DRAWMASTER: A program for the 48K ZX Spectrum, by Campbell Systems.

DRAWMASTER is a utility which lets one compose pictures on the screen. As well as essential hand-draw cursor control there are advanced functions such as FILL and RE-SCALE, and a constant display of status and co-ordinates is maintained. There are in all over 50 commands.

To load the program: LOAD ""

Once the program has loaded, you see a flashing cross-wire cursor in mid-screen, and status in lines 22-23. Lines 0-21 are all yours for drawing. Press and hold Q to see the menu of control keys, and release Q to resume your work. You may note that we used DRAWMASTER to make its own menu. The commands are in groups, and are further explained below.

Key: ss = SYMBOL SHIFT   cs = CAPS SHIFT

WINDOW commands...

A window is defined as a rectangle of lines and columns, and is initially the full 22-line screen. Smaller windows can be defined, stored, and restored at different positions on the screen. Now for the commands...

W: Define a window
ssB: Draw in OVER mode a pixel border around the window.
csF: Paint window in current paper/ink/bright.
ssF: Paint window as above but with reversed paper/ink.
S: Store window in RAM for possible later restore. (You confirm with Y key.)
ss&: Redefine window with top left corner at cursor. This is sometimes easier than using W.
R: Restore window as saved in RAM. Can be at different line and column, but must be same dimensions as saved.
csX: Clear all ink from window.
csW: Remind where window is by showing its border and displaying line/col spec.

The PEN commands define the status of the cursor, as follows...

D: This is the normal mode for drawing, leaving a trail of ink as the cursor is moved.
E: Erase undraws, removing ink from the cursor trail.
O: Over leaves a trail of ink or paper, so as to always to contrast with what is already drawn.
T: Transparent mode leaves ink unaffected, i.e. the pen is off the paper. But as the cursor moves, colours will still be affected by the Attribute status.

The DRAW commands are all ways of steering the pen or making other ink effects...

1 — 8: 8 directions for hand-drawing one pixel at a time.
cs1 — 8: hops 8 pixels at a time.
(See menu for each of the 8 directions used.)

L: Draws a line in one of the 8 directions until it meets a pixel or screen edge. (DRAW or OVER only.).

C: Draws a circle centred at cursor.

Any pixel on the screen can be set as point 'X', and starts at the screen centre. The following commands all pertain to point 'X'...

A: Draws an arc from cursor to point X.
J: Draws a line from cursor to point X.
X: Redefines X at the cursor.
ssX: Swaps cursor with point X - do this twice to see where point X is if you are unsure.

F: Fills with ink, hunting left and right and up and down from where the cursor is. Hold the SPACE key to abort if the fill 'goes wild'. Completes with cursor at original pixel, but in TRANS mode. Since ink pixels delimit the process, you cannot directly un-fill. But you can use ss F to reverse paper/ink, then FILL, then ss F again.

ATTRIBUTE commands...

P: Set paper to 0-9. (8=no change, 9=contrast).
I: Set ink to 0-9.
B: Set brightness to 0 (dull) or 1 (bright) or 8.

(The status data tells you always what the above are.)

V: Set flash to 0,1, or 8.

Unless changeing colours, use values of 8.

Commands affecting whole screen...

ssK: Save SCREEN$ onto tape. (Change mind with just ENTER.)
ssJ: Load SCREEN$ from tape. (Change mind with SPACE ENTER.)
U: Show all ink as black, paper as dull white, until key is released.

MISCELLANEOUS commands...

M: Enter text directly. CAPS and SYMBOL keys work, and so does DELETE for backspace. Terminate with ENTER. PEN status affects whether text is normal or inverse. Beware overshooting line 22, else it scrolls your screen.

ssM: Inverts paper and ink at cursor character.

H: Sets the number of pixels interval when using 1-8 to draw. Normally, hop interval is 1, but you can draw dotted lines using other values.

Z: Toggles the cursor speed. Slow speed shows a * in the status and beeps at each movement. Faster speed does not show new co-ordinates until cursor is stopped.

S: Saves the program. We have no objection to our users taking legitimate security back-ups.

SPACE key: Hold it to freeze the cursor for tricky work.

ssW: This is a most powerful function, albeit a little slow, which lets you copy a rectangular area of the screen to another area, at pixel resolution rather than character. Further, you can RE-SCALE, i.e. shrink or expand the X and Y dimensions independantly. The originating point is the cursor, and the destination is point 'X'. Both points are deemed to be at the bottom left corner of the areas concerned. You are asked to supply X and Y factors. e.g. 2 = double the size, .75 = reduce accordingly. You then supply the height and width - in pixels - of the source. It is best not to overlap the areas. Most of the DRAWMASTER menu text was done by copying Spectrum text using factor .75 for X, and 1 for Y, thus giving quite legible text at 6-pixel width.

You may accidentally slip into Spectrum Basic Command mode, for example pressing BREAK, or 'Integer out of range' after giving wrong data. But simply resume with 'GOTO 30' command. You can start from scratch with RUN, but then any stored window is lost.

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