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Q - CONNECT

Communications for the Sinclair QL

USER MANUAL

IM108
Issue 2

Q - CONNECT

Communications for the
Sinclair QL

Please read this manual carefully before using Q-Connect.

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A. OPERATING INSTRUCTIONS

1. GETTING STARTED

IMPORTANT NOTE :

At all times, follow the manufacturers instructions on the care of microdrive cartridges. For information, the guidelines given in the QL manual are summarised below :

NEVER touch the tape with your fingers or insert anything into the cartridge.

NEVER turn the computer on or off with cartridges in place.

ALWAYS store cartridges in the sleeves when not in use.

ALWAYS insert or remove cartridges from the microdrive slowly and carefully.

ALWAYS ensure the cartridge is firmly installed before starting the microdrive.

NEVER touch the cartridge while the microdrive is in operation.

DO NOT repeatedly insert and remove the cartridge without running the microdrive.

DO NOT reset computer, by pressing the reset button with the microdrives in place

1.1. Setting Up

The full QL Communications Package includes :

Q-CONNECT - this is an intelligent, multi-purpose serial interface and is provided with all the system software on a microdrive cartridge.

Q-MOD - this is a V23 (1200/75 bps and 1200/1200 bps half duplex) modem.

Q-CALL - this adds auto-dial and auto-answer capabilities to Q-MOD.

Before proceding, it is advisable to make a copy of the microdrive software, store the original microdrive cartridge in a safe place and use the copy as your working software. See section 1.2 for instructions.

1.1.1. CONNECTING UP

Q-CONNECT

With the power OFF, connect the lead marked SER 2 on Q-CONNECT to the SER 2 socket on the rear of the QL, with the contacts facing downwards. Plug the lead from the QL's power supply. into the socket on the Q-CONNECT marked POWER. Take the lead which is to the right of that socket, and connect it to the socket marked POWER on the rear of the QL. Connect the QL to a monitor or television as normal.

Q-CALL (if supplied)

Remove the small rectangular cover from the top of Q-CONNECT and locate the socket on the underside of Q-CALL over the edge connector on the top of Q-CONNECT. Push down gently until the unit sits flush.

Q-MOD (if supplied)

Remove the small rectangular cover from the top of Q-CONNECT, or Q-CALL, if fitted, and locate the socket on the underside of Q-MOD over the edge connector on the top of Q-CONNECT, or Q- CALL as appropriate. Push down gently until the unit sits flush. Take the lead marked PSTN, and connect it to the telephone socket. If you are using an internal exchange on a modern digital PABX you may have to have a Prestel compatible socket fitted, or use a special telephone "splitter" available from Tandata.

If required, a telephone can be plugged into the socket marked "PHONE" on the side of the modem.

Plug the adaptor into the mains and switch on. The power lamps on the QL and Q-CONNECT coloured yellow and red respectively, should light. Once in place, the units should be locked together using the screws provided. These should be fitted to the holes which are located directly behind inter-unit bus, on the rear of each unit. the screws should be tightened sufficiently to hold the units firmly in place. Note that over- tightening may cause damage to the inter-unit bus.

1.2 Making a Working Copy of Q-Connect

It is strongly recommended that a copy of Q-Connect is made in case of accidental damage to the microdrive cartridge. It is also recommended that this procedure is repeated on a regular basis.

Q-Connect is supplied with a copying program - Qclone. Switch on the QL and key F1 . Place the Q-Connect cartridge in the right-hand drive, and a blank cartridge in the left-hand drive, type lrun mdv2_Qclone [Enter].

When the program has loaded, follow the on-screen instructions, ensure that the cartridges are in the correct drives and hit any key to begin copying.

When copying is complete, the option is given to make another. Key [Y] or [N] accordingly. If no further copies are to be made the memory is cleared. Remove the Q-CONNECT cartridge from the right-hand drive and store in a safe place. None of the files on the microdrive cartridge supplied are copy-protected, and so all could be transferred to disk by whatever the user deems to be the most convenient method. This could include minor modifications to the Qclone program. If disk storage is used, it will be necessary to specify this when saving Prestel pages, etc. The copy of Q-CONNECT is now ready for loading.

1.3 Loading Q-Connect

Switch on, or reset the QL and place the Q-CONNECT cartridge in the left-hand drive. Key F1 or F2 as appropriate.

Alternatively, Q-CONNECT may be loaded from Super BASIC by keying:

lrun mdv1_boot [Enter]

If the QL has expansion memory fitted, a message will be displayed indicating that the machine must reset. Press any key to reset and then F1 or F2 a second time to restart loading.

After a few seconds, a "welcome" screen and the calender/clock is displayed.

1.4 Programming the Calendar/Clock

Use the numeric keys to enter the correct date and time. Use the cursor keys or [Enter] to move between each line - when this process is complete, key F2 to load the main part of the program. Once the date has been set, it will remain set until the QL is switched off, even if the reset button is pressed.

1.5 Entering Q-Connect

When Q-Connect has loaded, it asks for a user name. This should be entered and

terminated by [Enter] e.g. [F][R][E][D] [Enter]. Then a phone book filename is requested. Keying [Enter] will load a blank phone book from the Q-Connect cartridge. If a phone book has been saved onto a data cartridge previously, it may be loaded by entering the filename it was saved under providing, of course, that the correct cartridge is in the right-hand drive.

If a phone book is loaded, there is a pause of a few seconds before the Main menu is displayed.

2. THE PHONE BOOK

The phone book enables telephone numbers and their associated configurations to be saved on microdrive, and used for dialling. This means that simply by selecting an entry from the book, Q-Connect will configure itself automatically for connection to the host computer prior to dialling.

2.1 Making Entries in the Phone Book

The phone book is accessible from the Switchboard. Key [3] from the main menu, then [5] from the Switchboard to access the phone book. The computer then asks for a page name. This may be any string of up to 8 characters. For the sake of convenience however, an easily remembered name should be chosen. Keying [Enter] will display a blank phone book page. Under the NAME column, enter a suitable name of the database to be accessed, such as Prestel, and key [Enter]. This moves the cursor to the telephone number column. Type in the appropriate number, remembering to include a 9 or other digit to gain an outside line, if using an internal PABX. Key [Enter] to move to the comment column.

This column has two purposes; it may be simply an identifying string printed on the screen during dialling. However, if the database to be accessed requires a password or ID to be entered as soon as contact is made, this string may be entered in the comment column, enclosed by < > characters. If, like Prestel, an ID and password are required, they should be entered as one continuous string of numbers. Once entered, these numbers are not displayed, but are replaced by <Id> in order to maintain security. Then, on dialling the database, the string will be sent and the log on procedure will be completed automatically.

2.2 Pauses in Dialling

A one second pause in dialling may be produced by putting a hyphen in the telephone number at the appropriate point.

2.3 Configuring a Page

On completing the comment column, a menu can be displayed by keying F2 . This offers the options of deleting, or inserting lines, printing the page, and configuring the page. This latter option is obtained by hitting the TABULATE key. The configuration page gives the options to set transmit and receive baud rates, parity, stop bits, word length, flow control, half or full duplex, route, and auto or manual dial. All entries on a page must have the same configuration.

The default settings are those required for accessing Prestel. Should changes be necessary, there are two possible methods : Either enter the column number of the setting required and the [Enter] key to select each option, or use the cursor keys to make the selections required. When the correct settings are obtained, key F2 to return to the Switchboard.

If it is known that the default settings are required, keying F2 twice will return to the Switchboard.

If the page is being configured for a scrolling database such as Telecom Gold, it may be necessary to set flow control to XON.

It should be noted that the Q-MOD modem is only capable of communications at 1200/75 baud full duplex or 1200/1200 baud half duplex, and that autodialling and auto-answering are not available without the presence of the Q-CALL module.

2.4 Deleting a Phone Book Page

Individual entries on a phone book page may be deleted by keying CTRL-F2 when prompted, but a whole page may be deleted by entering the page name followed by /d, at the "Page Name" prompt.

2.5 Listing Available Phone Book Pages or Numbers

At any "NAME" prompt, where the user is required to specify a number for dialling, keying [?] will produce the prompt "Page Name?". If the page name is known, that page will be displayed, and all its numbers listed. If the page name is not known, keying [?] a second time will list all pages available in the current phone book.

This [?] facility can be used at almost any prompt where the exact content of the stored information is not known.

2.6 Loading and Saving the Phone Book

The phone book, once prepared, may be saved to microdrive by keying option [6] on the Switchboard. The computer then requests a filename which may be up to 20 characters in length. If no filename is entered the phone book is saved on the Q-Connect cartridge, otherwise it will be saved onto the default drive (drive 2 unless otherwise specified).

To load a phone book key [7] from the Switchboard. The procedure then is the same as that described under the second part of section 1.5.

When the phone book has finished loading, the Switchboard menu returns. Key F2 to return to the main menu.

3. DIALLING

There are several methods of initiating dialling available on Q-Connect. The first point to note is that there are three modes of communication available - Viewdata, VT100 and direct to another QL. The procedure to access each from the main menu is :

Viewdata	:	Enter 1 1 1
VT100	:	Enter 2 1
QL	:	Enter 3 4

From that point, the procedure for dialling is identical. Then there are two types of dialling which will be examined individually.

3.1 Auto-Dialling

Having followed one of the courses outlined above, according to the terminal type required, the computer requests a phone name. This could be the NAME of a number programmed into the phone book (Prestel was used as an example in section 2.1) or it could be a telephone number typed in from the keyboard. In the first case, the configurations page has been set and in the case where a number is entered directly, keying [Enter] after the number will display the configurations page. This should be set-up as described in section 2.3.

During dialling, the telephone number and the description placed in the phone book comment column are displayed on the screen.

Dialling may be interrupted using F2. If, however, the page has been configured to repeat autodial, the number may not be dialled again, unless that number is entered directly and configured to single autodial.

If for any reason there is a failure to get through to the database, the single autodial will return to the menu, and the repeat auto-dial will make up to another three attempts to dial the number, pausing between each one.

3.2 Manual Dialling

In order to dial manually, the autodial should be switched off at the configurations page. The procedure to initiate dialling is identical to that for autodialling except that when the number is displayed, dialling should be performed on a telephone handset. When the host computer answers, a high-pitched tone can be heard. At this stage, press the space bar, and then replace the telephone handset.

4. ONLINE TO A DATABASE

Having successfully dialled out to the database, the screen will blank and the terminal will go on-line. There are different types of database, and the features available differ. The most usual types will be reviewed.

4.1 Viewdata

The most common example of this type of database is Prestel, and this will be used to illustrate the on-line features of the viewdata terminal.

On Prestel, pages are selected using the numeric keys, ★ and # (pronounced hash). For convenience, the \ and [Enter] keys have been redefined to produce ★ and # respectively during Viewdata on-line sessions. Thus ★799# (to access the Tandata front page) becomes\799 [Enter].

4.1.1 Saving Frames to Microdrive

It is convenient to save frames to microdrive, and then view them off-line, reducing on-line time. Q-Connect allows frames to be stored very easily. The procedure is as follows:

i) When on-line to Prestel, use F2 to display the Viewdata menu.

ii) Key 3 and enter a suitable filename (up to 20 characters) and terminate with [Enter].

iii) When the viewdata menu is redisplayed, key [2] to return to Prestel.

This procedure may be repeated for any number of frames, although the storage capacity of each microdrive cartridge should be borne in mind.

4.1.2 Recalling Frames

Frames may be recalled from cartridge at any time by keying [4] from the viewdata menu, and entering the appropriate filename. Hit any key to return to the View Frame menu, and then F2 to return to the Viewdata menu. If a question mark is entered as a filename, the software will prompt for a drive name. Once entered, a directory of the specified microdrive will be displayed. Hitting [Enter] will give a directory of the default drive.

4.1.3 Printing Frames

A printer driver is included which is suitable for an Epson or Epson-compatible printer running at 9600 baud with 8 data bits and no parity. The DIP switches within the printer should be set to the appropriate positions.

Two print dumps are provided. The first is a full screen large format screen-dump, accessed by keying F4 . This will print whatever is currently displayed on the screen, including menus, and will display graphics, representing colours by shades of grey.

The faster, small-format dump is accessed by keying [5] from the viewdata menu and prints the current viewdata frame. In this dump, all graphics characters are shown as stars.

Both methods of printing may be used on or off-line.

4.1.4 Downloading Telesoftware

The software is provided with a CET downloader.

When on-line, select the program to be downloaded and display its header frame. This is identified by the "rubbish" line near the bottom of the screen. Ensure that a formatted cartridge is in the default drive. Use F2 to display the Viewdata menu, and key 6 to begin downloading. The program is saved to the default drive, until, on completion, the Viewdata menu is redisplayed. Key [2] to go back to Prestel, or [1] [2] to log off.

4.1.5 Mailbox

To display the Mailbox menu, key [7] from the Viewdata menu. This set of functions can be used to prepare messages, either online or offline, for transmission.

4.1.5.1 Preparing and Editing a Mailbox Message

To prepare a message, key [2] from the Mailbox menu. A blank screen headed "MESSAGE EDITOR" is displayed. The message may now be typed in, and may include attributes to produce colour, graphics etc. see Appendix B for a full list of such attributes. The message should be terminated with a #.

When the message is completed, key F2 to return to the Mailbox menu.

This message may be edited or redisplayed by keying [5] from the Mailbox menu. Again, F2 returns to the Mailbox menu.

4.1.5.2 Saving a Message to Microdrive

Having created a message, it should be saved to Microdrive. This is done by keying [3] from the Mailbox menu, and then entering a suitable filename (up to 20 characters).

4.1.5.3 Loading and Sending a Message

Before a message can be sent, it must be loaded into memory, and this may be done either on- or off-line. Key [4] from the Mailbox menu, and then enter the appropriate filename. Again, entering a question mark and drive name at this point will list all files already saved on that drive. When loading is complete, follow the procedure for going on-line to Prestel. Select a suitable Mailbox frame, such as ★77#, then enter the recipients 9 digit Mailbox number, terminated by #.

To send the message, key F2 and access the mailbox menu. Key [1] to transmit the message. The Prestel page is redisplayed and the message appears character by character. On completion Key [1] or [2] to send or cancel, as instructed by Prestel.

Note that the next time F2 is used to display a menu, it will be the Mailbox menu that is displayed.

4.1.6 Conceal/Reveal

Whilst online, any piece of concealed text may be revealed by keying F3 . This can be reconcealed by keying F3 a second time.

4.1.7 Frame Tagging

The software provides a facility for "tagging" individual frames, so that they may be retrieved directly. The software has a page number buffer which can accommodate four numbers. To "Tag" a particular frame, key SHIFT F1 . It is not possible to fill the page number buffer, but once the available memory space in the buffer has been exhausted, tagging new frames will overwrite the earliest frames.

To retrieve a tagged frame, key SHIFT F2 . Repeated use of this key combination moves "backwards" through the list of tagged pages.

Note that the tagging of chargeable frames should be avoided, since retrieval will incur the charge everytime that that frame is retrieved.

4.2 VT100

To demonstrate the VT100 facilities, Telecom Gold will be taken as an example. When configuring the telephone number, set Flow Control to XON.

VT100 is a terminal produced by the Digital Equipment Corporation. Because of its wide use, Q-CONNECT is provided with a VT100 emulation package. However, there are some differences, and where possible, these will be highlighted.

This section will be split into two halves, the first dealing with the on-line features, the second dealing with the various configuration and set up menus.

4.2.1 On-Line Features

4.2.1.1 Spooling

A spool feature is included allowing incoming data to be sent to microdrive. When on-line, key SHIFT F1 to begin spooling. The screen will clear and request a filename. Once a suitable filename is entered, the on-line display will return with the message "Spool On" in the Status Line at the bottom of the screen. As data is received, the selected microdrive will switch on and off periodically as data is saved onto the file.

Spooling may be paused by keying SHIFT F2 . This causes the Status Line to change to "Spool Hold". Keying SHIFT F2 a second time will resume the spool.
To stop the spool and close the file, key SHIFT F1 .

4.2.1.2 Transmitting Files

Data may be transmitted from a file on microdrive to a database.

When on-line, key SHIFT F3 to begin transmission. The screen will clear and request the name of the file to be transmitted. Once entered, the on-line display will return with the message "Xmit On" in the Status Line.

Pausing the transmission is achieved using SHIFT F4 . This causes the Status Line to alter to "Xmit Hold". Keying SHIFT F4 again will cause transmission to resume.

Transmission will automatically cease at the end of the file, but it may be ended at any time by keying SHIFT F3 .

4.2.1.3 Printing

In order to print received information, such information should first be spooled onto a microdrive file. When this is complete, the file can be printed by listing it with the printer set to on. For the exact procedure for this see section 6.3.

4.2.1.4 VT100 Set-Up Mode

The Set up mode is accessed by keying SHIFT F5 . This displays a menu giving four set-up options. These are an extract from the main VT100 menu, and so will be examined more closely under section 4.2.2.

4.2.1.5 Keypad

A VT100 terminal has a numeric keypad which is separate from the rest of the keys, and is used in editing. Since the QL has no numeric keypad, the block of characters on the left of the keyboard is used.

The keypad is normally switched on and off by the host computer, but in Local mode, the keypad may be switched on with ESC =, and off with ESC >. This is indicated in the Status Line. The relevant keys and their functions are listed below. To obtain these functions, the keypad must be on, and the keys must be used simultaneously with [ALT]. They will otherwise act in the normal manner.

Key	Function	Q	Page/command
		W	Sect/fill
1	Gold	E	Append/replace
2	Help	R	Del word/undel word
		A	Advance/bottom
3	Find next/find	S	Backup/top
4	Delete line/undelete line	D	Cut/paste

F	Del character/undel character	C	Character/special insert
G	Line/online	V	Enter/substitute
Z	Word/change case	B	Select/reset
X	End of line (EOL)/delete EOL		

4.2.1.6 Logging Off

To log off, follow the particular database's own procedure, e.g. on Telecom Gold type OFF , use F2 to return to the VT100 menu, and key [2] to hang up the telephone.

4.2.1.7 Transmitting a BREAK to the line

A BREAK may be transmitted to the line by keying CTRL SHIFT F3.

4.2.1.8 Resetting the Q-Connect Interface

The Q-Connect interface may be reset to its power-up state by keying CTRL SHIFT F4 whilst within the VT100 terminal. It should be noted that if on-line, the line will immediately be dropped if this reset is carried out.

4.2.2 Configuring the Terminal

The last four options on the VT100 menu deal with configuring the terminal, and saving those configurations on to microdrive.

4.2.2.1 Tab Settings

Key [4] from the VT100 menu to set the tabs. The cursor keys should be used to position the cursor, and then either [T] to set a tab or SPACE to clear an existing one. Key F2 to finish.

4.2.2.2 Terminal Settings

Key [5] from the VT100 menu to display the VT100 configuration menu. This should be amended in the same way as the phone book configuration i.e. using the cursor keys and /or the appropriate number keys to achieve the required configuration.

4.2.2.3 Reset to Defaults

This option is really self-explanatory. Key [6] from the VT100 menu, and the message "Defaults Reset" is displayed. These defaults are as at initial loading, and are suitable for accessing PSS. In view of this, most users should not find it necessary to alter the configuration.

4.2.2.4 Save Current Settings

It is possible to save a configuration on microdrive so that the next time Q- Connect is loaded, the new configuration is set. Ensure that the Q-Connect cartridge is in drive 1, and key [7] to save the settings.

4.2.2.5 On-Line Configuration

All the above features are available whilst on-line, as described under section 4.2.1.4. However, when accessed on-line, they are numbered 1 to 4 as opposed to 4 to 7.

5. THE SWITCHBOARD

The Switchboard covers two main functions - management of the phone book, which has been covered under section 2, and direct QL to QL communications.

5.1 QL to QL Communications

The first four options on the Switchboard deal with QL to QL communications. Each option is self-explanatory and on-screen instructions are provided. However, it should be noted that when configuring either to dial (key 4) or to answer, (key 3) the following settings should be used :

Receive Rate	1200		
Transmit Rate	1200	Char Length	8
Parity	Off	Flow control	None
Stop Bits	1	Duplex	Half

Other settings should remain as defaults.

On-Line to Another QL

When on-line, two windows open, one for received data, the other for transmitted data. These are filled with text during the conversation.

5.2 Dialling

The dialling procedure is the same as that for the other terminals, and is initiated by keying 4 from the switchboard. For detailed instructions see section 3 of this manual.

5.3 File Transfer

It is possible to transfer files over the telephone. These files may be encrypted prior to transmission, and the procedure for doing this will be described under sections 6.4 and 6.5.

To transfer a file, key SHIFT F3 whilst on-line to another QL. The screen will blank and request the name of the file to be transferred. Having entered the filename, transfer will begin. A small window at the top of the screen indicates the status of the block transfer routine.

An error-checking routine is included, and if any errors are found, the block is sent again if necessary, up to a total of three times. If the block has still not been transferred correctly, the file transfer attempt will be abandoned.

Files are transferred to the corresponding microdrive under the same file name e.g. mdv2_document would be transmitted to mdv2_document. Therefore, the QL at the receiving end should have cartridges fitted into its drives. In order to cease communications, key F2 to return to the Switchboard, then key [2] to hang up the telephone.

5.4 Answering

There are two forms of answering available - manual and auto.

5.4.1 Answer the Phone

This is option 1 from the switchboard. On receiving an incoming call, indicated of course by the phone ringing but also by the Q- Call RING light fashing, key 1. This displays the configuration page. Ensure that the terminal is configured as described under Section 5.1 and key F2 . Q-Mod will seize the line and the screen will be set up for QL to QL communications. The status of the call is indicated by a small window in the top right-hand corner of the screen. This initially says CONNECTING, and then CONNECTED when the link is made.

5.4.2 Auto-Answer

Auto-answering operates in much the same way as manual answering, and is accessed by keying [3] from the switchboard. Once again, the terminal must be configured as described under Section 5.1. This time, keying F2 will display a blank screen headed "Autoanswer".

On receipt of a call, answering will take place automatically without any further user intervention. When the link is made, the terminal will transmit the user name, stating that it is in auto-answer mode.

5.4.3 Answer Configuration

If desired, it is possible to save the required answer configuration in the phone book by naming the page concerned "ANSWER". If this is done, the configuration need be set only once, and not each time answering is requested.

5.5 Terminating the Call

Having finished communications with another QL, the call should be terminated by keying F2 , to return to the switchboard, and then [2] to hang-up.

6. FILING

A number of filing options are provided in order to enable efficient management of the data on the microdrive. These options are obtained by keying 4 from the main menu. The options are as follows :

6.1 Change Default Drive

At initial loading, the default drive is mdv2_ but this could be altered to, for instance, mdv1_.

6.2 Directory

A directory can be obtained from any drive. Keying [Enter] when the drive name is requested, calls up the default drive directory. Otherwise, the drive name should be entered in full e.g. mdv1_.

6.3 List a File

Any file can be displayed on the screen, although some files may appear strange due to control characters being displayed. Files on drives other than the default drive must be prefixed by the drive name e.g. mdv1_file.

Before the file is listed, the computer will prompt "Printer on? Y/N". If N is selected, the file will be sent to the screen in the normal way.

If Y is selected, the file is sent only to the printer. The printer driver provided is suitable for Epson or Epson-compatible printer running at 9600 baud with 8 data bits and no parity. The DIP switches within the printer should be set to the appropriate positions.

This is the method which would be used to printout information received using the VT100 terminal.

6.4 Delete a File

This option needs no explanation, except to say that the procedure for entering a filename is identical to that above. A wildcard facility is available, using a * for unknown characters.

6.5 Encypher a File

Files may be encyphered prior to transmission to another QL (see section 5.3.) thus offering secure file transfer. Key [5] from the Filing menu, and then enter the appropriate filename. After a pause, the computer will request a key. This is a string of up to 30 characters which is used in the encryption routine, and must be entered when decyphering takes place. Having entered this string, the file will be encyphered. On completion, the QL will prompt C(ancel)/ H(old)/ D(elete).

Keying C will delete the encyphered version of the file.
Keying H will leave both the original and the encyphered file intact.
Keying D will delete the original file leaving only the encyphered version.

An encyphered file is held on microdrive with the suffix _enc.

6.6 Decypher a File

To decypher a file, key [6] from the Filing menu. After a pause, a key will be requested. This must be identical to that entered at the encyphering stage, otherwise decyphering cannot take place.

Having entered the key, the file will be decyphered. On completion, the QL will prompt C(ancel/ H(old) /D(elete).

Keying C will delete the decyphered version of the file.
Keying H will retain both files on microdrive.
Keying D will delete the encyphered version of the file, leaving the decyphered version intact.

A decyphered file is held on microdrive with the suffix _dec.

7. EXECUTIVE

The executive mode is obtained by keying 5 from the main menu and enables strings of commands to be placed in a file, and then executed automatically. Such a file is called a command file, and the commands available may be listed by keying F1 . Commands of particular interest are discussed under section 7.3.

7.1 Creating a Command File

From the Executive menu, key [1] to create a command file. Type in the name of the file to be created in response to the filename prompt, terminating the name with [Enter]. This will open the file and produce a blank page with the filename as the title and the prompt "Command>".

To build the file, enter any of the commands listed under the help function (obtained by keying F1), with the appropriate parameters, and terminate each by keying [Enter]. As each command is entered, it is transferred from the "Command>" field to the file listing below.

Note: Care should be taken to ensure the command and its parameters arc correct BEFORE pressing the [Enter] key, as no attempt is made to verify these entries. It is useful to test commands and the syntax in command mode (see section 8) prior to using them in a command file.

7.1.1. A typical Command File

A typical example of a command file is itemised below. When executed, it selects page 799 (the Tandata front page), exits the on-line session to save the page onto microdrive, resumes the on-line session, selects page 800, saves it to microdrive and then logs off.

1. **ENTER VIEWDATA**

   Return to the current on-line session. The parameter indicates which terminal type to use, in this case viewdata for Prestel.

2. ***799**

   This command is sent to Prestel, requesting page 799.

3. **[F2]**

   Function key 2 to exit the on-line session. Until this command is encountered, all commands are sent directly to the host. This command signals Q-Connect to recommence command interpretation. On keying [F2], the "quit" character is inserted as the next line in the command file. It appears as <END> in the file listing. When the file is listed from the Filing menu, it appears as a "chequerboard" character followed by "! <END>".

4. **SAVEFRAME TANDATA**

   Saves the current display, in this case the Tandata front page to microdrive, under the filename "TANDATA".

5. **ENTER VIEWDATA**

   Return to the current on-line session.

6. ***800**

   This command is sent to Prestel, requesting page 800.

7. **[F2]**

   Function key 2 to exit the on-line session.

8. **SAVEFRAME MICRONET**

   Saves the current display, in this case the Micronet front page to microdrive, under the filename "MICRONET".

9. **ENTER VIEWDATA**

   Return to the current on-line session.

10. ***90**

    This command is sent to Prestel, requesting page 90, the Prestel log-off command.

11. **FINISH**

    This is not an actual command, but ends the construction of the command file. The file is closed and the user is returned to the Executive menu.

To build this file, follow the procedure outlined under 7.1, using the filename "DEMO" and enter the commands 1 to 11 above. The build may be cancelled at any time by entering the command CANCEL. This closes and deletes the command file. To execute it, logon to Prestel, and input the ID and password. Then use F2 to return to the main menu, select option [5] and then [2] to execute a command file. Type the filename "DEMO" and hit Enter.

7.1.2 Executing a Command File

To execute a command file, key [2] from the Executive menu. In response to the filename prompt, enter the name of the file to be executed, and terminate with [Enter]. This will result in the same page as for the build procedure being displayed. Two files will be opened - the command file itself and an accompanying log file, the latter taking the same name as the command file but with the extension "_log".

As each command is executed, it is displayed next to the "Command>" prompt. It is also written to the log file, together with any error messages resulting from the execution of the command. The log file therefore, can be listed, and used to determine the success or failure of the command file.
The user is left in Q-Connect at the positon in which the file terminates - in the example above, in an on-line session to Prestel.

7.2 Auto-Execution of Command Files

In some cases, it would be most useful if a command file could be executed straight from loading. For instance, the software could be loaded and then logon to Prestel without any outside interference. The Q-Connect software allows this facility.

As the software loads, just prior to loading the phone book, it looks for the command file "autoexec" on mdv2_. If no such file exists, the filename prompt for the phonebook appears as normal. If the autoexec file does exist, the file is loaded and the prompt for the phonebook will appear. However, once the phonebook is loaded, the command file will be executed automatically.

It should be noted that any telephone numbers used in the command file should be included in the phonebook that is loaded prior to its execution.

7.3 Function Keys Under Command Files

Some commands are available using the normal function keys rather than by typing them in full, and such commands are displayed within brackets. The commands are as follows:

Function Key	Command	Description
F2	<END>	This exits the current function and returns to the previous one. This should be used in the normal way to move between menus.
F4	<PRINT>	This may be used anywhere in a command file to print a pixel screen dump of the current screen.
SHIFT F1	<SPOOL>	This command may be used within the VT100 terminal to open or close a spool file. The file name of a file to be opened should be specified in the following line of the command file. See section 4.2.1.1.
SHIFT F2	<SPOOLP>	Pauses spooling. See section 4.2.1.1
SHIFT F3	<TRANS>	Again for use in the VT100 terminal. This transmits the string of data contained in the next line of the command file.
SHIFT F4	<TRANSP>	Pauses transmission.
CTRL F1	<INSERT>	This is for use on the phone book page and works in the same way as if numbers were being placed in the phone book manually. However, it should be noted that on entering the phone book page (using the PAGE command) the software is already in insert mode, so this instruction will rarely be used. The page may be configured by pressing the TABULATE key in the normal way. This places the instruction <CONF> in the command files. Cursor movements up and down the configuration menu are achieved by hitting that cursor key the appropriate number of times. These movements are then shown in brackets in the command file, e.g. <DOWN>.
CTRL F4	<DELETE>	Again for use in the phone book, this function deletes the entry indicated by the cursor. Just as with insertion, cursor movements are shown in the command file in brackets.
CTRL SHIFT F1	<QUIT>	Has the same effect as pressing the QL reset key, but first allows the current phone book to be saved. See section 9.10.

8. COMMAND

This mode was mentioned briefly in section 7. It is accessed by keying [6] from the main menu.

In command mode, any of the commands available may be used directly. The list of commands is accessed by keying F1 for the Help Package.

Keying 6 from the main menu will cause a blank page headed "COMMAND", and the prompt "COMMAND>" to be displayed. For example, LOGON PRESTEL, VIEWDATA will access Prestel as a viewdata terminal. Other commands operate as they would in a command file.

To return to the main menu, type "MENU [Enter]".

9. HINTS

The nature of Q-Connect is such that it is possible to achieve the same ends by a number of different means. This section is provided to illustrate what have been found to be the most efficient methods to achieve some of these ends.

9.1 Listing a VT100 Spool File

In order to read a VT100 spool file, configure the VT100 terminal as follows :

Status : Local
Line End : CR LF

Then enter the VT100 terminal and key SHIFT F3 to transmit the file. Enter the filename, terminated by [Enter]. The file will be listed on the screen. Use SHIFT F4 to stop and start the transmission as required.

9.2 Preparing a VT100 File for Transmission

Configure the terminal as described in section 9.1, and enter the VT100 terminal. Key SHIFT F1 to begin a spool. Enter an appropriate filename. Type in the information to be transmitted and, on completion, key SHIFT F1 again to end the spool. Re-configure the terminal for accessing a database, dial and logon, then transmit the file in the normal way.

Files prepared on Quill may be transmitted to databases such as Telecom Gold providing that the text produced on Quill is "printed" to microdrive, instructions for doing this may be found in the QL manual under the Quill section. It should be noted that the file, once printed, will have the extension "_lis". This procedure removes the print control codes which otherwise interfere with transmission.

9.3 Using Tandata Modem

The Q-Connect software and RS232 interface are suitable for use with virtually any asynchronous modem. The exact procedure will vary with each modem, but the procedure for using Tandata modems and viewdata adaptors is given below.

Set up the Q-Connect module to the QL, as explained in Section 1. Connect one end of the RS232 lead to the socket marked "RS232" on the side of the Q-Connect module. Plug the other end into the socket on the rear of the modem or adaptor. This socket may be marked "KB/RS232", "TTL" or "KB/Tape/ Serial Data" depending on the particular model.

Switch on the power on both units.

In order to access the Tandata directory, follow the Viewdata or VT100 logon sequence. When asked to input a phone name, enter [1] [1]. Keying [Enter] will display the configurations page. This should be set up as follows :

Transmit Rate	1200
Route	Line
or alternatively :	
Receive Rate	300
Transmit Rate	300
Route	Line

if 300/300 baud operations are required. Key F2 to terminate.

Now enter the terminal by following the menu routings. The screen will go blank. Key [*] [*] [CTRL] [B] [2]. If the unit has its own memory, e.g. Td 1616, Td 1404, an extra [*] should follow the 2. This will cause the dial directory to be displayed although in VT100 mode, the display will be untidy. Dialling and programmming may now take place as described in the appropriate manual, and all the on-line features of Q-Connect may be used.

At the end of an on-line session, key [CTRL] [B] [1] to drop the line.

9.4 Using Downloaded Files with Quill, Abacus and Archive

Files downloaded to microdrive under Q-Connect may be reloaded into each of the above packages by means of the import routines. Reference should be made to the QL manual on how to access these routines for each package.

The files must be saved with the appropriate suffixes : _doc for Quill, _aba for Abacus, and _dbf for Archive. This would allow, for instance, a non-Epson printer user to print out a VT100 spool file, by accessing the Quill printer driver.

9.5 Q-Connect RS232 Port

Pin No.	Abbreviation	Description	Direction
1	PGND	Protective Ground	
2	TD	Transmit Data	Output
3	RD	Receive Data	Input
4	RTS	Request to Send	Output
5	CTS	Clear to Send	Input
6	DSR	Data Set Ready	Input
7	SGND	Signal Ground	
8	CD	Carrier Detect	Input
9	12V	Space	Output
10	-12V	Mark	Output
15	TxCLK	Transmit Clock (TTL Levels)	Input
17	RxCLK	Receive Clock (TTL Levels)	Input
20	DTR	Data Terminal Ready	Output
22	RI	Ring Indicator	Input

Note: Data transfer across the interface is not guaranteed at 9600 baud.

9.6 Cables For Other Modems

You may prepare a cable that will allow you to use other modems in the folowing manner.

Connect the following pins of a suitable 25 way female D connector together 20, 8, 6, 5 at the Q-Connect end of the cable.

Connect pin 2 (transmit data) of Q-Connect to receive data (data-in) on the modem.

Connect pin 3 (receive data) of Q-Connect to transmit data (data out) on the modem.

Connect pin 7 (signal ground) to the modem signal ground.

You may find that other pins on the modem have to be held in the correct state i.e. it may be that DTR requires holding high and CTS should be attached for correct operation. Consult your modem manual. If this is the case then disconnect pin 5 from 20, 8 and 6, and connect it to CTS on the modem (remember to set CTS flow control in the configuration menu).

Connect pin 20 on Q-Connect to DTR on the modem. Pins 8 and 6 should remain connected to 20 at the Q-Connect end unless signals from the modem are present to control them.

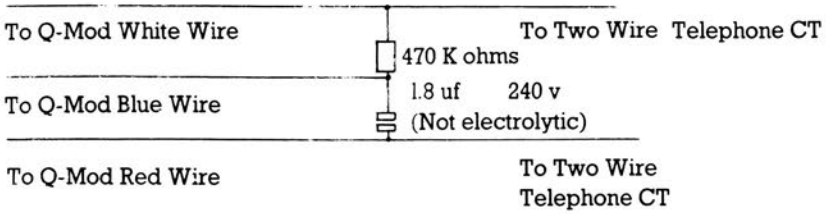
9.7 Q-Mod Telephone Line Connection and Auto Answer Circuit

Q-Mod is connected to the telephone line via a 600 series telephone jack and cable which is attached to the inside of the Q-Mod. This cable consists of four wires coloured red, white, blue and green respectively. These are attached to TBl on the inside of Q-Mod such that red is attached to 5, white attached to 2, blue is attached to 4 and green attached to 3.

The red and white wires carry the signal information, the blue line is the antitinkle line but is also used by Q-Mod to detect an incoming call in auto answer mode. If, therefore, the blue line is not connected, Q-Mod will not auto answer.

In cases where only two wires are available, Tandata can supply a special box (ACC14) to convert a two wire system into one suitable for one with the Q-Calls auto answer circuit.

ACC 14 contains the components detailed on the diagram below.

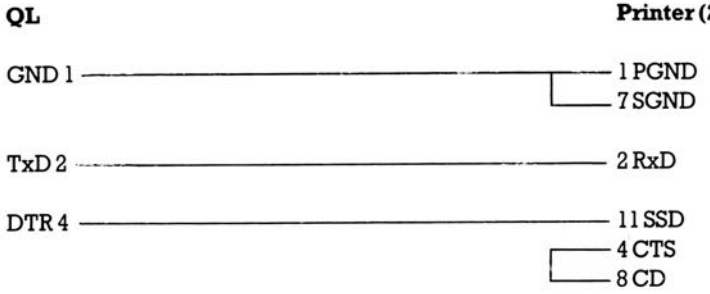


NOTE/WARNING- SEE BABT REQUIREMENTS APPENDIX A

9.8 Auto-Dial Problems

It has been found that, in certain circumstances, the presence of a printer on SER1 inhibits auto-dial in such a way that when dialling should commence, the software locks up. Dialling will start if the printer is unplugged.

This problem can be avoided by removing the line in the printer lead which connects the printer's TxD (transmit data) to the QL's RxD (receive data). If a new lead is required, the following configuration is recommended:



The units should be firmly fixed together using the locking screws provided. Refer to Section 1.1 and Appendix A part 7.

9.9 Auto-Logon To a Non-ENQ Database

Many databases, Prestel included send out an ENQ character (equivalent to CTRL-E) to request the transmission of a logon string (ID, password, etc.). Other databases do not send such a character, and may also require carriage returns in the logon sequence. For such databases, the auto-logon facility provided in the Phonebook will not be effective. However, logon can be achieved by an alternative means:

Configure the VT100 terminal and open a spool file as described under Section 9.2. It may be convenient to call the file "logon". Type in the logon sequence as though you were online, bearing in mind that no prompts will appear on the screen.

Having completed the sequence key SHIFT F1 to close the spool file, and reset the terminal as described under Section 9.2.

Access the VT100 menu and dial the database concerned. When the connection is made, key SHIFT F3 and then the filename concerned ("logon" was used above) to transmit the logon sequence.

Provided that the logon sequence was correctly prepared and the database does not introduce any delays, successful logon should now take place.

9.10 Resetting to SuperBASIC

At any time, apart from when on-line, the QL may be reset by keying CTRL SHIFT F1 . The software first gives the opportunity to save the current phone book by prompting "Filename?". The phone book may be saved under the default filename, or some other, as described in section 2.6. Alternatively, keying F2 at this point will cause an immediate reset without saving the phone book.

10. SUMMARY OF FUNCTION KEYS

10.1 General

F1	Access Help Package
F2	Return to previous menu/function
F4	Produce pixel screen dump of current display
CTRL SHIFT F1	Reset QL

10.2 Viewdata

SHIFT F1	Tag frame
SHIFT F2	Recall tagged frame
F3	Conceal/Reveal toggle

10.3 VT100

SHIFT F1	Open/close spool file
SHIFT F2	Pause spooling
SHIFT F3	Transmit file
SHIFT F4	Pause transmission
SHIFT F5	Enter VT100 set-up mode
CTRL SHIFT F3	Transmit BREAK
CTRL SHIFT F4	Reset Q-Connect firmware

10.4 QL to QL

SHIFT F3	Transmit File

10.5 Phonebook

CTRL F1	Insert entry
CTRL F2	Delete entry

10.6 Executive

SHIFT F1	Open/close spool file
SHIFT F2	Pause spooling
SHIFT F3	Transmit file
SHIFT F4	Pause transmission
CTRL F1	Insert entry
CTRL F2	Delete entry
CTRL SHIFT F1	Reset QL

B. TECHNICAL INFORMATION

The following information is provided for programmers who wish to control the Q-Connect equipment from within their own software. Refer to Appendix for BABT approval regulations.

Tandata Marketing Ltd are unable to undertake to provide any further technical assistance regarding information contained in this part of the manual.

Control Commands & Returns
- between the QL and the Q-Connect Control Module

All control sequences between the QL and Q-Connect are carried on on the same port as

the data. The start of these sequences is flagged by their initial byte, which is an ASCII "USC", and the end of the sequence is indicated by a byte count. Data transparency is preserved by converting "USC" into two "USC" sequences.

The commands which are sent from the QL to the Q-Connect module are:

1) The INITIALISE Command.

   This causes Q-Connect to assume its initial default conditions and then respond with STATUS returns allowing Q-Connect to check its operation and that of its attached modules.

2) The MODE SET Command.

   This command allows the microprocessor to set the operating mode of the Q-Connect modules. e.g. FDX, connect to V24 port, etc.

3) The CONTROL Command.

   Allows the QL to change the V24 interface signals sent by Q-Connect to the modem.

4) The AUTODIAL Command.

   This initiates autodialling and carries the number to be dialled.

5) The READ STATUS Command.

   This forces Q-Connect to respond with STATUS reports.

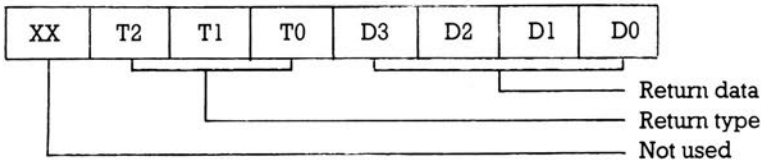
6) The PEEK/POKE Command.

   This is used to read or write RAM or PORT locations in the 7041.

7) The COPYRIGHT Command.

   This will return the copyright and version number message.

Q-Connect communicates with the QL by means of a reply scheme. Replies are a single USC character (hex 1F) followed by the return byte. Normal USC characters from the line are indicated by a second USC. The return byte cannot be a USC - so as to prevent confusion with two USC sequences. The structure of the return byte is:



Return types 0-6 are returned at the earliest opportunity i.e. they bypass the normal modem-QL queue (with the exception that a USC fetched from the queue guarantees the next byte is also taken from the queue). If more than one return type is ready then the lowest is sent first. Return type 7 is placed in the modem-QL queue so that it is presented in the correct sequence in the data stream.

THE FORM OF THE CONTROL SEQUENCES

All commands have a similar format and are made up of bytes. Bits b6 to b0 in these bytes are used, b7, if sent is unused. The first byte is a "USC" sequence, equivalent to decimal 31. The second byte has two parts. The initial bit is ignored, the next three bits identify the type of command or return, the last four bits indicate the number of subsequent bytes - the exception to this is when the last four bits are all "1", then the following byte is used to indicate the command length as above. A more detailed description of the Command and Return Sequences follows.

THE COMMANDS

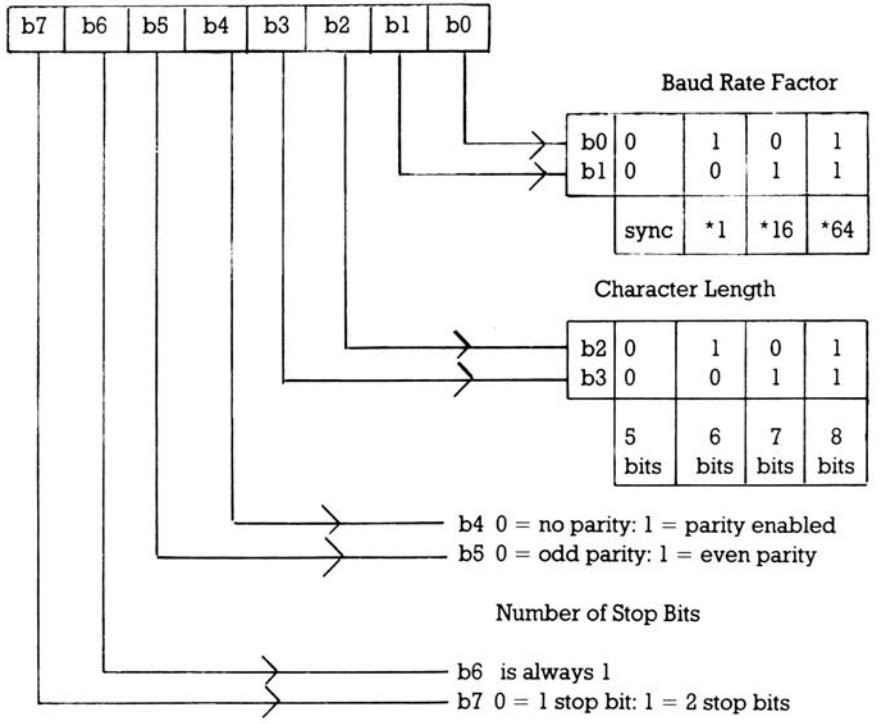
1) The INITIALISE Command

USC	X0010110	MODE	COMD	BAUD	FLOW	PORT	MASK
Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7

Byte 0 "USC" char. An 8-bit sequence identifying the start of the command byte sequence. Equivalent to Decimal 31.

Byte 1. An 8-bit sequence identifying the command and defining its length. Bits b6 to b4 = 0 0 1, identify the INITIALISE command. The next 4 bits = 0 1 0 1, specify the command length (the number of bytes which follow).

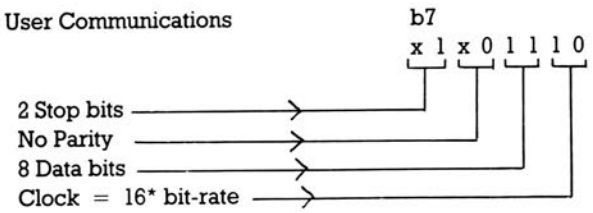
Byte 2 contains the mode instruction for the 8251 communication interface. This must be fed to the 8251 after it is reset.



The mode instruction controls the serial port of the 8251, i.e. the port which provides the external communications to the modem or line.

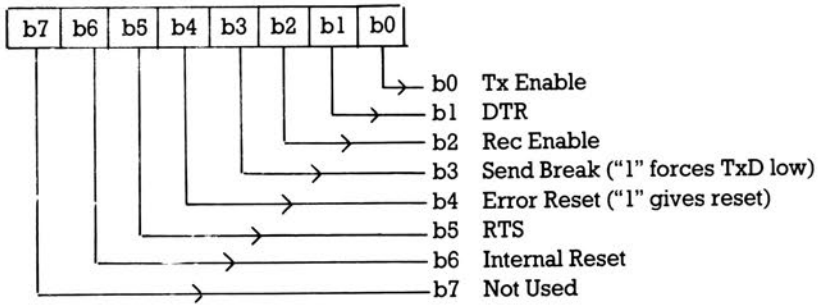
Examples of the use of this byte are:

1) User Communications

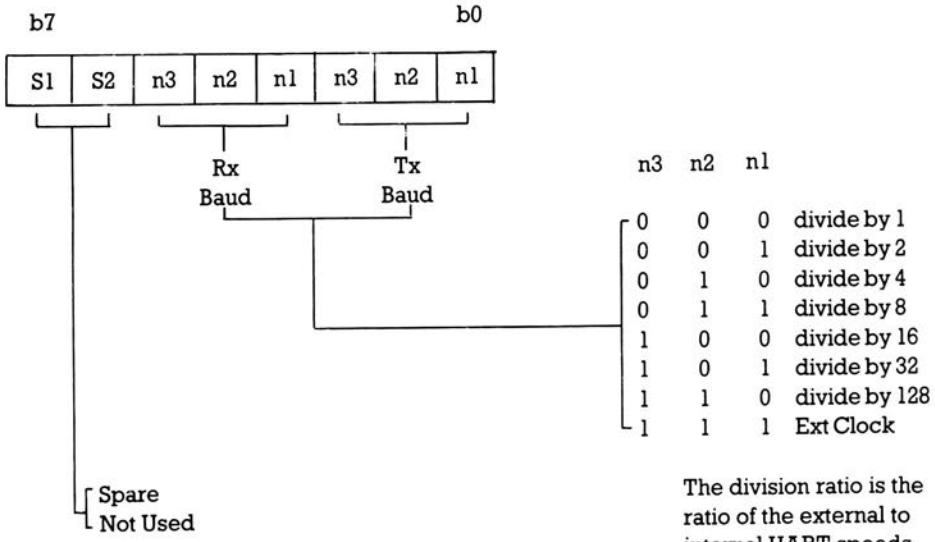


Note: 2 stop bits may only be programmed if the Q-Connect-QL interface is set at 8 bit length

Byte 3. Holds the command instruction for the 8251 communication interface. This controls the operation of the selected communications format and is fed to the 8251 at reset after the mode instruction byte while the C/D bit is held to "1".



Byte 4. External Baud-rates and Route



The division ratio is the ratio of the external to internal UART speeds.

Examples of Byte 4 setting are (assuming QL-Q-Connect at 9600 baud):

User Comms X X 0 1 1 0 1 1

giving 1200 b/s

Prestel X X 0 1 1 1 1 1

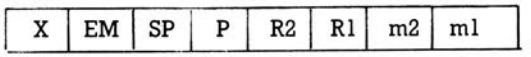
giving 75b/s Tx, 1200b/s Rx.

Byte 5. Set Flow Control and Route.

Flow control between the control module and the QL is always implemented by CTS and DTR signals, although the CTS may be ignored by serial port 1 and DTR by serial port 2. That is the QL can send without a handshake but it cannot receive correctly unless the sender observes the handshaking. Byte 5 controls the handshaking protocol on both sides of the control module. There are 3 options on the modem side:

1) No handshaking
2) RTS/CTS handshaking
3) Xon/Xoff.

Option 1 is unlikely to be feasible at higher speeds since there is not much buffer space in the control modules at each end of the line.



b7 b0

P = 0 4.9 MHz crystal
P = 1 2.45 MHz crystal

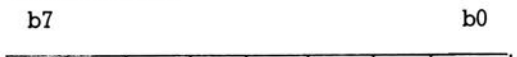
m2	m1	
0	0	No handshake
0	1	No handshake
1	0	Xon/Xoff
1	1	RTS/CTS

R2	R1	
0	0	V24 line
0	1	V24 modem
1	0	QMOD Rx.
1	1	QMOD Tx/Rx

SP = 1 Check external parity
EM = 1 Embed Xon/Xoff in Data stream

BYTE 6 Sets the QL to Q-Connect line parameters.

e.g. Data length, parity and speed. On start up the Mode Instruction must be 1 1 0 0 1 1 1 0 to give 9600b/s, clock = *16, 8 data bits, no parity with two stop bits for immediate communication.



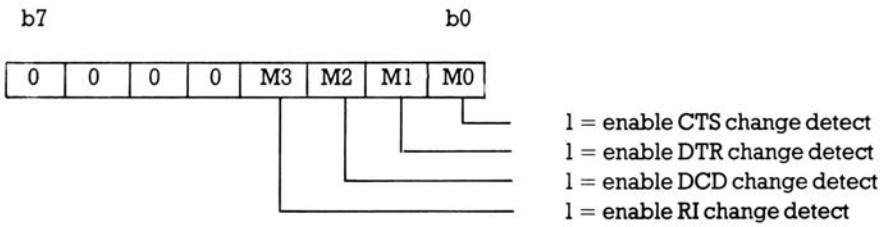
N3	N2	N3	
0	0	0	75 b/s
0	0	1	300 b/s
0	1	0	600 b/s
0	1	1	1200 b/s
1	0	0	2400 b/s
1	0	1	4800 b/s
1	1	0	9600 b/s
1	1	1	Not used

S1 is Not Used
Pen = 1 to Enable Parity
Pe = 1 for Even Parity

Note: Parity is not checked by the QL-Q-Connect receive process to prevent possible command lockout.

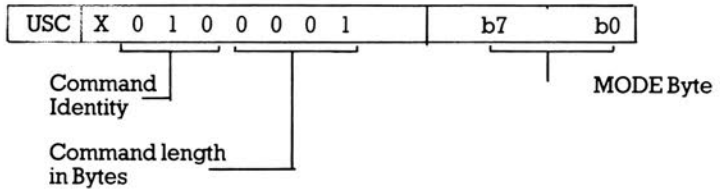
Q-Connect Control Commands

BYTE 7 Handshake change detection mask contains a 4 bit mask for change detection of changes in that handshake line.

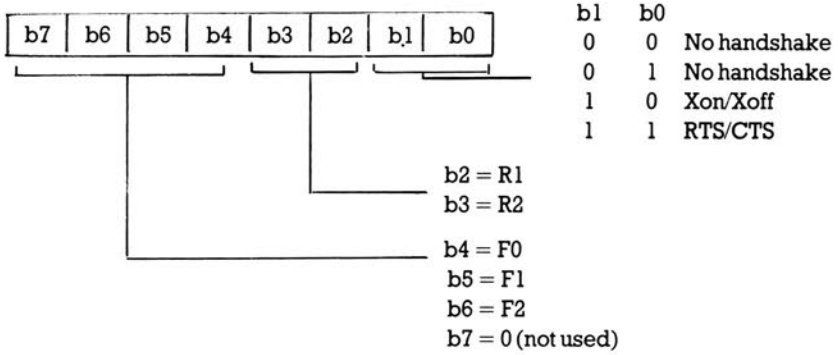


2) The MODE SET Command

This controls the operation of the Q-Connect modules.



MODE Byte

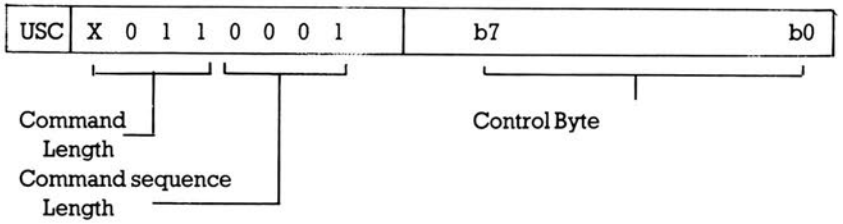


b1	b0	
0	0	No handshake
0	1	No handshake
1	0	Xon/Xoff
1	1	RTS/CTS

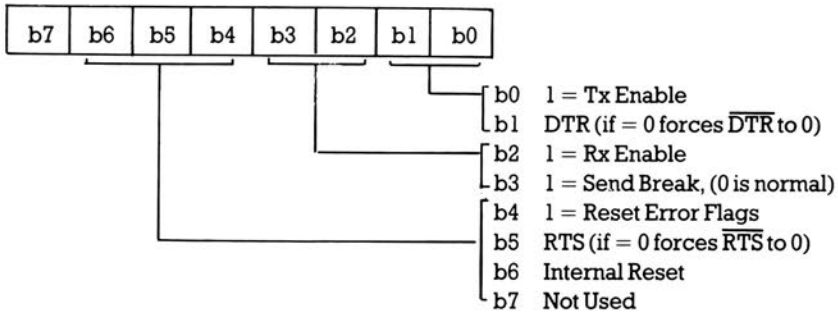
	F2	F1	F0		R2	R1
No operation	0	0	0	V24 line	0	0
Disconnect	0	0	1	V24 Modem	0	1
Connect	0	1	0	QMOD Rx	1	0
Answer	0	1	1	QMOD Tx/Rx	1	1
Auto Answer	1	0	0			
Purge UART & Buffer	1	0	1			
Spare	1	1	0			
Reset	1	1	1			

3) The CONTROL Command

This enables the modem/8251A interface outputs to be changed.

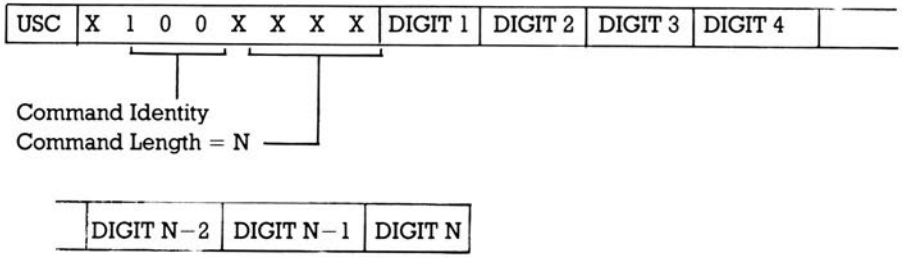


Control Byte



4) The AUTODIAL Command

Instructs Q-Connect to connect to line and then start dialling. It also carries the telephone number to be dialled.

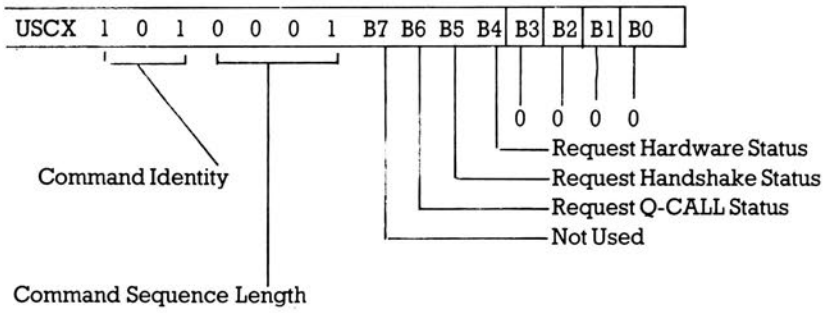


The digits are ASCII coded versions of those to be dialled - i.e. the numbers 0 to 9 or a Hyphen. The number when input, displayed or stored at the QL may also contain spaces, these will not however be passed to the control module. The byte count in this sequence can go above 15. Thus when the command length bits are all "1"s the following byte is taken to represent the command length and carries a count of bytes following it. If the digit length is zero then manual dialling is assumed to have taken place.

The last one or two characters in the command may be letters to control the type of dialling or calling sequence used. If the last character is a "V" then a V25 beep sequence is used rather than just waiting for the carrier. The last character may also be an "F" or a "T" (second to last if the "V" option is used). The "F" option puts out a coded version of the digit on the RL2 line intended for interfacing to a tone dial chip. RL2 is then a tone enable. The "T" option outputs the tones directly on the RL2 and RL1 lines (high frequency on RL2, low frequency on RL1). These are square waves and need filtering for use as the tones.

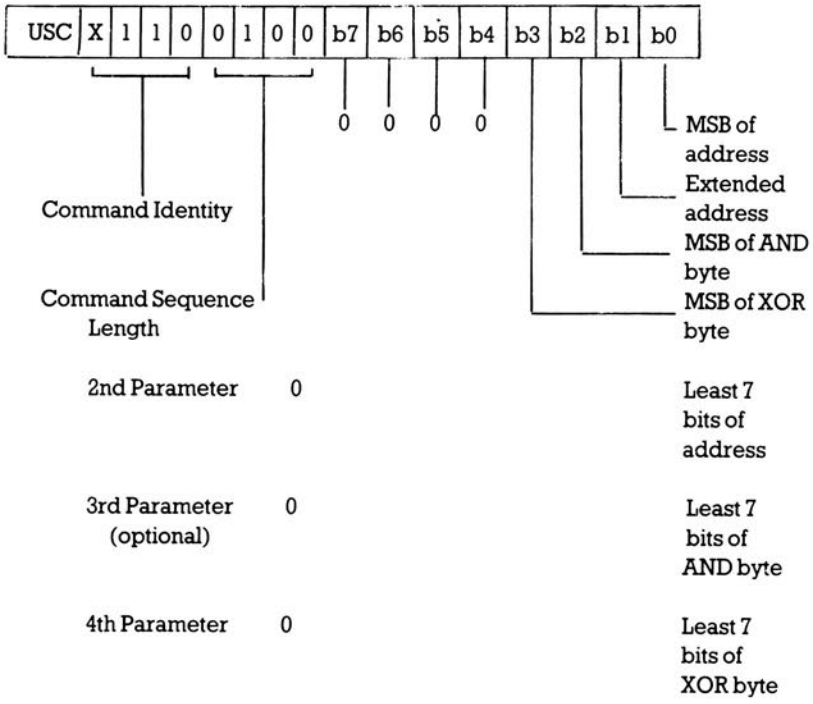
5) The READ STATUS Command

Forces the Q-Connect to reply with a STATUS Return.



6) The PEEK/POKE Command

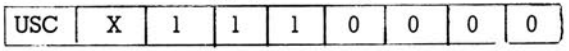
Used to read or write locations in the 7041



If there are two parameters then the data at the address (9 bits) is returned in 2 nibbles. If there are four parameters then the data at the address is read, ANDed with the AND byte, XORed with the XOR byte and rewritten. No return is made.

7) The COPYRIGHT Command

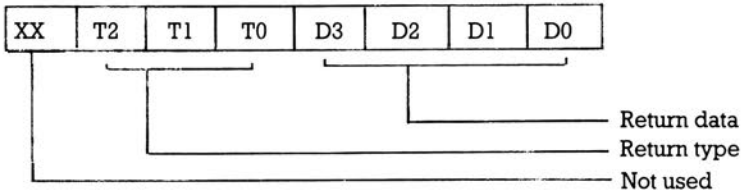
Used to return a copyright message and version number.



The copyright string is placed in the MQBUF and the pointers adjusted so that it is returned to the QL. Any data in the buffer is lost.

The RETURNS

The Returns carry control information from Q-Connect to the QL. The structure of the return byte is:



The return types are:

Type 0.
Local UART error.
This return is generated when a communication error is detected between the QL and Q-Connect.

D0 - Parity Error
D1 - Overrun Error
D2 - Framing Error
D3 - 0

Type 1.
Command error
This is generated by an illegal command. It may be accompanied by returns 4 and/or 6 which will indicate the reason.

D0 - Command Impossible
D1 - Bad Parameter
D2 - Bad INIT
D3 - 0

Type 2.
Peek low nibble
Generated by the PEPOKE command

D0 -
D1 - Return of low nibble
D2 - from peek command
D3

Type 3.
Peek high nibble
Generated by the PEPOKE command

D0 -
D1 - Return of high nibble
D2 - from peek command
D3 -

Type 4.
Hardware status.
This return is generated by an INIT command, a read status command or by an attempt to use an illegal route.

D0 - QMOD present
D1 - QCALL present
D2 - R1
D3 - R2

Routing:
R2 = 0 R1 = 0 V24 line
0 1 V24 modem
1 0 QMOD Rx
1 1 QMOD Tx/Rx

Type 5.
Modem control status.
This is generated by an INIT command, a read status command or by a detected change in an unmasked control line.

D0 - CTS
D1 - DSR
D2 - RI
D3 - DCD

Type 6.
Q-CALL status.
This return is generated by an attempted illegal use of Q-CALL, a read status command and entering the successful or aborted state.

D3	D2	D1	D0	
0	0	0	0	0 = idle
0	0	0	1	1 = waiting for disconnect / call aborted
0	0	1	0	2 = waiting for dial tone
0	0	1	1	3 = dialling
0	1	0	0	4 = waiting for carrier
0	1	0	1	5 = V25 calling state
0	1	1	0	6 = V25 waiting for gap
0	1	1	1	7 = call answer succeeded
1	0	0	0	8 = waiting for ring indicate
1	0	0	1	9 = answering call
1	0	1	0	10 = answering silence
1	0	1	1	11 = answering tone
1	1	0	0	12 = not used
1	1	0	1	13 = not used
1	1	1	0	14 = not used
1	1	1	1	15 = not used

Type 7.
External UART error.
Generated by a detected error in the 8251A UART condition.

D0 - Parity error
D1 - Overrun error
D2 - Framing error
D3 - RxBrk

No data byte is returned with a UART error, therefore a parity error return may need to produce a parity error character.

System Variables in Q-Connect

There are a number of system variables in Q-Connect which may be manipulated by the PEPOKE command to alter some of the constants that Q-Connect uses in its operation. Any INIT command will restore the system variables to their default values.

Address (Hex)	Variable Name	Use	Default Value
0F	RIFNDV	Ring in detect threshold (12=1 ring)	50
10 11	SZDELV	Seize delay time (Units 8.3 msecs)	480
12	DCDTMO	Carrier detect time-out (Units 0.2 secs)	75
13	MONLEN	Threshold buffer space to enable buffer input	20
14	MOFLEN	Threshold buffer space to disable buffer input	10

APPENDIX A

This product is the subject of BABT approval. The following notes relate to this approval and concern conditions of use of Q- Connect with Q-MOD and Q-CALL.

1. This product is supplied for use with exclusive lines of British Telecom's public switched telephone network.
2. The product is not suitable for use as an extension on a payphone line.
3. The product is intended for use with BT lines having loop disconnect dialling facilities.
4. The REN value of this product is 3.

   REN (Ringer Equivalence Number) is an indication of the number of similar items or apparatus which may be concurrently connected on a line without causing the bell on a standard BT phone to cease to function. A standard BT phone is assumed to have a REN - 1.

5. The approval of this product for connection to the PSTN is invalidated if it is subject to any modificaton in any material way not authorised by BABT or if it is used with or connected to:

   a) Internal software that has not been formally accepted by BABT.

   b) External control s/w or apparatus which causes the operation of Q-Connect or associated call set-up equipment to contravene the requirements of the standards set out in babt/SITS/82/0055/B.

6. The interconnection of the 'phone' port with any other port on the product, whether directly or by way of other apparatus, may cause hazardous conditions to appear on the BT line. You are advised to consult a competent engineer before attempting this.

7. When using Q-MOD and/or Q-CALL in conjunction with Q-Connect, for safety of both the user and the BT network you must fit the inter-unit connecting bus locking screw, supplied with each unit. Failure to do so will invalidate the approval of this product.

APPENDIX B

ESCAPE SEQUENCES AND MOSAIC CODES

@		P	
A	Alphanumeric Red	Q	Mosaic Red
B	Alphanumeric Green	R	Mosaic Green
C	Alphanumeric Yellow	S	Mosaic Yellow
D	Alphanumeric Blue	T	Mosaic Blue
E	Alphanumeric Magenta	U	Mosaic Magenta
F	Alphanumeric Cyan	V	Mosaic Cyan
G	Alphanumeric White	W	Mosaic White
H	Flash	X	Conceal Display
I	Steady	Y	Contiguous Mosaic
J	End Edit	Z	Separated Mosaics
K	Start Edit	[	
L	Normal Height	\	Black Background
M	Double Height	]	New Background
N		^	Hold Mosaics
O		#	Release Mosaics

The codes which create colour, graphics, etc., are called attributes. To enter any attribute, press ESCAPE followed by the appropriate key. You will notice that each time you change an attribute, the cursor moves one space to the right. A selected attribute will only remain in effect until the end of the line and must be reset at the beginning of each new line.

Attributes

A description of how to use the various attributes now follows:

Colour — When typing in text, press ESC followed by the appropriate letter to change colour. For example, ESC A will give red (note upper case). The cursor skips one space and whatever is typed in next will appear in red. The text reverts to normal (white) colour at the start of the next line.

Flash/Steady — To make part of your text 'flash', key ESC H. Whatever you type in next will flash. Key ESC I to revert to normal.

Normal/Double Height — When you key ESC M, the text takes up two lines instead of one. Press carriage return twice to see the cursor on a new line. To revert to normal height, key ESC L .

Mosaics (Graphics) — To create mosaics (graphics), press ESC followed by the appropriate key. For example, set red mosaics by keying ESC Q . Subsequent characters entered on the same line will appear as red mosaic characters. (See the table below which shows the alternative meanings of the keyboard characters when they follow a mosaic escape sequence).

Contiguous/ Separated Mosaics — Key ESC Y to produce solid blocks and ESC Z to break up the blocks into separate parts.

Hold/Release — Key ESC ('hold') to change colour in graphics without leaving space on the screen at that point. The previous character and colour are 'held' for two additional positions. Key ESC # to exit from 'hold'.

Black/New Background — To change the normal black background, enter the new colour, then key ESC] . The new background colour will remain in effect until the end of the line or until you change the colour again and key ESC] .

Key ESC to revert to black.

For coloured text on a coloured background, enter the desired colour for the text after keying the new background colour.

Conceal Display — To conceal any part of the text, select a colour, move the cursor one space and type in your text. Backspace to the space before the text and key ESC X . The text is now hidden. (If another attribute is

entered after the concealed text, this will turn the conceal off for subsequent characters.)

Alternative Meanings of Keyboard Characters