

## **Instructions For The Beeb Handscan Watford's Hand-held Scanner for the BBC Micro**

### **Introduction**

The Beeb Handscan is a hand held scanner suitable for use with both the Master and BBC model B micro computers. HandScan will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs.

### **Installing The Beeb HandScan**

The Beeb HandScan includes the scanner itself, the interface board, and all necessary software in the form of a ROM. Insert the ROM into any vacant socket inside the computer, with the notch in the correct orientation. The interface incorporates three connectors. Plug the ribbon cable into the 1Mhz bus on the BBC micro, the scanner into the appropriate socket on the interface, and the power plug into the power socket under the BBC micro. Note that the power cable also includes another socket into which any other peripheral may be inserted (i.e. disc drive, Eeprom programmer, etc).

### **The HandScan Software**

Principally the software allows two separate modes of operation, either from within the Wapping Editor, or straight from Basic by using a star command. If you wish to digitise images for inclusion in other design packages, such as Stop Press or Fleet Street Editor, you must write a small Basic program to catch and save the picture. You may then load this file into the alternative package as if it were any other sprite or screen file.

### **Operating The Scanner**

Upon examination of the scanner, you will find that there are four controls in all, two multi-position slider switches, a brightness wheel, and the large 'scan' button. The 'scan' button must be pressed down whilst moving the scanner over the image to be digitised. The slide switch next to the button controls the mode in which the scanner operates, either in photo or text mode. When switched to LETTER mode, images will be represented in true black and white, with no intermediate grey levels. The three PHOTO settings give various types of dithered scan (using patterns of pixels to represent grey scales). The LIGHT/DARK wheel controls the contrast/brightness of the final scanned image, and the switch labeled 1,2,3,4 selects the resolution of the Scan. On the BBC micro the first two options, 1 and 2 (i.e. 100 and 200 dots per inch), are the only modes applicable as the machine is not fast enough to cope with the higher densities.

### **Using HandScan With The Wapping Editor**

First and foremost, in addition to the excellent scanning facilities provided by the the HandScan ROM, this ROM also includes all of those features that previously required the Wapping Editor Support ROM. If you already have this ROM remove it and install the new HandScan ROM in its place.

To use the scanner in Wapping Editor, simply double click on the word DIGITISE in the graphics menu, and a new sub-menu will appear. The options will be as follows:

- (1) Video Digitiser - calls the digitiser as before.
- (2) Normal Height Scan- use the scanner and give a correct aspect ratio scan (i.e. circles appear circular on the screen).
- (3) Double Height Scan- as above except that the vertical detail is doubled, giving oval shapes for scanning circles on the screen. This form of scan will appear correct if incorporated into an EXTENDED Y or HI RES page when printed out.

Either of the above scanning options will remain in the scan mode until the right (abort) button is pressed on the mouse. Also note that scans are made directly onto the current screen area and, if a page is loaded, the displayed part of it will be overwritten by the scanned output. If in doubt, scan when no page is loaded, save the required area as a cutout, and then reload the page and paste the cutout down.

### **Using The Scanner From Basic**

As mentioned earlier, a couple of star commands are provided so that the scanner is supported from within

Basic. The new commands are \*SCAN and \*SCANDOUBLE. The first command will scan an image with a correct aspect ratio, while the second command will perform a double height scan. Note that both commands will be terminated if the 'scan' button is released on the scanner, or if the bottom of the screen is encountered.

Also note that when either command is issued, and the scanner is connected correctly, the machine will appear to freeze until the 'scan' button is pressed. It is not possible to Escape from the scanning routine as all interrupts are disabled (all keyboard scanning will completely stop).

If you should want to capture pictures for use within other packages a short Basic program should be written as follows:

```
10 MODE 0
20 *SCAN
30 *SAVE [filename] 3000+5000
```

Remember to replace [filename] with an appropriate and legal name, and the program will scan the image into memory and then save it to disc. Load the file according to the third party software package that you intend to use. The image may be loaded within a Basic program simply by using the command: \*LOAD [filename]

### **Technical Details**

Whilst in 100 dpi scan mode, the entire active width of the scanner will fit into just over half of the width of the screen area for mode 0 (392 pixels). In 200 dpi scan mode, some of the data from the right hand edge of the scanner is lost as the scanner outputs approximately 780 pixels of data per line, but mode 0 can only display 640 pixels.

### **Error Messages**

The HandScan software supports the following errors:

SCANNER NOT CONNECTED - produced when the scanner is not plugged in or switched on.

BAD MODE FOR SCANNER (ONLY MODE 0) - attempting to \*SCAN in any mode other than mode 0.