

# plusBASIC Quick Reference Guide

## Operators

- - **expression** - Negate expression
- **expression** + **expression** - Add second expression to first expression
- **expression** - **expression** - Subtract second expression from first expression
- **expression** \* **expression** - Multiply first expression by second expression
- **expression** / **expression** - Divide first expression by second expression
- **expression** ^ **expression** - Raise first expression to power second expression
- **expression** > **expression** -
- **expression** = **expression** -
- **expression** < **expression** -
- **expression** >= **expression** -
- **expression** <= **expression** -
- NOT **integer** -
- **expression** MOD **expression** -
- **integer** AND **integer** -
- **integer** OR **integer** -
- **integer** XOR **integer** -
- **string** %% (**expression**{,...}) - Perform string substitution.

## Statement and functions

- **ABS(expression)** - Return absolute value of expression.
- **ARGS(index)** - *Not implemented*
- **ASC(string)** - Return ASCII value of the first character of *string*.
- **ASC\$(hexstring)** - Convert *hex\_string* to an ASCII string.
- **ATN(float)** - Return arctangent of argument.
- **CALL address {ARGS hl,de,bc,a}** - Executes machine language routine at address, optionally passing arguments into the associated registers.
- **CD** - Display current path or change directory.
- **CD\$** - Return current path.
- **CHR\$(byte)** - Convert ASCII value to string.
- **CLEAR {integer{,address}}** - Clear all variables, optionally allocating string text space and top of BASIC RAM.
- **CLOAD {(?){filename}|\*array** - Load or verify program or load array data from cassette.
- **CLOSE** - *Not implemented*
- **CLS {fgcolor,bgcolor}** - Clear the text screen.
- **COMPARE (array,array)** - Compare the binary contents of two numeric arrays.
- **COMPARE ({@page,}address,{@page,}address,length)** - Compare two blocks of memory.
- **COMPARE (filespec,filespec)** - *Not implemented*
- **CONT** - Resume program execution after STOP, Ctrl-C/Escape, or error.
- **COPY** - Copy text screen to serial printer.
- **COPY \*array TO \*array** - *Not implemented*
- **COPY {@page,}address,length TO {@page,}address** - Copy bytes from one section of memory to another. **COPY filespec TO filespec** - Copy file to another file.
- **COS(float)** - Return cosine of argument.
- **CSAVE filename|\*array** - Save program or array data to cassette.
- **DATA literal{,...}** - Define data for <sup>READ</sup> statement.

- **DATE\$** - Return the current date.
- **DATETIMES\$** - Return the current date and time.
- **DEC(hexstring)** - Convert hexadecimal string to integer.
- **DEEK(@page,address)** - Read integer from memory.
- **DEF ATTRLIST strvar=attr,...** - Create a string list of sprite and/or tile attributes.
- **DEF FN var(var) = expression** - *Not implemented*
- **DEF INTLIST strvar=integer,...** - Create a string list of integers.
- **DEF PALETTELIST strvar=palette,...** - Create a string list of palette numbers.
- **DEF RGBLIST strvar=r,g,b,...** - Create a string list of RGB values.
- **DEF TILELIST strvar=tileno,...** - Create a string list of palette indexes.
- **DEF USR=address** - *Not implemented*
- **DIM array(dim{,...}){,...}** - Create and allocates one or more arrays.
- **DIR** - Display disk directory.
- **DOKE (@page,address,integer)** - Write integer to memory.
- **EDIT** - *Not implemented*
- **END** - Terminate program execution.
- **EVAL(string)** - Evaluate expression in string.
- **EXP(float)** - Return argument to the power of mathematical constant *e*.
- **FILEDIR\$(filespec)** - Extract path from filespec.
- **FILEEXT\$(filespec)** - Extract extension from filespec.
- **FILL (@page,address,ount,byte)** - Fill block of memory with byte.
- **FILL (@page,address,ount,WORD integer)** - Fill block of memory with integer.
- **FILL SCREEN (x,y)-(x,y) {COLOR fgcolor, bgcolor}** - Fill screen with character and/or colors.
- **FILL TILEMAP (x,y)-(x,y) TILE tileno** - Fill tilemap with specified tile, attributes and palette.
- **FOR var=expression TO expression {STEP expression}** - Initiate a *FOR* loop.
- **FRE(float|string)** - Return amount of unused variable and array or string space (after forcing garbage collection).
- **GET ARGS var{,...}** - Read arguments from argument list after *GOSUB*.
- **GET SCREEN (x,y)-(x,y) {CHR|ATTR} \*array|^strvar** - Copy text screen clip to array or string variable.
- **GET TILEMAP (x,y)-(x,y) \*array|^strvar** - Copy tilemap clip to array or string variable.
- **GETKEY** - Wait for key and return ASCII code.
- **GETKEY\$** - Wait for key and return as string.
- **GETPALETTE\$(palette)** - Return palette contents.
- **GETSPRITES\$(spritedef)** - Return attributes of each spritle in the spritedef.
- **GETTILE\$(tileno)** - Return tile pixels.
- **GOSUB lineref:ARGS expression{,...} {RETURN var{,...}}** - Branch to subroutine with optional call and return arguments.
- **GOTO lineref** - Branch to line specified by line number or label.
- **HEX\$(number)** - Convert byte or integer into hexadecimal string.
- **HEX\$(string)** - Convert ASCII string into hexadecimal string.
- **IF expression GOTO lineref|THEN lineno|statement** - Branch to line or execute statements if expression evaluates to true.
- **IN(port)** - Read a Z80 I/O port.
- **INT(expression)** - Return expression rounded down to nearest integer.
- **INKEY** - Return ASCII code of most recently pressed key.
- **INKEY\$** - Return most recently pressed key as string.
- **INPUT {stringliteral;}var{,...}** - Prompt for keyboard input and assigns entries to variables.
- **INSTR({offset,}haystack, needle)** - Search for string *needle* in string *haystack*.
- **JOY(stick)** - Read one or both game controllers.
- **KEY(keycode)** - Check if key is currently pressed.
- **LEFT\$(string,len)** - Return the first up to *len* characters of string.
- **LEN(string)** - Return length of string.
- **var=expression** - Define and assigns value to variable.
- **LIST** - Display program lines starting at beginning of program or specified line.

- **LLIST** - Outputs program lines to printer starting at beginning of program or specified line.
- **LOAD filespec** - Load BASIC program into memory.
- **LOAD filespec,{@page,}address** - Load binary file into memory.
- **LOAD filespec,\*array** - Load file data into numeric or string array.
- **LOAD BITMAP** - *Not implemented*
- **LOAD CHRSET filespec** - Load character set into alternate character buffer.
- **LOAD FNKEYS filespec** - Load function key definitions from file.
- **LOAD PALETTE p,filespec** - Load file data into palette.
- **LOAD PT3 filespec** - Load PT3 track into PT player buffer.
- **LOAD SCREEN filespec** - Load file data screen.
- **LOAD STRING** - *Not implemented*
- **LOAD TILEMAP** - *Not implemented*
- **LOCATE x,y** - Move text cursor to specified position.
- **LOG(float)** - Return natural logarithm of argument.
- **LOOP PT3** - Play specified or previously loaded PT3 track repeatedly.
- **LPOS(expression\_)** - Return current column position of printer.
- **LPRINT TAB(integer)|SPC(integer)|expression|;** - Output data to printer.
- **MID\$(string,start{,len})** - Return first up to *len* or all remaining characters starting at character *start* of string.
- **MKDIR dirname** - Create directory.
- **MOUSEB** - Return mouse button state
- **MOUSEW** - Return mouse wheel delta
- **MOUSEX** - Return mouse x-position
- **MOUSEY** - Return mouse y-position
- **NEXT {var,...}** - Terminate one or more *FOR* loops.
- **NEW** - Delete program and clears all variables.
- **NOT integer** - Return bitwise NOT of *integer*\*\*
- **ON integer GOSUB lineref,...** - *GOSUB* one of several line numbers based on *expression*.\*\* - Return bitwise NOT o
- **ON integer GOTO lineref,...** - *GOTO* one of several line numbers based on *expression*.
- **ON ERROR GOTO lineref** - Enable or disable error trapping.
- **OPEN** - *Not implemented*
- **OUT port,byte** - Write to a Z80 port.
- **PAUSE** - Halt program execution until key is pressed.
- **PAUSE jiffies** - *Not implemented*
- **PAUSE PT3** - Pause currently playing PT3 track.
- **PEEK({@page,}address)** - Read byte from memory.
- **PEEK\$({@page,}address,length)** - Read string from memory.
- **PEEKCOLOR(address)** - Read byte from color RAM.
- **PEEKCOLOR\$(address,length)** - Read string from color RAM.
- **PEEKSCREEN(address)** - Read byte from screen RAM.
- **PEEKSCREEN\$(address,length)** - Read string from screen RAM.
- **PLAY PT3** - Play specified or previously loaded PT3 track.
- **PLAY SAMPLE @page,address** - Play digital sample from previously loaded file.
- **POKE {@page,}address,byte** - Write byte to memory.
- **POKE {@page,}address,string** - Write string to memory.
- **POKE COLOR address,byte** - Write byte to color RAM.
- **POKE COLOR address,string** - Write string to color RAM.
- **POKE SCREEN address,byte** - Write byte to screen RAM.
- **POKE SCREEN address,string** - Write string to screen RAM.
- **POINT(x,y)** - Return status of bloxel.
- **POS(expression\_)** - Return current cursor column on printer.
- **PRESET (x,y)** - Erase bloxel from screen.
- **PRESETB (x,y)** - *Not implemented*

- **PRINT TAB(integer)|SPC(integer)|expression|;** - Display data on screen.
- **PSG register,byte{,...}** - Write bytes to PSG register
- **PSG register,byte{;...}** - Not implemented
- **PSET (x,y)** - Draw bloxel on screen.
- **PSETB (x,y)** - *Not implemented*
- **PUT SCREEN (x,y\_) {CHR|ATTR} \*array|^strvar** - Copy clip from array or string variable to text screen.
- **PUT TILEMAP (x,y\_) \*array|^strvar** - Copy clip from array or string variable to tilemap.
- **READ var{,...}** - Read values from data statements into variables.
- **REM text** - Denotes comment.
- **RENAME filespec TO filespec** - Rename file or directory
- **RESUME lineref** - Clear error condition and continues program execution at specified line
- **RESUME PT3** - Resume playing paused PT3 track.
- **RESET PALETTE palette** - Reset palette to default RGB values.
- **RESET SCREEN** - Reset current text screen to default settings.
- **RESTORE** - Reset READ/DATA pointer to beginning of program or specified line.
- **RESTORE BITMAP|TILEMAP|PALETTE palette{,...}** - *Not implemented*
- **RESTORE SCREEN** - Copy respective screen buffer to current text screen..
- **RETURN {expression{,...}}** - Resume program execution after GOSUB, optionally returning results.
- **RGB(r,g,b)** - *Not implemented*
- **RGB\$(r,g,b)** - Return string representing a single palette entry
- **RIGHT\$(string,len)** - Return the last up to *byte* characters of string. **\_RND(integer)** - Return new or previous psuedo-random number or seeds the random number generator.
- **RUN** - Start program execution at first or specified line.
- **RUN filespec** - Load and runs specified program, cartridge image, or FPGA core.
- **SAVE filespec** - Save BASIC program to CAQ or ASCII file.
- **SAVE filespec,{@page,}address,length** - Save memory to binary file.
- **SAVE filespec,\*array** - Save numeric or string array data to file.
- **SAVE BITMAP** - *Not implemented*
- **SAVE FNKEYS filespec** - Save function key definitions to file.
- **SAVE PALETTE p,filespec** - Save palette contents to file.
- **SAVE SCREEN** - *Not implemented*
- **SAVE TILEMAP** - *Not implemented*
- **SCREEN ,,,,** - Set screen mode.
- **SET COLOR fgcolor,bgcolor** - Enable color printing mode
- **SET COLOR OFF** - Disable color printing mode
- **SET FAST ON|OFF** - Enable or disables turbo mode.
- **SET FNKEY key TO string** - Set auto-typed text when function key is pressed.
- **SET KEY mode** - Set alternate keyboard port mode.
- **SET PALETTE palette{,index} TO rgblist** - Set palette entries.
- **SET SAVE ASC ON|OFF** - Enable or disable forced saving of BASIC programs in ASCII format.
- **SET SPRITE spritedef {ON|OFF} {POS x,y}** - Set sprite properties.
- **SET SPRITE spritedef TILECLIP \*array|^strvar** - Set sprite to tile indexes and properties in tilemap clip.
- **SET SPRITE spritedef TO proplist** - Set sprite properties from combined properties list.
- **SET SPRITE \* OFF|CLEAR** - Disable or clears all sprites.
- **SET TILE tileno TO tiledata** - Write tile definition video RAM.
- **SET TILEMAP (x,y) TO TILE tileno** - Set tilemap cell to tile index, attributes, and palette.
- **SET TILEMAP (x,y) TO integer** - Set tilemap cell to integer represeting combined tile index, attributes, and palette.
- **SET TILEMAP OFFSET x,y** - Scroll tilemap to specified position.
- **SGN(expression)** - Return signum of expression.
- **SIN(float)** - Return sine of argument.
- **SOUND (duration,frequency)** - Generate a tone through the television speaker.
- **SQR(float)** - Return square root of argument.
- **STASH BITMAP|TILEMAP|PALETTE palette{,...}** - *Not implemented*

- **STASH SCREEN** - Copy current text screen to respective screen buffer.
- **STOP** - Interrupt program execution.
- **STOP PT3** - Stop currently playing PT3 track.
- **STR\$(float)** - Convert floating point number to ASCII string.
- **STRING\$(length[,byte|string])** - Create string of repeated character.
- **STRPTR(strvar)** - Return address of text for string variable.
- **SWAP BITMAP|TILEMAP|PALETTE palette{,...}** - *Not implemented*
- **SWAP SCREEN** - Stop current text screen with respective screen buffer.
- **SWAP VARS var,var** - *Not implemented*
- **TAN(float)** - Return tangent of argument.
- **TILEMAP(x,y)** - Return tile index and properties in tile cell.
- **TILEMAPX** - Return X-offset of tilemap.
- **TILEMAPY** - Return X-offset of tilemap.
- **TIME\$** - Return the current time.
- **TIMER** - Return timer count.
- **TIMER = expression** - Set and start jiffy timer.
- **TRIM\$(string)** - *Not implemented*
- **TRIMDIR\$(filespec)** - Remove path from filespec.
- **TRIMEXT\$(filespec)** - Remove extension from filespec.
- **TRIMLEFT\$(string)** - *Not implemented*
- **TRIMRIGHT\$(string)** - *Not implemented*
- **TRON** - Enable line tracing.
- **TROFF** - Disable line tracing.
- **USE CHRSET 0|1|filespec** - Copy specified character set to character RAM.
- **USR(expression)** - Call user-defined machine language routine passing argument and returning result.
- **VAL(float)** - Convert ASCII string to floating point number.
- **VARPTR(var{ } | var{ }(...)|\*array{\$})** - Return address of variable, array element, or array
- **VER(expression)** - Return System or plusBASIC version as integer.
- **VER\$(expression)** - Return System or plusBASIC version as printable string.
- **WRITE** - *Not implemented*