Spherical.P	$[\rho\phi_k\theta_{ij}]_P$	$\rho\phi\theta$	$[\rho\phi_k\theta_{ij}]_P \ [v_1 \ v_2 \ v_3]^s$	$\rho\phi\theta \ [v_1 \ v_2 \ v_3]^s$	$[\rho]=; [\phi_k]=; [\theta_{ij}]=$
Flag 3Dxyz = SET					
2D.Rectangular	$[xy]$	xy	$[xy] \ [v_1 \ v_2]$	$xy \ [v_1 \ v_2]$	$[x]=; [y]=$
3D.Rectangular	$[xyz]$	xyz	$[xyz] \ [v_1 \ v_2 \ v_3]$	$xyz \ [v_1 \ v_2 \ v_3]$	$[x]=; [y]=; [z]=$
2D.Polar	$[r\theta_{xy}]$	$r\theta$	$[r\theta_{xy}] \ [v_1 \ v_2]^p$	$r\theta \ [v_1 \ v_2]^p$	$[r]=; [\theta_{xy}]=$
3D.Cylindrical	$[r\theta_{xy}z]$	$r\theta z$	$[r\theta_{xy}z] \ [v_1 \ v_2 \ v_3]^c$	$r\theta z \ [v_1 \ v_2 \ v_3]^c$	$[r]=; [\theta_{xy}]=; [z]=$
3D.Spherical.M	$[\rho\theta_{xy}\phi_z]_M$	$\rho\theta\phi$	$[\rho\theta_{xy}\phi_z]_M \ [v_1 \ v_2 \ v_3]^s$	$\rho\theta\phi \ [v_1 \ v_2 \ v_3]^s$	$[\rho]=; [\theta_{xy}]=; [\phi_z]=$
3D.Spherical.P	$[\rho\phi_z\theta_{xy}]_P$	$\rho\phi\theta$	$[\rho\phi_z\theta_{xy}]_P \ [v_1 \ v_2 \ v_3]^s$	$\rho\phi\theta \ [v_1 \ v_2 \ v_3]^s$	$[\rho]=; [\phi_z]=; [\theta_{xy}]=$

Flag 3DPHYS = CLEAR (default)

Flag 3DPHYS = SET

Flag 3DPHYS = CLEAR (default)

Flag 3DPHYS = SET

Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or $r\theta k$ or $\rho\theta\phi$ is shown, without subscripts or brackets)

Application note : https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf