BEEBTEL®

A Videotex Terminal ROM for the BBC Microcomputer

User Guide

Acorn/SCI

Note Within this publication, the term 'BBC' is used as an abbreviation for 'British Broadcasting Corporation'.

Where, for the encoding of telesoftware, the Viditel protocol is applied this is done with permission of the Dutch PTT.

Poseidon® and Beebtel® are trademarks of ECD BV.

The products described in this User Guide are subject to continuous development. ECD BV reserves the right to make improvements to this product without further notice. Every effort has been made to ensure the accuracy of the program and this User Guide. Nevertheless, it is acknowledged that there may be some textual and software errors still to be discovered. If you find any errors, or have any suggestions for improving the program or the manual, please contact Acorn Computers or ECD BV.

*Prestel, Telecom Gold, Micronet800 and Epson are trademarks.

Colophon: This User Guide was written with Perfect Writer on a BBC B Microcomputer with Z80 second processor. The text was printed on a Daisy Systems M45 printer with the letter Arcadia PS.

Translation User Guide: Wendie Shaffer & Teus de Jong.

Cover design: Gideon

Production: tedejo productions & ECD BV

First edition, Delft, Holland, december 1985

The program

The BEEBTEL Videotex Terminal ROM turns a BBC Microcomputer into an intelligent videotex terminal with the following features:

- Help-screens for all functions.
- Access to most videotex systems, including Prestel*, Telecom Gold*, Micronet800* and many Poseidon systems.
- The facility to store information on disc, tape or in memory
- The facility to print information.
- The facility to install 10 user-defined functions using the utilities disc.
- The facility to send messages to a bulletin board.

Hardware requirements

- a BBC B or B+ Microcomputer.
- a suitable monitor
- a compatible modem (1200 Baud Receive/75 Baud Transmit).
- an compatible 80 track disc drive or a cassette recorder.

The Beebtel package

The Beebtel package contains:

- A BEEBTEL ROM.
- A utility disc.
- A User Guide.

Table of Contents

1 Getting going

1.1 Installing your videotex terminal

Beebtel turns your BBC Computer into an intelligent videotex terminal. To achieve this you have to install the Beebtel ROM and make the connections with a modem and the telephone.

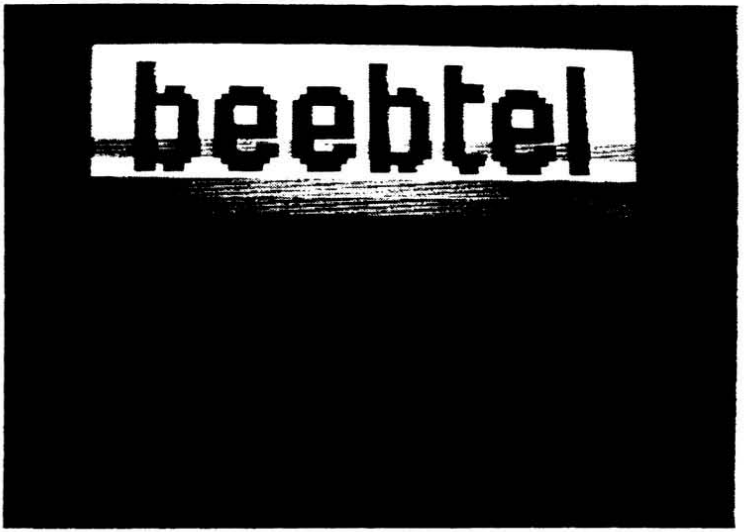
Insert the ROM in one of the sideways ROM sockets. If your Acorn dealer has not fitted the ROM for you, you will find instructions on how to do this in Appendix 3 of this User Guide. After installing the ROM switch on your BBC Computer and enter the command *BEEBTEL RETURN. The Beebtel logo should appear on your screen. If this does not happen, the ROM is not fitted properly.

Now switch off your computer again and plug your modem into the RS423 port of your BBC Computer. If your Acorn dealer did not supply a connecting cable for you you will have to make this yourself. Appendix 1 explains how to do this. The modem should be connected to your telephone. The instructions on how to do this will be included in your modem package. If the ROM is inserted and all connections are properly made, Beebtel is ready for action.

1.2 A first session with BEEBTEL

To get used to Beebtel phone a viewdata system in your neighbourhood, e.g. a local Poseidon system.

Switch on your BBC Computer and your modem. Start Beebtel by entering the command ***BEEBTEL** RETURN (or ***BE.**, don't forget the full stop). On your screen you will see the Beebtel logo:

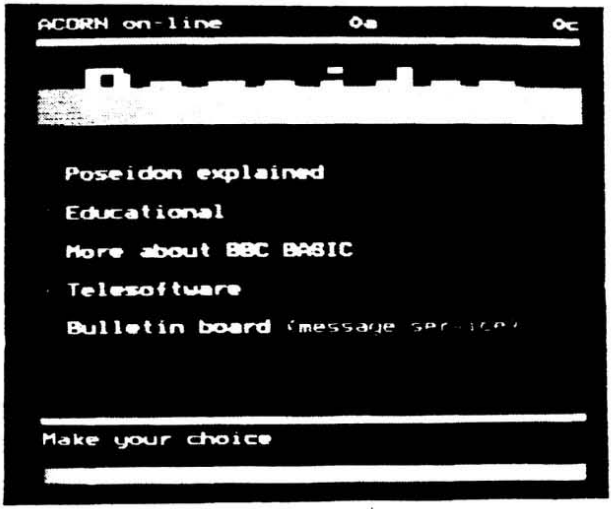


Now dial the number of the viewdata system you have chosen for your experiment. As soon as you hear the high pitched tone of the host computer at the other end of the line switch your modem on line. At the moment the host computer starts sending characters, your screen will clear. You can now replace the handset of the phone.

> **Note:** If you fail to make the connection with the host computer check your modem. If your modem is in order, and correctly set to 1200/75 baud, then check the connection between your computer and the modem (see Appendix 1). Check the RS423 plug at the back of your computer as it could be inserted upside down.

If you succeeeded in making the connection with the host computer the logo page of the viewdata system will have appeared on your screen. It might look like this:

As indicated on the screen you can go on by pressing # (or £). Just press this key and the main index of the viewdata system will be sent by the host computer. This might look like this:



This main index is a menu. You choose from this menu by entering the appropriate number (or the character #). After you have made your choice a new page will be sent to you. On this page you will again be given options to choose. Supposing that on the last line of the screen you read **# next - 0 index.** This means that as soon as you enter # the host will send you the next page, if you enter 0 you will return to the main index of the system.

Of course, different systems will have different logo pages, main indices, etc. However, you will always be told what to do in order to proceed.

If you want to **log off** just press the red **function key f9.** The host computer will send you its End Page, and the connection will be broken. **Don't forget to switch your modem off-line as soon as the connection is broken.**

Now you can try to connect to other systems. For many systems you will need an access code. This code must be entered as soon as you have made contact with the system (on the first or second page you receive).

You can leave Beebtel by pressing SHIFT-f1. A white asterisk on a blue background will appear on your screen. Now enter BASIC: this will be displayed directly behind the asterisk. Now press RETURN and you will return to Basic.

2 What is a videotex system?

A videotex system consists of a videotex host program running on a computer, called the host computer. The videotex host program makes a viewdatabase available to users who log on from a videotex terminal, i.e. a computer running a videotex terminal program. Beebtel has turned your BBC Microcomputer in a videotex terminal.

We can compare the database of a videotex- or viewdata host system with a book. Imagine you have a book on which you can fit 25 lines per page. You can fit 40 characters of equal size on each line. One page of this book exactly fits onto the screen of the BBC computer in Mode 7 (the teletext mode). This provides a good description of a page from a viewdatabase. †

In an ordinary book only certain characters are printed: i.e. letters, numbers, punctuation marks. The pages of a viewdata system can contain other characters and codes: i.e. teletext codes and characters. These make it posssible to do more on the page: there can be graphics and coloured sections. As a result, one page can combine text with illustrations in various colours.

At the top of each page is a **page heading** which includes the system name, the page number, and the costs of the page. The following 22 lines are used for information. In a viewdata system line 24 is reserved for messages. Line 25 is not used because many computers, unlike the BBC Microcomputer, only

---

† A viewdata system works with blocks of 1 Kbyte (1,024 bytes) and as a consequence there are 24 bytes free besides line 25. These can be used for extra information.

have 24 lines. Beebtel uses line 25 for its own messages.

This is how a viewdata page is put together: line:

1: page heading

2/23: information

24: messages system

25: messages Beebtel

Now, how do you find the particular page you wish to examine? The most obvious way is by entering the page number. You can do this by first entering an asterisk *, then the number of the required page followed by #. In Beebtel you may use the key f instead of the key #. For example: to ask for page 92 you enter *92# or *92f.

Of course, it would be very tedious to enter the number for every page you would like to see. However, in a viewdata system there are easier ways to find the required information. As user you will be guided by menus (indices) to the right pages in the system. All you have to do is make the right selection from the menus. A selection is made by entering a number (0 - 9) or the character #.

Most videotex systems consist of three different parts: viewdata pages, a bulletin board, and telesoftware. In the viewdata part of the system you can find information. In the bulletin board you can read and write messages. From the telesoftware part you can download telesoftware. Sometimes you will have to pay for the service you require. In that case

the system will warn you first.

3 The function keys

3.1 Introduction

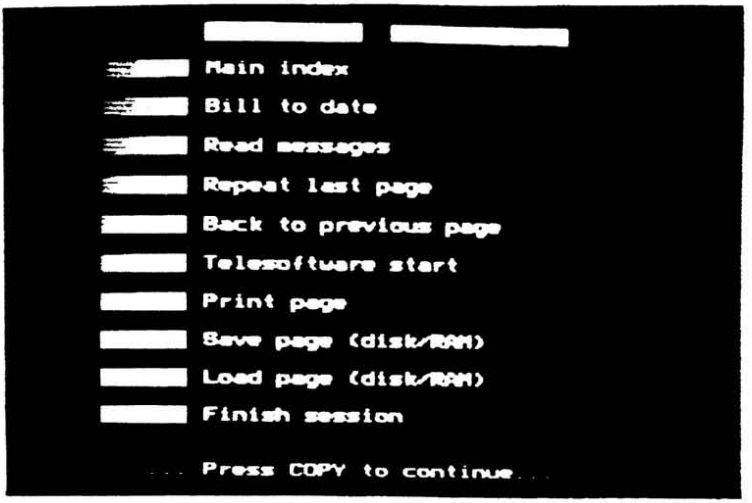
Beebtel was designed to make communicating with a videotex system simple. To achieve this, the red function keys are extensively used. This chapter will introduce the facilities of Beebtel by giving an explanation of the definitions of the function keys.

At the end of this chapter we will explain how you can define your own additional function keys. These will be available by pressing CTRL together with the function keys.

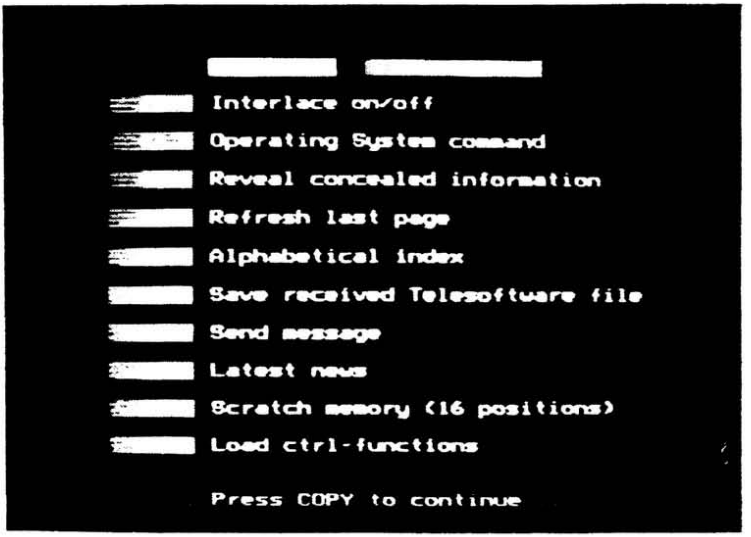
3.2 Help-screens

The definitions of the function keys are available for quick reference on help-screens. The COPY key is programmed to access those help-screens. To see how this works, start Beebtel by entering *BEEBTEL RETURN. On your screen, the Beebtel logo will appear. Now press **COPY** and a help-screen for the normal function keys will appear. Pressing COPY again returns you to the Beebtel logo. In the same way pressing SHIFT-COPY produces a help-screen for the function keys when used together with SHIFT. CTRL-COPY produces a help-screen for the function keys used with CTRL (provided these function keys are defined). When you're working with Beebtel you can access these help-screens at any time except during downloading of information or software.

Help-screen accessed by COPY (normal function keys):



Help-screen accessed by SHIFT-COPY (SHIFT+function keys):



3.3 The function keys

3.3.1 BBC general

SHIFT-f0: This key is an interlace toggle. In Beebtel the interlace is off by default. After starting Beebtel there will be no cursor. However, as soon as the cursor is needed (e.g. if you want to write a message in a bulletin board) it will appear. You can have a cursor with the interlace off by pressing SHIFT-f0 twice: a cursor will appear, while the interlace is off. You may prefer the normal Mode 7 letters. In that case press SHIFT-f0 once: the interlace will be on.

SHIFT-f1: This key gives access to the operating system of your BBC. After pressing this key a blue line with an asterisk * will appear at the top of your screen. You can type any *-command and the entered command will appear directly after the asterisk. Suppose you enter *CAT RETURN. The contents of the logged on drive will appear onscreen. At the bottom you will see the message **Press a key.** By pressing any key you will return to normal Beebtel action: the last page will be restored and you can continue your work where you left it. SHIFT-f1 switches your computer automatically to paged mode (one screen is shown, press SHIFT for the next). ESCAPE cancels an entered command and returns you to where you were.
Of course, some commands (e.g. *BASIC RETURN) result in your leaving Beebtel. When you have left Beebtel you can return to it by *BEEBTEL RETURN. When on-line you can

restore the last page you received by pressing f3. **Note:** don't press BREAK because this will break the connection with the viewdata host.

3.3.2 Videotex: general

f0: When logged on a videotex system, striking this key returns you to the **main menu** of the system. (*0#)

f2: When logged on a videotex system, striking this key allows you to read the bulletin board of the system. (*930#)

f3: If the telephone connection is bad, a received page may be distorted. In that case you can strike this key to ask for the same page again. Asking for the same page again is always free of charge. (*00)

SHIFT-f3: Refresh last page. Some pages in some videotex systems are updated every few minutes. By pressing this key the latest update of the last page received is sent. If the page is not free of charge you have to pay for downloading the page again. (*09)

f4: Strike this key to return to the previous page received. Depending on the system you're logged on the number of pages you can page back will be different. (*#)

SHIFT-f2: Sometimes there is concealed information on a page. For example, if a page contains a riddle, the answer is often on the same page, but concealed. By pressing this key this hidden information will be revealed. As illustration you can press this key while the Beebtel logo

is on your screen. On the top line a copyright message will appear. By pressing SHIFT-f2 again the information will disappear.

SHIFT-f4: In some videotex systems pressing this key will lead you to the alphabetical index of the system. (*199#)

SHIFT-f7: In most videotex systems pressing this key will lead you to the latest news. (*170#)

f1: On several videotex systems you have to pay for downloading information and/or software. In this case you will be warned in advance. Pressing this key will tell you how much you have already spent by using the viewdata system. (*92#)

f9: This key **logs** you **off**. The viewdata host will send its log off page. Only after receiving this page can you reset your modem. Pressing f9 doesn't stop Beebtel, of course. After logging off you can have a look at the information you saved (see f8). (*90#)

3.3.3 Saving and recalling pages

f7: This key offers the possibility to **save** the current screen on disc or in memory. After pressing f7 Beebtel asks for an identification label:

Please give id:

You can answer this question in three ways:

- by entering a capital letter (A..Z), e.g. **T**. The page onscreen will be saved on disc (in our example in a file called **pagT**). In this way 26 pages can be stored on a disc

(pagA/pagZ). If an error occurs during saving, this will be reported on the bottom line of the screen in the usual way, e.g. 'Disc full', 'Cat full'. After an error message occurs, you can continue by pressing any key: the error message will disappear.

- by entering a number (0..9). The page will be saved in memory. If you use Beebtel with a cassette recorder, you can use this option.

- by pressing ESCAPE. This cancels the chosen option.

f8: This key allows you to call back saved pages. After pressing f8 Beebtel will ask for a identification label:

Please give id:

Depending on what you enter (A - Z or 0 - 9), the appropriate page will be loaded from disc or called from memory. If a page is not found on disc, the normal error message **File not found** will appear on the last line of the screen. This error message disappears when you strike a key. If a page is not found in memory, the error message **Page empty** appears. It is not necessary to be on-line when recalling pages. To keep costs low it is advisable to save required information on disc or in memory and look at it (or print it) later. **Note**: Do not save a page in memory after downloading a telesoftware file: the telesoftware would be overwritten. See SHIFT-f5.

3.3.4 Printing pages

f6: This key allows you to print the page that is on the screen. After pressing f6 Beebtel will ask if you really want to print the page. If you answer Y(es), Beebtel will ask for the type of printer (graphic or not). If you have a daisywheel printer you should answer N(o). If you have a graphic printer you can choose: if you answer N(o) only the text of a page will be printed, if you answer Y(es) the whole page will be printed. Of course, printing text only will be much quicker then printing a screen dump. Finally, if a graphic printer is available, you can choose between a small (S) or large (B) screen dump. Entering ESCAPE as answer to any of the questions asked will stop the print option. Beebtel will only produce screen dumps on an Epson* compatible printer.
To save costs it is advisable to print pages when off-line. You load a saved page from disc or call it from memory, and then you print it.

3.3.5 **Bulletin board**

SHIFT-f6: When logged on a videotex system, pressing this key allows you to write a message in the bulletin board of the system. You can not only enter text, but also colour and graphics. To enter colour or graphics you must enter ESCAPE, followed by the ESCAPE code for the required colour or graphic character. You will find a table of these ESCAPE codes in appendix 2.

SHIFT-f8: This key gives access to a small **scratchpad** (16 characters). This is useful for storing a long page number. After pressing SHIFT-f8 a highlighted line is shown. Enter the required characters, e.g. 40000123#, followed by RETURN. The entered characters are now stored in the scratchpad. To use the stored characters, press SHIFT-f8 twice: the stored characters are sent to the videotex host computer. You can use and/or redefine the scratchpad as often as you want.

3.3.6 **Telesoftware**

f5: This key starts downloading a telesoftware file.

Several videotex systems contain telesoftware that can be downloaded by Beebtel. First find the required software in the viewdata system. For example, in Poseidon choose the telesoftware option in the main menu, next find the program you want to download. Before you download a program you will get instruction on how to proceed after downloading. After these instructions the viewdata host will ask you to press f5 (or an

equivalent), to start downloading. Now press f5.

During downloading, a highlighted line with the message **Receiving telesoftware..** is on the top line of the screen. After receiving the first (few) block(s) of a telesoftware file, the name of the received file, the block received, and the memory address where the program is stored are written on the bottom line of the screen. For example:

File : HANGMAN Frame: C (1900)

Which frame will be shown first may differ, depending on the amount of information sent before transmission of the file starts. If, for example, the first shown frame is C, then the second will be D, etc., up to Z. When a file consists of more than 26 blocks (frames), the label of frame 27 will be A again. After receiving the last frame several things may happen, depending on the videotex system you're downloading from. Here you have to follow the instructions of the videotex system you are logged on.
During downloading all frames received are checked and, if necessary, downloaded again. In this case the message **Garbled block. Retrying..** is printed on the screen. By pressing ESCAPE you can interrupt the downloading, e.g. if Beebtel goes on retrying because of a bad phone connection. The message **Interrupted** will appear onscreen. In the case of a bad connection the best thing to do is log off (f0) and log on again.

SHIFT-f5: After receiving a telesoftware file from a videotex system, pressing this key will save the received file on tape or disc. Tape owners must be careful: saving the file on tape may result in losing contact with the host

computer. Note that you cannot save received pages in memory as long as there is downloaded software in memory: the received software will be overwritten. If this has happened after pressing SHIFT-f5, the error message **Cannot save** will appear on your screen: there is nothing to save. See also f7.

3.4 Other special keys

SHIFT-f9: When this key is pressed the self-defined function keys are loaded from the Beebtel utility disc (provided this disc is in drive 0). See next section.

DELETE: By pressing the DELETE key, the last typed character is deleted, except when entering your access codes (there you have to enter * and try again).

arrows: When writing in the bulletin board the cursor (arrow) keys can be used to move the cursor around the screen.

COPY: Produces a help-screen for the normal function keys

SHIFT-COPY: Produces a help-screen for the function keys used with SHIFT.

CTRL-COPY: Produces a help-screen for the function keys used with CTRL (provided these keys are defined).

£: This key may be used instead of #.

3.5 User-defined function keys (discs only)

The utility disc contains a program 'DEFINE' that makes it possible to define 10 extra function keys, to use in combination with the CTRL key. When defining your own function keys you also define a help-screen. Later, when working with Beebtel, this screen can be accessed for quick reference by pressing CTRL-COPY.

To make your own definitions return to Basic and enter the command CHAIN "DEFINE" RETURN. After a few seconds you will be asked:

Which key would you like to (re)define:

Enter the number (0-9) of the key you want to (re)define.

Now two boxes appear on the screen. The upper box contains the old key definition (if any), the lower box is always empty. You enter the new definition in this last box. The old definition can be copied by the edit-keys (arrows and COPY), or by the TAB key (this copies from the position of the cursor till the end of the old definition).

Suppose you want to program your access codes for a particular videotex system under key 0. Again, suppose the general access code is 123456, your access code is 9999 and your private code is ABCD. Now - in the lower box - enter the sequence 1234569999ABCD (without spaces), followed by RETURN. Two new boxes will appear. A short description of the function key should be entered in the lower box (the upper box contains the old description). In our example this description could be 'Prestel* access code'. This description will appear on the help-screen that can be accessed from Beebtel by CTRL-COPY.

After entering your definitions for the function keys, press ESCAPE. The key definitions and descriptions are now written on disc in the files 'KEYS' and 'FRAME'.

In Beebtel you can load the definitions from disc by pressing SHIFT-f9.

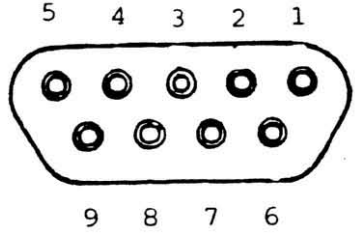
4 Appendices

4.1 Appendix 1: connection to a modem

If you did not buy a ready made cable to connect your BBC Computer to a modem you must make this cable yourself. You will need the following hardware:

- a 5-pin DIN connector (RS423)
- a 9-pin connector ISO/DIS 4902 (modem)
- a cable (5 wires).

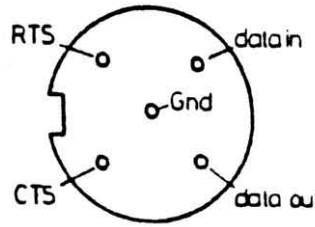
The pins of the 9-pin connector are nubered 1/9, according to the following scheme:



Connections to be made:

- pin 3 - data out (from BBC to modem)
- pin 4 - data in (from modem to BBC)
- pin 5 - ground
- pin 7 - RTS
- pin 8 - CTS

The pins of the RS423 DIN-plug are numbered according to the following scheme:



Now make the following connections:

9-pins connector	5-pins DIN connector
pin 3	DATA OUT
pin 4	DATA IN
pin 5	GND
pin 7	RTS
pin 8	CTS

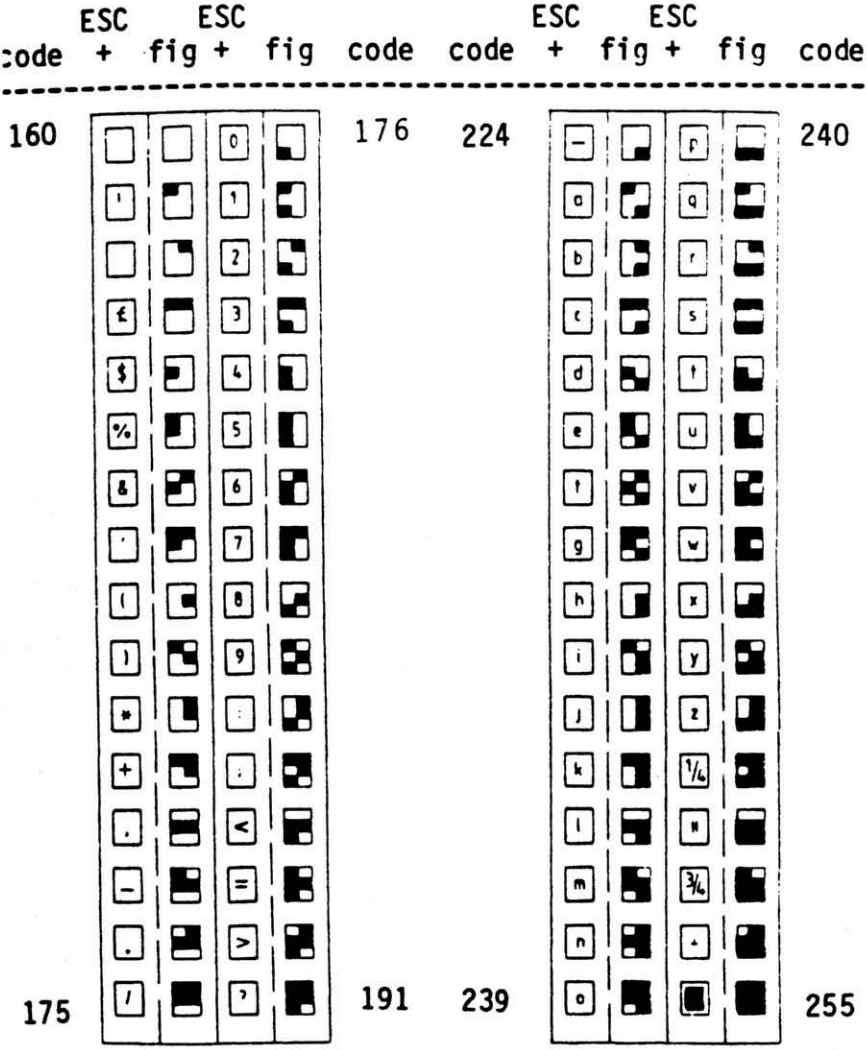
If you have a modem with a different connector, you must consult the documentation of your modem on how to make the connection.

4.2 Appendix 2: Teletext codes

Teletext has an extended character set, ASCII-codes 128/255. In the following tables you will find these extra codes. A character from this table can be entered by first entering ESCAPE, and then the character mentioned in the column ESC+.

ASCII code	ESC +	character
129	A	red
130	B	green
131	C	yellow
132	D	blue
133	E	magenta
134	F	cyan
135	G	white
136	H	flash
137	I	steady
138	-	nothing
139	-	nothing
140	L	single height
141	M	double height
142	-	nothing
143	-	nothing
144	-	nothing
145	Q	graphic red
146	R	graphic green
147	S	graphic yellow
148	T	graphic blue
149	U	graphic magenta
150	V	graphic cyan
151	W	graphic white
152	X	conceal
153	Y	continuous graphics
154	Z	separated graphics
155	-	nothing
156	\	black background
157	]	coloured background
158	^	hold graphics
159	#	release graphics

Graphic characters, their ASCII-code en their ESCAPE code:



4.3 Appendix 3: Inserting the Beebtel ROM

On the following pages you will find instruction on how to insert the Beebtel ROM in your BBC B or B+ Microcomputer.