Appendix 4

Serial Terminal - VT52 emulator

When you are using the serial terminal program built into the Notebook it emulates a DEC VT52 type of terminal. If the computer to which you are connected can send VT52 codes these will be acted upon by the serial terminal program. The VT52 codes that the terminal program will respond to or send are:

ESC A   moves the cursor up one line, stopping at the top margin.

ESC B   moves the cursor down one line, stopping at the bottom margin.

ESC C   moves the cursor one column to the right, stopping at the right margin.

ESC D   moves the cursor one column to the left, stopping at the right margin.

ESC H   moves the cursor to the home position.

ESC Ylc   moves the cursor to the specified line and column.

ESC K   erase all characters from the current cursor position to the end of the current line.

ESC J   erase all characters from the current cursor position to the end of the screen.

ESC I   move the cursor up one line, scrolling the screen if the cursor is at the top margin. The new top line is filled with spaces.

ESC Z   on receiving this code the Notebook will send back ESC / Z to identify it as a VT52 compatible terminal.

ESC 7   saves the current cursor position.

ESC 8   returns to the previously saved cursor position.

The following ASCII characters are treated in a special way by the serial terminal program:

NUL 0   ignored.

ENQ 5   transmits answerback message - "Amstrad NC200".

BEL 7   generates bell tone.

BS 8   moves the cursor left one character; if the cursor is at the left margin, character is ignored.

HT 9   moves the cursor to the next tab stop, or to the right margin if there are no more tab stops.

LF 10   moves the cursor down one line, scrolling the screen if the cursor is at the bottom margin.

VT 11   processed as LF.

FF 12   processed as LF.

CR 13   moves the cursor to the left margin on the current line (also performs LF if "Add linefeed" option is set).

DC1 17   processed as XON, causing the terminal to continue transmitting characters.

DC3 19   processed as XOFF, causing the terminal to stop transmitting characters except XON or XOFF.

ESC 27   begins an "escape" sequence as descibed in the table on the previous page.

Most keys on the keyboard will send their standard ASCII code when pressed. The cursor control keys will be changed to their respective VT52 "escape" sequences. The Notebook specific keys will not transmit any characters. The ⏎ key will either send CR or CR, LF depending on the setting of "Add linefeed".

The PF1 to PF4 codes generated by a standard VT52 terminal can be typed by holding down [Function] and pressing [1], [2], [5] or [6]. These send the corresponding "escape" sequences - ESC P, ESC Q, ESC R or ESC S.

The terminal will always check the state of the CTS signal on the RS232 port before transmitting a character. If the signal is in the

"hold" state, the terminal will not transmit the character. If the terminal is prevented from transmitting characters for long enough it's own output buffer becomes full. In this case it will refuse to accept any further characters to transmit and will display a "communications failure" message.

The terminal maintains the RTS signal in the "active" state provided it is able to store characters in its own internal buffer. If the buffer becomes full it will put the RTS line into the "hold" state until it can accept a character.

Both the internal buffers for transmit and receive are 256 bytes long.

The XON/XOFF software flow control protocol works as follows: If the terminal receives an XOFF character the terminal will stop transmission of any characters except XON/XOFF within one character of receiving the XOFF.

If the terminal then receives the XON character it will continue transmission of all characters.

When the internal receive buffer becomes two thirds full (at 170 characters) it will send an XOFF character. If characters continue to build up within the buffer a further XOFF character will be sent when the buffer holds 200 characters. If characters continue to build up within the bufferan XOFF character will be sent for every character received after 240.

When the internal buffer becomes oe third full (at 85 characters) the terminal will send an XON character if an XOFF had previously been sent.

The hardware handshaking (CTS/RTS) will always have priority when determining the transmission of characters.