

| BLUE47    | Access blue functions |            |            |     |                 |                 |
|-----------|-----------------------|------------|------------|-----|-----------------|-----------------|
| g-shift   | a b/c                 | *          | .ms        | .d  | LBL             | RTN             |
| f-shift   | $\pi$                 | $\Delta\%$ | $\sqrt{y}$ | $i$ | $\rightarrow R$ | $\rightarrow P$ |
| unshifted | x                     | CPX        | STK        | TRG | EXP             | $\nabla$        |
| Page 1    | F1                    | F2         | F3         | F4  | F5              | F6              |

Prev menu [https://47calc.com/doc/C47/Menus/C47\\_Menu\\_BITSHFT\\_page\\_1.pdf](https://47calc.com/doc/C47/Menus/C47_Menu_BITSHFT_page_1.pdf)

Next menu [https://47calc.com/doc/C47/Menus/C47\\_Menu\\_BLUE47\\_page\\_2.pdf](https://47calc.com/doc/C47/Menus/C47_Menu_BLUE47_page_2.pdf)

| Level   | Label         | Type                         | FullName                              | Extended description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Category                | Flag             | Catalog       | Default |
|---------|---------------|------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|---------------|---------|
| Menu p1 | BLUE47        | MENU                         | Access blue functions                 | Access all functions of the DM42-layout g-shift keyboard (blue) and a few of the f-shift keyboard ; Info : Assigned to calculator function SETUP (f[0]) in layout DM42                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Keyboard                |                  | BLUE47        |         |
| F1      | x             | Function (monadic)           | Magnitude                             | Magnitude (absolute value) of Complex number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Complex numbers         |                  | x             |         |
| F2      | CPX           | MENU                         | Complex functions                     | Complex functions ; Ref : <a href="https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf">https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Complex numbers         |                  | CPX           |         |
| F3      | STK           | MENU                         | Stack                                 | Stack functions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Stack                   |                  | STK           |         |
| F4      | TRG           | MENU                         | Trigonometry                          | Trigonometry functions ; Info : TRG replaces R47 menu TRG_R47 ; Ref : <a href="https://47calc.com/doc/C47/Reference/C47_DMS-HMS.pdf">https://47calc.com/doc/C47/Reference/C47_DMS-HMS.pdf</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Trigonometry            |                  | TRG           |         |
| F5      | EXP           | MENU                         | Exponential                           | Exponential functions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mathematics             |                  | EXP           |         |
| F6      | ↵             | Command (nonpgm)             | Undo                                  | Restore complete stack, LASTx, STATS and system flags ; Info : Error 128 -- Undo failed: likely no memory -- may be raised                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Stack                   |                  | UNDO          |         |
| fF1     | ∠             | Function (monadic)           | Argument (angle)                      | Argument (angle) of Complex number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Complex numbers         |                  | ∠             |         |
| fF2     | Δ%            | Function (dyadic)            | Delta percent                         | Delta percentage from Y to X, keeping Y on stack -- see Formula_DELTAPC.png : <a href="https://47calc.com/doc/Images/Formula_DELTAPC.png">https://47calc.com/doc/Images/Formula_DELTAPC.png</a> ; TI : Δ% :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Financial               |                  | Δ%            |         |
| fF3     | $\sqrt[y]{x}$ | Function (dyadic)            | xth root                              | Xth root of Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Mathematics             |                  | $\sqrt[y]{x}$ |         |
| fF4     | i             | Command                      | Complex number (rectangular notation) | Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPX.j when in RECT mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Complex numbers         | CPX.j            | op_i          |         |
| fF5     | →R            | Function (monadic, dyadic)   | To rectangular                        | Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP <sub>HP</sub> SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP <sub>HP</sub> determines whether →RECT <sub>HP</sub> or →RECT <sub>CX</sub> is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] [ v <sub>1</sub> v <sub>2</sub> ] ; 3D rectangular vector : [ijk] [ v <sub>1</sub> v <sub>2</sub> v <sub>3</sub> ]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Complex and coordinates | RP <sub>HP</sub> | →RECT         |         |
| fF6     | →P            | Function (monadic, dyadic)   | To polar                              | Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP <sub>HP</sub> SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP <sub>HP</sub> determines whether →POL <sub>HP</sub> or →POL <sub>CX</sub> is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : [rθ;ij] [ v <sub>1</sub> v <sub>2</sub> ] <sup>P</sup> ; 3D spherical vector : [rθ;ijk] <sub>M</sub> [ v <sub>1</sub> v <sub>2</sub> v <sub>3</sub> ] <sup>a</sup> ; 3D cylindrical vector : [rθ;ijk] [ v <sub>1</sub> v <sub>2</sub> v <sub>3</sub> ] <sup>c</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                     | Complex and coordinates | RP <sub>HP</sub> | →POLAR        |         |
| gF1     | a b/c         | Setting (cyclic, pgm, stack) | Fractions modes                       | 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> [.] <b> [.] <c> ; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI xI or -I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$ , $\sqrt{3}$ , $\sqrt{5}$ , $\sqrt{7}$ , $\phi$ , $\pi^{-2}$ , $\pi^{-1}$ , $\sqrt{\pi}$ , $\pi$ , $\pi^2$ , $e^{-2}$ , $e^{-1}$ , $e$ and $e^2$ (with tolerance 10 <sup>-24</sup> ) ; Prefix ≈ + <approximation> ; multiplication symbol SET for displaying multiplication symbol × ; SBI is shown if flag SBfrac is SET ; Ref : <a href="https://47calc.com/doc/C47/Reference/C47_Fractions.pdf">https://47calc.com/doc/C47/Reference/C47_Fractions.pdf</a> ; SBI : a <sup>b</sup> /n ; <sup>b</sup> /n ; [+≈] ; a <sup>b</sup> /c×I ; <sup>b</sup> /c×I ; [+≈] | Fractions               | FRACT            |               | OFF     |

| Level | Label | Type                       | FullName               | Extended description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Category               | Flag   | Catalog | Default |
|-------|-------|----------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|---------|---------|
| gF2   | #     | Setting (pgm, stack)       | Number base            | Set number base ; operates on all stack registers depending on BASEHP ; TAM : →INT __ TamNonReg menu ; #TAM shortcuts : B = BIN ; D = DEC ; ENTER = DEC ; H = HEX ; O = OCT ; Info : SBI is shown if flag SBfrac is SET ; exit base mode by .d, →I, [.] or CLRM0D (longerpress [EXIT]) ; SBI : #BASE ; #KEYA-F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Number bases           | KEYA-F | →INT    | OFF     |
| gF3   | .ms   | Function (monadic, cyclic) | Minutes & seconds      | Convert sexagesimal format input sequence or decimal stack value to hh:mm:ss hours or dd:mm:ss degrees (cyclic) ; Info : NIM input treated as sexagesimal (hh/dd.mmss) format ; stack input treated as decimal value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Time/angle conversions |        | .ms     |         |
| gF4   | .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 →REAL ; TI : decimal h: or yyyy.mmdd ; Ref : <a href="https://47calc.com/doc/C47/Reference/C47_Date_formats.pdf">https://47calc.com/doc/C47/Reference/C47_Date_formats.pdf</a>                                                                                                                                                                                                                                                                                                                                                                   | Reals                  | FRACT  |         |         |
| gF5   | LBL   | Command (PEM)              | Label                  | Create global or local label ; create global label by pressing key α (f[XEQ]) and entering the name, which will be displayed as '<label>' ; local labels only exist within the scope of the program ; they are numeric : 01-99, single letter : a-l or {A}-{E}, F, {G}-{L} ; or created as local named labels, by pressing button : ([TamLabel.1]F3), then button α ([TamLocalLabel.1]F3) or key α (f[XEQ]) and entering the name, which will be displayed as :<label> ; maximum label length is : 7 characters ; TAM : LBL __ TamLabel menu ; Info : LBL + TAM [XEQ] to enter global LBL 'α TamAlpha menu ; LBL + button : on [TamLabel.1]F3 to enter LBL :__ TamLocalLabel menu to create local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter LBL :α TamAlpha menu) ; note that a label may be used multiple times in a program ; local labels are searched forwards from the GT0 or XEQ command, before global labels, which are searched from the start of program memory | Programming            |        | LBL     |         |
| gF6   | RTN   | Command (PEM)              | Return                 | Return from subroutine to calling program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Programming            |        | RTN     |         |

| p1  | BLUE47        | Link                                                                                                                            |
|-----|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| F1  | x             |                                                                                                                                 |
| F2  | CPX           | <a href="https://47calc.com/doc/C47/Menus/C47_Menu_CPX_page_1.pdf">https://47calc.com/doc/C47/Menus/C47_Menu_CPX_page_1.pdf</a> |
| F3  | STK           | <a href="https://47calc.com/doc/C47/Menus/C47_Menu_STK_page_1.pdf">https://47calc.com/doc/C47/Menus/C47_Menu_STK_page_1.pdf</a> |
| F4  | TRG           | <a href="https://47calc.com/doc/C47/Menus/C47_Menu_TRG_page_1.pdf">https://47calc.com/doc/C47/Menus/C47_Menu_TRG_page_1.pdf</a> |
| F5  | EXP           | <a href="https://47calc.com/doc/C47/Menus/C47_Menu_EXP_page_1.pdf">https://47calc.com/doc/C47/Menus/C47_Menu_EXP_page_1.pdf</a> |
| F6  | ↵             |                                                                                                                                 |
| fF1 | 4             |                                                                                                                                 |
| fF2 | Δ%            |                                                                                                                                 |
| fF3 | $\sqrt[n]{y}$ |                                                                                                                                 |
| fF4 | i             |                                                                                                                                 |
| fF5 | →R            |                                                                                                                                 |
| fF6 | →P            |                                                                                                                                 |
| gF1 | a b/c         |                                                                                                                                 |
| gF2 | #             |                                                                                                                                 |
| gF3 | .ms           |                                                                                                                                 |
| gF4 | .d            |                                                                                                                                 |
| gF5 | LBL           |                                                                                                                                 |
| gF6 | RTN           |                                                                                                                                 |