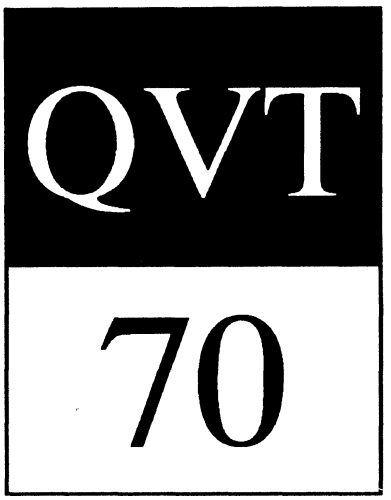

Setup Guide

P/N: 304082-01

Qume®

Notices and Instructions

This equipment generates and uses radio frequency energy and if not installed and used properly (that is, in strict accordance with the manufacturer's instructions) may cause interference to radio and television reception. This Device complies with Part 15 of the FCC Rules (Section 15.19(C) of FCC Docket 87-389). Operation is subject to the following two conditions: (1) this Device may not cause harmful interference, and (2) this Device must accept any interference received, including interference that may cause undesired operation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception (determined by turning the equipment on and off) the user is encouraged to try to correct the interference by one or more of the following measures:

- ❑ Reorient the receiving antenna.
- ❑ Relocate the computer with respect to the receiver.
- ❑ Move the computer away from the receiver.
- ❑ Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

The use of cables other than the shielded interface cables or the equivalent specified in this manual will invalidate the FCC Certification of this terminal and may cause interference levels that exceed the limits established for this device.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The Federal Communications Commission has prepared a booklet entitled "How to Identify and Resolve Radio-TV Interference Problems" that may be helpful to you. This booklet (stock #004-000-00345-4) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Copyright Notice for the QVT 70

Canadian Department of Communication Notice

This digital apparatus does not exceed the Class A limits for radio emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables auq appareils numeriques de classe a prescrites dans le reglement sur le brouillage radioelectrique edicte par le ministre des communications du Canada.

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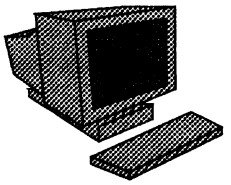


Preface

Congratulations on your purchase of the QVT 70 Video Display Terminal. We are proud of our superior product quality and we trust that in a short time you will be one of our many satisfied customers. Please read this manual completely to become familiar with the proper operation of your new terminal.

The QVT 70 is command set compatible with SCO Unix, WY370, WY350, WY60, WY50+, VT 52, VT 100, VT 220, PC Term, ADDS A2, Esprit III, and Intercolor.

Your terminal is ergonomically designed and includes:

- ❑ An adjustable-height, low-profile, detached keyboard
- ❑ A 14-inch multi-sync non-interlaced color monitor

Standard features include:

- ❑ Color monitor (64 color palette)
- ❑ Serial 1, Serial 2, and Parallel printer ports
- ❑ Conversational and block mode operation
- ❑ Soft-set, nonvolatile setup menus
- ❑ Low electromagnetic emissions
- ❑ 80/132 column display
- ❑ Displayable, programmable keys
- ❑ Calculator mode
- ❑ Clock/alarm feature
- ❑ Special graphic character sets
- ❑ 15 International keyboard languages
- ❑ Tilt and swivel stand
- ❑ Enhanced PC keyboard

Optional features include:

- ❑ Foreign Language Keycap Kits
- ❑ ANSI (VT220) style keyboard
- ❑ 17-inch multi-synch non-interlaced color monitor

QVT 70/WY325/WY370 Comparison

We at Qume work hard to provide you with a competitive and superior product. The QVT 70 color monitor is no exception. It has these features:

Feature	QVT 70	WY325	WY370
14" 0.28mm dot pitch Color Display	✔		.31mm
78 Hz Refresh rate	✔	✔	
64 Foreground, 64 Background colors	✔	8F/8B	✔
Non-interlaced VGA, SVGA, 8514, XGA display	✔		
Operator Adjustable Controls			
Brightness/Contrast	✔	✔	✔
Horizontal Size & Position	✔		
Vertical Size & Position	✔		
Universal Power Supply	✔		
Regulatory Agencies			
UL, CSA, TUV	✔	✔	✔
MPR II/TUV Ergonomie	Opt	Opt	
VDE-B	✔	Opt	
Separate Logic Box			
Supports 15", 17" Qume Heads	✔		
2 Serial Ports	✔	✔	✔
1 Parallel Printer Port	✔		
I/O transorbs transient protection	✔		
Emulations			
WYSE 370	✔		✔
VT 52, 100, 220	✔	✔	✔
WYSE 60/50+	✔	✔	
WYSE 325	✔	✔	
WYSE 350	✔	✔	✔
TVI 910+, 925	✔	✔	
TVI 950	✔		
TVI 955	✔		✔
QVT 62/70	✔		
PC Term	✔		
ADDS A2	✔	✔	✔
Espirit III	✔		✔
Intecolor 220	✔		✔
WYSE 120, 150	*	✔	
Tek 4010/4014			✔
Supports IBM Character Set 437, 850	✔		
Dual Host/Session Support	✔		✔

*Instruction set compatible because of QVT 62 emulation. Color command set to be implemented.

1

Chapter One

Getting Started

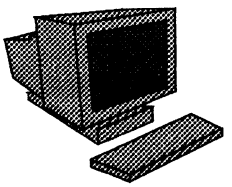


Table of Contents

This section will help you to select a suitable location for your new color terminal, to unpack and to connect the keyboard and logic box, and to introduce you to the features of your terminal.

Installation and Features

Before you unpack the terminal, logic box, and keyboard, inspect the cartons for any sign of damage. If damage to the carton is apparent, have the delivery agent note the damage on the shipping document.

NOTE: Some shippers may wish to be present when the cartons are opened if external damage is apparent.

Select an Installation Site

Before you actually unpack your terminal, logic box, and keyboard, however, first select a suitable site which may be characterized as follows:

- ❑ A clean, well-lit environment with proper ventilation
- ❑ Convenient access to a power outlet with ground
- ❑ A stable platform to support your terminal at a comfortable height
- ❑ Adequate room to route cable.

WARNING: In order to ensure compliance with Subpart J of Part 15 of FCC Rules, it is required that shielded cables be used when your terminal interfaces with other devices.

Unpacking Your Terminal

Unpack and inspect the terminal, logic box, and keyboard as follows:

1. Open the carton that contains the terminal, logic box, and keyboard; place it on its side on a table top or flat work surface.

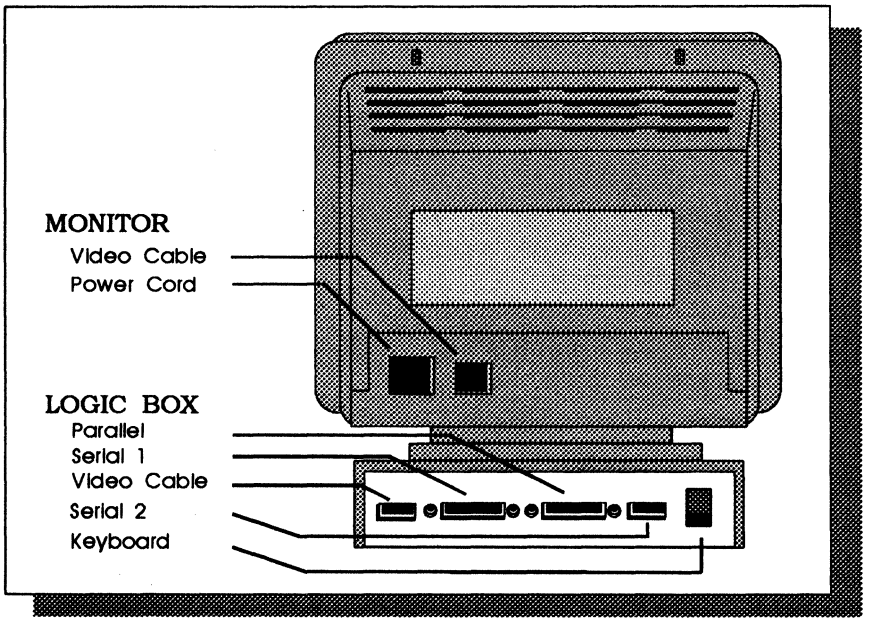


Figure 1-1
Monitor and Logic Box Connections

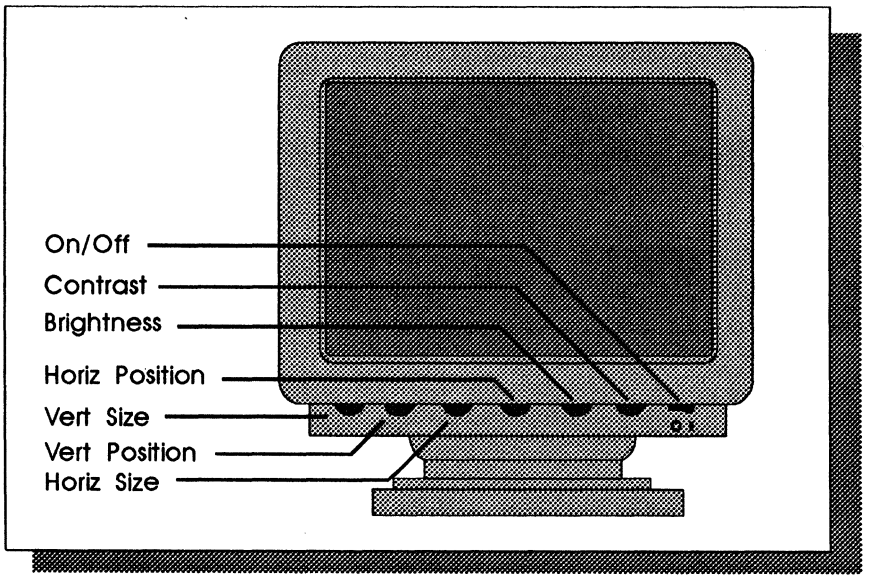


Figure 1-2
Front Panel Controls

2. Remove the keyboard and logic box from the package. The power cord and VGA cable are also in this package.

3. Slide the terminal with its styrofoam packing buns from the carton.

4. Remove the packing buns and be careful not to jostle the display unit.

5. Remove the plastic wrap from the display unit.

6. Keep all packaging materials. When you repack the terminal, logic box, and keyboard for shipment, or repack the terminal, logic box, and keyboard to store it for long periods, use only the original packaging materials.

7. Inspect the terminal, logic box, and keyboard for scratches, loose parts, and damage from rough handling. If there is evidence that any damage to the terminal might impair its proper operation, contact your service representative for advice and further instructions.

Connectors

After a site has been selected and your terminal properly located, connect the host computer to the terminal as follows:

At the rear of the logic box: (See Figure 1-1)

1. Connect the cable from the host computer to the connector labelled SERIAL 1 or SERIAL 2.

2. Connect the printer to the connector labelled PARALLEL.

3. Connect video cable from the color monitor to connector labelled VIDEO.

4. Connect the keyboard to the connector labelled KEYBOARD.

At the front of the monitor: (See Figure 1-2)

5. Verify that the Power On/Off switch is in the Off position. The On/Off switch is located on the right front corner of the display panel. The button will be depressed when in the on position (see Figure 1-2). Then connect the power cord to a grounded AC outlet. The power requirements of your terminal are: US: 120 VAC, 0.5A, 45W, and 60Hz; or International: 230VAC, 0.3A, 50W, and 50Hz. When the terminal is on, the green LED above the switch will light; when the terminal is off, the green LED above the switch will not light.

Controls

Your basic terminal controls are: (See Figure 1-2)

Power On/Off	The Power On/Off switch is located on the right front corner of the display unit. The Power indicator LED will be lit when power is on.
Contrast	The Contrast control is used to adjust background and foreground contrast on your screen.
Brightness	The Brightness control is used to adjust display intensity.
Horiz Position	The Horizontal Position control is used to adjust the screen contents along the horizontal plane.
Horiz Size	The Horizontal Size control is used to adjust the width of the screen contents.
Vert Position	The Vertical Position control is used to adjust the screen contents along the vertical plane.
Vert Size	The Vertical Size control is used to control the height of the screen contents.

Ergonomic Features

Your color terminal features the following ergonomic design considerations to accommodate your individual comfort.

The display unit has a ball mounted pedestal that allows you to tilt and swivel its position. The keyboard is also height-adjustable if you rotate the two recessed feet outward from the base.

Now that you have selected a site and unpacked your terminal, the next step is to turn the power on.

Turning On The Terminal

To turn on the color terminal and to begin to use it, push the Power On/Off switch to the On position (see Figure 1-2).

Observe this sequence of events:

- ❑ The Power Indicator LED lights
- ❑ The terminal beeps

Note that the cursor appears in the upper left part of the display screen. Note the status line across the top of the display. Refer to the subsection on Status Line Description (Page 2-31) for a full explanation of the status line and its use.

Using The Terminal

The terminal is now in On-Line mode. Refer to the subsection Setup Mode and the Setup Menus for a full explanation about how to configure your terminal. The self-test is automatically performed when the terminal is powered on. The error codes in Table 1-1 below will be displayed on the screen if non-fatal error(s) is detected:

Table 1-1
Error Codes

Character Displayed	Fault-Detected Items			
	ROM	SRAM	VRAM	KBD
A	◆			
B		◆		
C	◆	◆		
D			◆	
E	◆		◆	
F		◆	◆	
G	◆	◆	◆	
H				◆
I	◆			◆
J		◆		◆
K	◆	◆		◆
L			◆	◆
M	◆		◆	◆
N		◆	◆	◆
O	◆	◆	◆	◆

If an error message displays, contact your sales representative to find the closest service location.

The Keyboard

The QVT 70 keyboard is used to communicate text and numeric data to a host computer. It is also used to communicate with the terminal itself. This occurs in Setup mode and may also occur during normal operation through use of special keys.

The QWERTY section of the keyboard is very similar to the keyboard of a standard typewriter. It is used to transmit text, numbers, and special characters. In addition, there are two keypads. Immediately to the right of the QWERTY section is the extended cursor keypad and beyond that is the 17 key numeric keypad for rapid entry of numeric data. In addition, there is a full row of keys above the main typing area. This row contains both special purpose and user-programmable function keys.

The EPC Keyboard

The EPC keyboard may be divided into functional groups as follows:

- ❑ Main keyboard keys
- ❑ Terminal control keys
- ❑ Function keys
- ❑ Edit keys
- ❑ Cursor control keys
- ❑ Numeric keypad
- ❑ Light Emitting Diodes (LEDs)

Each of these individual groups of keys functions as follows:

Main EPC Keyboard Keys

The main EPC keyboard keys are the light-colored keys in the large key cluster. Most of these keys function like those of any standard typewriter.

Tab — The Tab key generates the HT (horizontal tab) character, which moves the cursor to the next tab stop, as a default. Other settings depend on setup values.

Pause/Break — Transmits a 170, 250, or 500-millisecond space pulse to the host, depending on setup values.

Caps Lock — Caps Lock causes the alphanumeric keys to generate uppercase characters. When this feature is active, the Caps Lock indicator will display on the status line.

Back Space The Back Space key generates the BS (backspace) character which moves the cursor one character position to the left, unless reprogrammed.

Enter The Enter key has several functions based on when it is utilized. The two main functions are:

When CR mode is selected in Setup Mode and the Enter key is pressed, a carriage return is transmitted to the host. This causes the cursor to return to the first position of the cursor line without a line feed. When CRLF mode is selected and the Enter key is pressed, a CR and LF is transmitted to the host. This causes a carriage return with line feed.

When TAB mode is selected and the ENTER key is pressed, a TAB is transmitted to the host. This moves the cursor to the next tab stop.

EPC Keyboard Terminal Control Key

In addition to main keyboard keys, the EPC keyboard has a terminal control key. It functions as follows:

Ctrl The Control key is always used in conjunction with another key to generate a special control code.

EPC Keyboard Function Keys

In addition to the control key, the EPC keyboard has function keys that work as follows:

Esc Generates the escape character.

F1-F12 The top row function keys, when pressed, transmit to the host a user selected ASCII character. A Function key may be used by itself or in combination with the Shift key to generate a total of 32 code sequences. The Function keys, Edit keys, and Arrow keys share 512 bytes of dynamically allocated memory, 255 bytes of which is the maximum capacity available to any one of these function keys. Key contents are saveable.

Print Screen Pressing the Print Screen causes the current page to print.

Sys Rq Pressing the Sys Rq while holding down the Shift key sends a control code, the effect of which is application dependent.

Scroll Lock Scroll Lock freezes the screen.

Break Pressing the Pause key while holding down the Ctrl key sends a Break Signal out the Comm Port, the effect of which depends on your computer's programming. The Break Signal can be enabled or disabled in Setup Mode.

Select This key allows you to enter Setup Mode for the purpose of selecting the terminal's operating paramaters, as explained later in this manual.

EPC Keyboard Edit Keys

In addition to the function keys, the EPC keyboard has edit keys. They work as follows:

Insert When used with the Shift key, this key disables Insert Mode and selects Replace Mode. When used without Shift key, this key disables Replace Mode and selects Insert Mode.

Delete This key is emulation dependent. In VT220 mode, the Delete key generates the ASCII DEL (delete) character which interrupts the current process. (Action is application dependent.) When pressed with the Shift key, it generates the ASCII CAN (18 Hex) character. In WYSE 60 mode, the Delete key sends ASCII DEL when unshifted and ESC R when the Shift key is held down.

Home The Home key returns the cursor to home position (column 1, line 1). The Home command is transmitted to host.

End When used without the Shift key, this key replaces all unprotected data from the cursor position to the end of the line with space characters. When used with the Shift key, all unprotected data from the cursor position to the end of the screen is filled with space characters.

Page Up The Page Up key sends cursor to previous page or segment.

Page Down The Page Down key sends cursor to next page or segment.

EPC Keyboard Cursor Control Keys

In addition to the edit keys, the EPC keyboard has cursor control keys. They work as follows:

Arrow Keys The Arrow keys control movement of the cursor by moving the cursor in the direction indicated by the arrow on the key top. The arrow keys, like F1 through F12 keys, can be programmed.

EPC Keyboard Numeric Keypad

In addition to the cursor control keys, the EPC keyboard has a numeric keypad. The numeric keypad is the small key cluster at the right side of the keyboard. Its keys work as follows:

Number Keys The Number keys are used to enter numeric data. In WY350, WY325, WY60, WY50+, TVI, QVT70, QVT62, PC Term, Esprit III, and ADDS A2 emulations, pressing the Control Key and the Number Keys (0-9) will select the Color Palette. In WY350, TVI950, and Esprit III emulations, pressing the Control Key and the Decimal Key (.) turns off the screen display. In WY325, WY60, WY50+, QVT70, QVT62, PC Term, TVI, and ADDS A2 emulations, pressing the Control Key and the Decimal Key (.) selects the soft palette. See Section 2, the Miscellaneous (F6) Setup Menu, for information about color palettes.

Arithmetic Keys The Arithmetic keys are used to perform arithmetic operations on numbers while in calculator mode. The arithmetic function of each key is shown on the keyface. Calculations can be made by pressing the desired number arithmetic function keys, and then pressing Enter.

Num Lock Pressing the Num Lock key toggles the numeric keypad on and off. When on, the Num Lock LED will light and the numeric keypad will be accessible.

Home The Home key returns the cursor to home position (column 1, line 1). The Home command is transmitted to host.

End When used without the Shift key, this key replaces all unprotected data from the cursor position to the end of the line with space characters. When used with the Shift key, all unprotected data from the cursor position to the end of the screen is filled with space characters.

Ins The Insert key turns the Insert submode on.

Del The Del key generates a DEL 7F character. When used with the Shift key, this key causes the current cursor line to be deleted. All following lines are moved up one line, and the cursor is moved to Column 1. The last line of the display is filled with space characters.

Pg Dn The Page Down key sends cursor to next page or segment.

Pg Up The Page Up key sends cursor to previous page or segment.

Enter Depending upon setup selections, pressing the Enter key causes either a carriage return, a carriage return with line feed, or a tab to be performed. The Enter key is also used to temporarily store Function key and Arrow key contents as specified during programming sessions. Pressing the Enter key with the Shift or Control key in Block mode or Message mode will cause the data on the screen to be transmitted to the host. The Enter key is also used for calculations when in calculator mode. After pressing the desired numbers and arithmetic function keys, the Enter key will allow the terminal to perform the desired function.

EPC Keyboard LEDs

The EPC keyboard uses three light emitting diodes (LEDs) to report several aspects of the terminal's operation. The LEDs are located at the upper right of the keyboard. These LEDs and their functions are as follows:

Num Lock When lit, this LED indicates that the Num Lock feature has been enabled and the numeric keypad can be used.

Caps Lock When lit, this LED indicates that the Caps Lock feature has been enabled and all text will appear in upper case.

Scroll Lock When lit, this LED indicates that the Scroll Lock feature has been enabled.

ANSI Keyboard Key Descriptions

The ANSI keyboard may be divided into functional groups as follows:

- ❑ Top Row keys
- ❑ Extended Cursor keypad
- ❑ Special QWERTY keys
- ❑ Numeric keypad
- ❑ Light Emitting Diodes (LEDs)

Each of these individual groups of keys functions as follows:

ANSI Keyboard Top Row Keys

The top row of the ANSI keyboard consists of function keys F1 through F20 which perform special functions. Some of these keys are processed locally by the terminal for its own purposes. The others are special keys whose functions are either interpreted by the application software or defined by the user or host computer. Specific Top Row Keys and their alphanumeric functions are as follows:

NOTE: When the ANSI F1-F5 parameter in the Keyboard Setup Menu is set to FUNCTION KEYS, the F1, F2, F3, and F4 key functions are switched to F17, F18, F19, and F20, respectively. Note that the F3 (Setup) key moves to the F19 key. Refer to Section 2 for details.

Hold (F1) Press the Hold key to tell the QVT 70 to stop processing incoming characters temporarily. The screen will be frozen in its current state until the Hold condition is ended, usually by pressing Hold a second time. Hold operates only if handshaking (either XON/XOFF or hardware) is enabled at the current main port. The Hold key performs the same function as the Hold Screen key of the VT220 and the No Scroll key of the VT100 modes.

Print (F2) This key will copy alphanumeric text from any ASCII emulation to any locally attached serial ASCII printer. It will copy a bit dump of any screen to any of several graphics printers. Press the Print key, unshifted, to print

the contents of the screen to a locally attached printer. If the alphanumeric emulation is active, the terminal will print text characters.

Press Shift-Print to print a bit dump of the display to a graphics printer, regardless of the contents of the display. This may be used in order to print an exact copy of what is on the screen. This may be particularly useful to get an exact bit dump of the alphanumeric emulation, since it is a bit-for bit copy of the screen, reverse video characters are printed in reverse, double wide characters are printed double wide, etc. Press Ctrl-Print to put the alphanumeric emulation in auto print mode. Auto print causes each line of received text to be printed as it is displayed. The Print key does not transmit any codes to the host.

Setup (F3)

Press this key to cause the terminal to enter or exit Setup mode. Setup mode is described in Chapter 2. If the Setup key is pressed during a local print operation (print screen, auto print mode, etc.), the print operation will be cancelled. The Setup key does not transmit any codes to the host.

Data/Talk (F4)

This key is used to toggle between On Line and Local Modes.

Break (F5)

Press Break to transmit a break signal approximately 250 msec in duration.

If the Shift key is held down when Break is pressed, a long break is sent which is approximately 3.5 seconds in duration. The terminal lowers an outgoing hardware handshaking signal for the duration of the break signal. DTR is lowered if the break signal is sent out Serial 1. DSR is lowered if the break signal is sent out the mouse port. No outgoing handshaking is supported at Parallel port. Shift-Break may be used with many modems to perform a communications line disconnect.

If the Ctrl key is down when Break is pressed, the ASCII answerback message is sent.

F6-F14
Help
Do
F17-F20

These keys operate differently based upon whether or not the Shift key or Ctrl key is held down while they are pressed.

Unshifted, these keys operate in a manner identical to the alphanumeric emulations. The meaning of these keys is dependent upon the application software. They generate codes when alphanumeric emulations are active. In VT100 or VT52 modes, only these three keys generate codes: F11 generates ESC; F12 generates BS; and F13 generates LF.

If the Shift or Ctrl key is held down, these keys become user- or host-definable function keys. You can define these keys to transmit whatever you like by going into Setup mode and entering the character or string of characters to be transmitted.

Although there are only 15 of these user- or host-definable functions keys on the keyboard, they may transmit up to 45 different functions. Fifteen are available if the Shift key is held down. A second group of fifteen is available if the Ctrl key is held down. Finally, by making a selection in the Function Key Setup screen, even the unshifted function keys may be programmed to transmit user- or host-definable functions instead of their normal ASCII functions. Note that if this selection is made, application programs which expect to receive standard ASCII function key sequences may not work correctly.

ANSI Keyboard Extended Cursor Keypad

The extended cursor keypad holds a variety of different types of keys. Some perform special terminal-oriented commands, some are dedicated to alphanumeric compatibility, and others move the cursor. The extended cursor keypad keys and their functions are as follows:

Find
Insert Here
Remove
Select
Prev Screen
Next Screen

These keys transmit special codes to computer. The action taken by the computer depends upon the software package used. No codes are transmitted in VT100 emulation.

Up Arrow
Down Arrow
Left Arrow
Right Arrow

The action taken by the computer depends upon the software package used. Not unreasonably, many applications use these keys to move the cursor in one of four directions on the display.

ANSI Keyboard Numeric Keypad

The numeric keypad is used for the rapid entry of numeric data and occasionally for application specific functions. It also supports four additional function keys. The numeric keypad keys functions are as follows:

PF1-PF4

These keys are equivalent to PF1 through PF4 on an ANSI keyboard. The action taken depends upon the software package used.

Numeric Keypad

The numeric keypad combines, in one location, number keys and other keys commonly used for the entry of numeric data. Under most circumstances, these keys transmit the same codes as the corresponding keys in the main keyboard.

In alphanumeric modes, it is possible for the computer to instruct the terminal to use the keys of the numeric keypad for special functions. When this occurs, the keys transmit special codes which are different from those transmitted by the corresponding keys in the QWERTY section. The computer recognizes these special codes and processes them accordingly. So called 'Keypad Editors' are examples of programs which use this feature.

Enter Normally, the Enter key performs the same function as the Enter key. However, alphanumeric applications may redefine the use of this key.

ANSI Keyboard Special QWERTY Keys

The special QWERTY keys and their functions are as follows:

Backspace Transmits the ASCII code BS.

Tab Transmits the ASCII code HT.

Ctrl The Ctrl key does not transmit a key by itself. Instead, it is used to modify the codes sent by other keys. To key in Control-A (ASCII code SOH), for example, hold down the Ctrl key and press the 'A' key.

Return This key usually transmits a carriage return (ASCII code CR). In VT220/VT100 emulation with new line mode set, the Return key transmits a carriage return and a line feed (ASCII code LF).

Lock The Lock key is a locking key which does not transmit a code by itself. Rather, it modifies the action of other keys.

Shift This key does not transmit a code by itself. Instead, it is used to transmit the upper case characters or alternate functions of other keys. Hold down either Shift key, then press the key whose shifted function is to be transmitted.

Comp Char The Compose Character key may be programmed to provide any of three distinct functions in alphanumeric emulations. When Compose Character is selected, this key functions identically to the Compose Character feature of the VT220. It allows users in VT220 environments to type national characters and other special symbols which are not part of the US ASCII character set. The Compose Character function works only in VT220 emulation.

To type these special characters, press and release the Compose Character key. The Compose LED will light, indicating that you are in the middle of a Compose Character sequence. Next, type the two characters required

to generate the character you desire. A list of the special characters, and which keys to press to generate them, is given in Table 1-2 below.

If the Compose Character key performs the Meta function, the keys work entirely differently, though the end result may be identical. The Meta key is used to generate any ASCII character with its 8th bit set to one. The Meta key works in a manner identical to the Ctrl key or Shift key. Hold down the Meta key and press any standard ASCII key while still holding down the Meta key. The Meta key is extremely useful when using several UNIX-based text editors.

For example, to transmit Meta-A, hold down the Meta key and type 'A.' Normally, the terminal sends the hexadecimal value $41 for an 'A.' Holding down the the Meta key will cause the terminal to transmit $C1.

The third and final possible function of the Compose Character key is Hold. If you are used to using an ASCII keyboard, you may wish to have a Hold key (called No Scroll in ASCII) in the lower left corner of the keyboard. By selecting the Hold function for the Compose Character key, ASCII users may have the No Scroll function in a familiar place.

ANSI Keyboard LEDs

The ANSI keyboard uses four light emitting diodes (LEDs) to report several aspects of the terminal's operation. These LEDs and their functions are as follows:

Hold Screen — The Hold Screen LED indicates that the HOLD key has been pressed.

Lock — The Lock LED indicates the state of the Lock key. If the Lock key has been pressed once, the LED will turn on, indicating that either Caps Lock or Shift Lock is active (see description of the Lock key above). If the Lock key is pressed a second time, the LED will turn off.

Compose — In VT220 emulation, the Compose LED indicates that you are in the middle of a Compose Character sequence.

Wait

The Wait LED indicates whether key strokes are being accepted from the keyboard. Under most circumstances, the keyboard is unlocked and typed characters are processed normally.

If the Wait LED is turned on, the terminal has been unable to process characters as quickly as they have been typed. This may occur for two reasons. First, the terminal may have received hanshake protocol signal from the host telling it to stop transmission of characters. Second, if the terminal is in the middle of a very time consuming operation, such as printing the screen, it will not process any keystrokes until the print is complete.

If the terminal is unable to process a keystroke immediately, it saves that keystroke so that it can process it later. If so many characters are typed that the terminal runs out of storage space, it will lock the keyboard, turn on the Wait LED, and not accept any more keystrokes.

When the situation causing the delay ends, the terminal processes the stored characters and turns off the Wait LED.

The ASCII Keyboard

The ASCII keyboard may be divided into functional groups as follows:

- ❑ Main keyboard keys
- ❑ Terminal control keys
- ❑ Function keys
- ❑ Edit keys
- ❑ Cursor control keys
- ❑ Numeric keypad

Each of these individual groups of keys functions as follows:

ASCII Keyboard Main Keys

The main ASCII keyboard keys are the light-colored keys in the large key cluster. Most of these keys function like those of any standard typewriter.

Tab

The Tab key generates the HT (horizontal tab) character, which moves the cursor to the next tab stop.

Break Transmits a 170, 250, or 500-millisecond space pulse to the host, depending on setup values.

Caps Lock Caps Lock causes the alphanumeric keys to generate uppercase characters. When this feature is active, the Caps Lock indicator will display on the status line.

Back Space The Back Space key generates the BS (backspace) character which moves cursor one character position to left.

Return The Return key has several functions based on when it is utilized. The two main functions are:

Setup Menu 3: RETURN - When CR mode is selected and the Return key is pressed, a carriage return is transmitted to the host. This causes the cursor to return to the first position of the cursor line without a line feed. When CRLF mode is selected and the Return key is pressed, a CR and LF is transmitted to the host. This causes a carriage return with line feed.

When TAB mode is selected and the RETURN key is pressed, a TAB is transmitted to the host. This moves the cursor to the next tab stop.

Setup When used with the Shift key, this key allows you to enter Setup Mode for the purpose of selecting the terminal's operating paramaters, as explained later in this manual.

ASCII Keyboard Terminal Control Key

In addition to main keyboard keys, the ASCII keyboard has a terminal control key. It functions as follows:

Ctrl The Control key is always used in conjunction with another key to generate a special control code.

ASCII Keyboard Function Keys

In addition to the control key, the ASCII keyboard has function keys that work as follows:

Funct — Setup Menu 3: CORNER KEY=FUNCT, HOLD, COMPOSE, inactive - When CORNER KEY=FUNCT is selected, the FUNCT key, followed by any other key, transmits a user-selected character bracketed by a Start of Header (SOH) code and a Carriage Return (CR) code.

When CORNER KEY=HOLD, the FUNCT key freezes the data on the screen. When CORNER KEY=COMPOSE, the FUNCT key composes non-standard characters in sequence with certain other keys.

Esc — Generates the escape character.

F1-F16 — The top row function keys, when pressed, transmit to the host a user selected ASCII character or sequence of characters which are bracketed by a Ctrl-A (SOH) code and a carriage return (CR) code. A Function key may be used by itself or in combination with the Shift key to generate a total of 32 code sequences. The Function keys, Edit keys, and Arrow keys share 512K bytes of dynamically allocated memory, 255 bytes of which is the maximum capacity available to any one of these function keys. Key contents are saveable.

NOTE: You can program only 64 bytes per key when you program in Setup mode.

ASCII Keyboard Edit Keys

In addition to the function keys, the ASCII keyboard has edit keys. They work as follows:

Del — Setup Menu 5: DEL KEY=DEL/CAN, BS/DEL - When DEL KEY=DEL/CAN is selected, the Delete key generates the ASCII DEL (delete) character which interrupts the current process. (Action is application dependent.) When pressed with the Shift key, it generates the ASCII CAN (18 Hex) character.

When DEL KEY=BS/DEL is selected, the Delete key generates the BS (Backspace) character which moves the cursor one character position to the left. When pressed

with the Shift key, it generates the DEL (delete) character.

Home — The Home key returns the cursor to the home position (column 1, line 1). The Home command is transmitted to the host. For ADDS emulation, the Home position is located on the lower left of the screen (column 1, line 24).

Print/Send — This key, when in block mode, causes a block of data to be sent to the host. Used with the Shift key, it causes the Print Screen command to be generated. Used with the Control key, copy mode will be toggled on/off.

PREV Page Next — Used without the Shift key, this key sends the command to page forward. Used with the Shift key, this key sends the command to page backwards.

ASCII Keyboard Cursor Control Keys

In addition to the edit keys, the ASCII keyboard has cursor control keys. They work as follows:

Arrow Keys — The Arrow keys control movement of the cursor by moving the cursor in the direction indicated by the arrow on the key top. The arrow keys, like F1 through F16 keys, can be programmed.

ASCII Keyboard Numeric Keypad

In addition to the cursor control keys, the ASCII keyboard has a numeric keypad. The numeric keypad is the small key cluster at the right side of the keyboard. Its keys work as follows:

Number Keys — The Number keys are used to enter numeric data.

Arithmetic Keys — The Arithmetic keys are used to perform arithmetic operations on numbers while in calculator mode. The arithmetic function of each key is shown on the keyface. Calculations can be made by pressing the desired number arithmetic function keys, and then pressing Enter.

Enter — Depending upon setup selections, pressing the Enter key causes either a carriage return, a carriage return with line

feed, or a tab to be performed. The Enter key is also used to temporarily store Function key and Arrow key contents as specified during programming sessions. Pressing the Enter key with the Shift or Control key in Block mode or Message mode will cause the data on the screen to be transmitted to the host. The Enter key is also used for calculations when in calculator mode. After pressing the desired numbers and arithmetic function keys, the Enter key will allow the terminal to perform the desired function.

Line Ins. Char

When used without the Shift key, this key inserts a space character at the current cursor position. All succeeding characters on the line are moved one position to the right, and any characters moved behind Column 80 are lost. When used with the Shift key, the current line is moved down one line and a blank line is inserted in its old position. The cursor moves to the first column of this new blank line. Data on the last line is lost.

This key is also used as the Clear Entry/Clear Key in the Calculator Mode. See Section 3 and the Technical Reference Guide for Calculator Mode details.

Line Del. Char

When used without the Shift key, this key causes the character at the current cursor position to be deleted and all succeeding characters on the line to be moved one position to the left. The last position on the line will be filled with a space character. When used with the Shift key, this key causes the current cursor line to be deleted. All following lines are moved up one line, and the cursor is moved to Column 1. The last line of the display is filled with space characters.

This key is also used as the Percent Key in the Calculator Mode. See Section 3 and the Technical Reference Guide for Calculator Mode details.

Scrn Clr. Line

When used without the Shift key, this key replaces all unprotected data from the cursor position to the end of the line with space characters. When used with the Shift key, all unprotected data from the cursor position to the end of the screen is filled with space characters.

This key is also used as the Divide Key in the Calculator Mode. See Section 3 and the Technical Reference Guide for Calculator Mode details.

Ins. Repl — When used without the Shift key, this key disables Insert Mode and selects Replace Mode. When used with Shift key, this key disables Replace Mode and selects Insert Mode.

This key is also used as the Multiplication (x) key in Calculator Mode. See Section 3 and the Technical Reference Guide for Calculator Mode details.

Now that you are familiar with the location and functions of your keyboard and terminal, the next step is to configure the Setup Menus and the Status Line of your terminal.

2

Section Two

Configure The Terminal

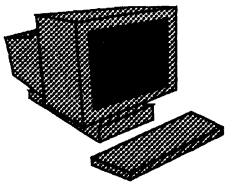


Table of Contents

Once you have set up your terminal and become familiar with the location and functions of the Keyboard, the next step is to explain the Single and Dual Session mode and then how to configure the specific parameters of your terminal.

Single and Dual Host Sessions

Your color terminal can run single or dual host sessions. A session is any data communication between your terminal and a host that is connected to one of the terminal's two serial ports. A single session involves one host that communicates to one terminal serial port. A dual host session involves either one host with two different host ports that communicate with two terminal serial ports or two hosts that communicate with two terminal serial ports.

Data from the keyboard or the screen display can be used only by one session at a time. However, both sessions receive data from their hosts at all times. The active session, labelled S1 (Session 1) or S2 (Session 2) on the status line, is the session that currently receives data from the keyboard or the screen display. Only the active session can receive data. If the data is received by the inactive session, the status line indicator flashes to alert you that data from the inactive session is present. A periodic beep also sounds if the Warning Bell Setup parameter is active. The inactive session will continue to receive data until its receive buffer fills. At that point, handshaking will occur if the receive handshaking parameter has been enabled (Ports Setup Menu).

Single or dual sessions in the Communications Setup Menu can be selected or toggled by a local command, CTRL-SHFT-ENTER, on the numeric keypad. To switch between sessions, use the local command CTRL-ENTER. Each session has its own characteristic except those defined by the Ports Setup Menu. Setup parameters apply only to the serial ports, which can be the host port 1 or host port 2 or printer port, and not individual sessions. Finally, the selection of two sessions will clear the terminal's display memory and all softfonts.

Setting Characteristics of the Other Session

To set the operating characteristics of the other session, you must first make it the active session, then enter Setup Mode to set operating parameters. Proceed as follows:

1. If you established dual session from Setup Mode, exit to the normal operating mode.

2. Press CTRL-ENTER on the numeric keypad to activate the other session.

3. Enter Setup Mode and set the operating parameters.

   With the exception of changes to the parameters that configure the serial ports, which apply to the ports and not the session, any changes you make apply only to this session.

   When the terminal is operating in dual sessions, the message 'Session 1' or 'Session 2' appears on each Setup Menu to indicate which session is active.

NOTE: Notice the difference between the local key sequence that establishes or discontinues dual sessions (CTRL-SHFT-ENTER) and the local key sequence that activates the alternate session (CTRL-ENTER). CTRL-SHFT-ENTER clears the screen.

Discontinuing Dual Sessions

You can discontinue dual sessions in one of two ways, as follows:

- ❑ Enter Setup Mode and set the Session parameter to 1.
- ❑ Press CTRL-SHFT-ENTER on the numeric keypad.

Either action will discontinue the inactive session. If you then re-establish dual sessions, the newly created session will have the same characteristics of the formerly inactive discontinued session.

If Session 2 is the active session at the time you discontinue Session 1, it will continue to be identified as Session 2 if and when you later re-establish dual sessions.

In dual sessions, each session maintains its own set of operating parameters independent of the other session. The parameters are set separately in Setup Mode and saved separately in the terminal's nonvolatile memory. For example, one session may be set for 80-column mode while the other session operates in 132-column mode.

Each session maintains independent data buffers for the redefinable keys and answerback or session ID message. The total memory available to each session for key definition is 512 bytes. The terminal's display memory is divided between the session. Only one page is available to each session when the terminal is configured in dual session mode.

Setup Mode and The Setup Menus

Setup modes are used to tailor the operating parameters of the terminal to match the requirements of the system into which it is integrated.

To enter the first Setup mode, press the Shift/Setup Keys (ASCII Keyboard). With an EPC keyboard, use ALT/ESC to enter the first Setup mode; with an ANSI keyboard, press CTRL/F3 or F3 to enter the first Setup mode. In Setup mode there is one Main Menu and eleven other menus to setup various features. Specific menus are reached through function keys F1 through F11. The features reached by specific function keys will always be listed at the bottom of each menu. The F12 is used as an exit key.

NOTE: The first time you power up the terminal we recommend that you default the terminal's setup mode. Use the right arrow key to highlight 'DEFAULT ALL' and then press the F12 key.

Each setup menu is separated into a series of parameter blocks. Each block contains all the possible values that may be assigned to that particular block.

To specify a parameter assignment, press the appropriate cursor arrow Key to advance through the blocks within a specific setup menu. For example, if you wish to reach the keyboard menu, press F3; then, to specify the Keyclick=On parameter, press the spacebar to scroll through your options. When the value appears on the screen, press the arrow key to adjust the next parameter. Observe that the block where a parameter assignment is to be made displays in bold reverse video. To review the possible values within a parameter block, press the space bar until the desired value displays and then move back from the block by pressing one of the cursor arrow Keys.

To save setup mode parameters, return to the Main Menu, use the Right arrow key to move to SAVE ALL, then press F12.

The Main Menu is the first menu displayed after you enter Setup Mode. The Main Menu allows access to other setup menus and to configure the operating characteristics of the terminal. Figure 2-1 illustrates the Main Menu. A description of the parameter blocks within the Main Menu follow Figure 2-1. The parameter block and its default value are highlighted and followed by a brief description Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

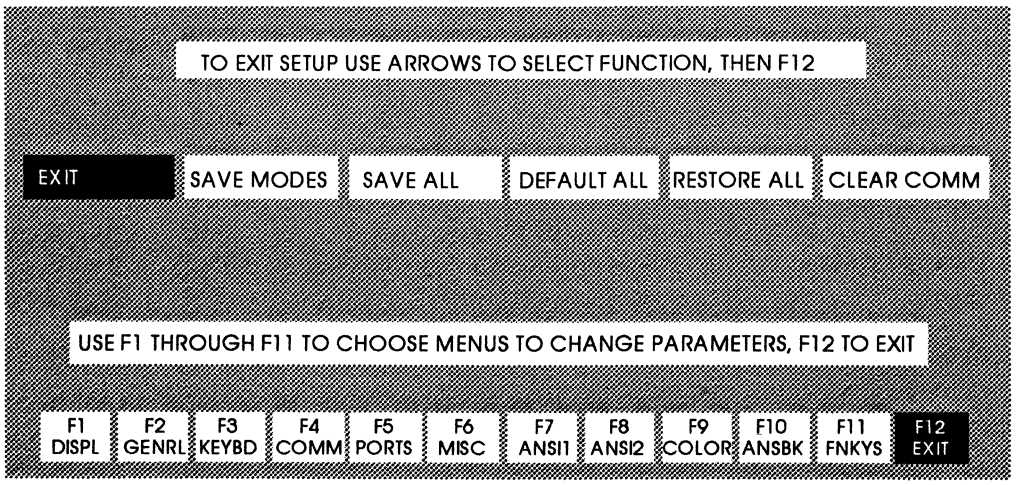


Figure 2-1
Main Menu

Exit — This is an Action Parameter Block. Pressing F12 causes the terminal to exit Setup Mode without saving your changes to parameter values.

Save Modes — This is an Action Parameter Block. Press F12 to save operating parameter changes only and then return the terminal to normal operating modes. Function key definitions, tabs, answerback message, and function key labels will not be saved.

Save All — This is an Action Parameter Block. Press F12 to cause all parameter values (operating parameters, tabs, function key definitions, answerback message, and function key labels) to be saved.

Default All — This is an Action Parameter Block. Press F12 to cause all setup parameter selections to be reset to their factory default setting.

Restore All This is an Action Parameter Block. Press F12 to cause previously saved parameter selections to be restored as operating parameters of the terminal.

Clear Comm Move the cursor to this parameter, then press F12 to reset the communication buffer and unlock the keyboard. This parameter resets the communication when the terminal fails to send or print, then hangs up (especially when it tries to print but the printer is not connected).

When you have configured the Main Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Main Menu. The next menu to setup is the Display Menu; press F1 to access it.

Display (F1) Menu

The Display Menu (F1) is used to specify the viewable characteristics of the display. Figure 2-2 illustrates the Display Menu and the terminal default values. A description of the parameter blocks within the Display Menu follow Figure 2-2. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

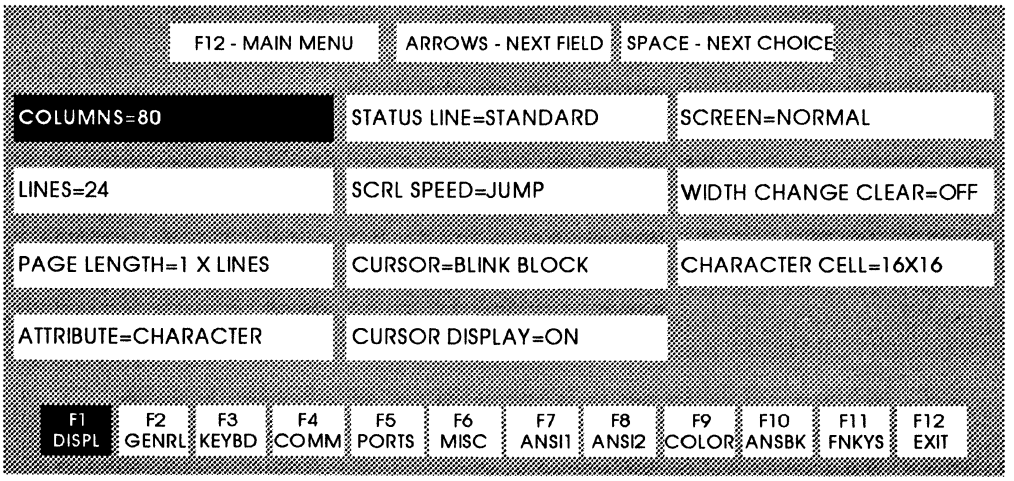


Figure 2-2
Display Menu

Columns=80 This parameter sets screen Display for 80, 132, or Economy-80 columns (80 columns with more pages of memory).

Status Line=Standard This parameter selects whether the screen Displays a Status Line with time and cursor line and column indicators (STANDARD), a Status Line with editing Status Message (EXTENDED), or no status line (OFF).

Screen=Normal This parameter selects whether dark text is displayed on a light background (reverse video) or light text is displayed on a dark background (normal video). Your options are NORMAL and REVERSE.

Lines=24 This parameter selects whether the screen displays 24, 25, 42, or 43 data lines and status line. In both 24 and 42 data line mode, the Label Line can also be displayed.

Scrl Speed=Jump This parameter sets the display scroll rate to JUMP (the rate data is received), SMOOTH-8 (eight lines per second), SMOOTH-4, SMOOTH-2, or SMOOTH-1.

Width Change Clear=OFF When the terminal executes a command to change the number of columns, the terminal will not clear the screen if this mode is OFF. The terminal will clear the screen with this mode ON.

Page Length=1xLines This parameter selects the length of a page of display memory to 1xLINES (equal to the number of lines selected in the lines parameter), 2xLINES (two times the value of the lines parameter), 4xLINES (four times the value of the lines parameter), or 1xLINES,REM (equal to the value of the lines parameter, with a second page containing the rest of the lines that remain in memory).

Cursor=Blink Block This parameter sets the cursor display to BLINK or STEADY, BLOCK or UNDERLINE.

Character Cell=16x16 This parameter selects the character cell size. This will affect the refresh rate of the terminal. Your options are 16x16, which is the 65 Hz screen refresh, and 16x13, which is the 78 Hz refresh.

Attribute=Character This parameter sets the display attributes to be assigned to each character as it is entered (CHAR), to be active to end of line (LINE), or to be active to end of page (PAGE).

Cursor Display=On This parameter sets the cursor display to ON (visible) or OFF (invisible).

When you have configured the Display Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Display Menu. The next menu to set is the General Menu; press F2 to access it.

General (F2) Menu

The General Menu (F2) sets the terminal's emulation mode and general operating parameters. Figure 2-3 illustrates the General Menu you will see on your screen. A description of the parameter blocks in the General Menu follows Figure 2-3. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

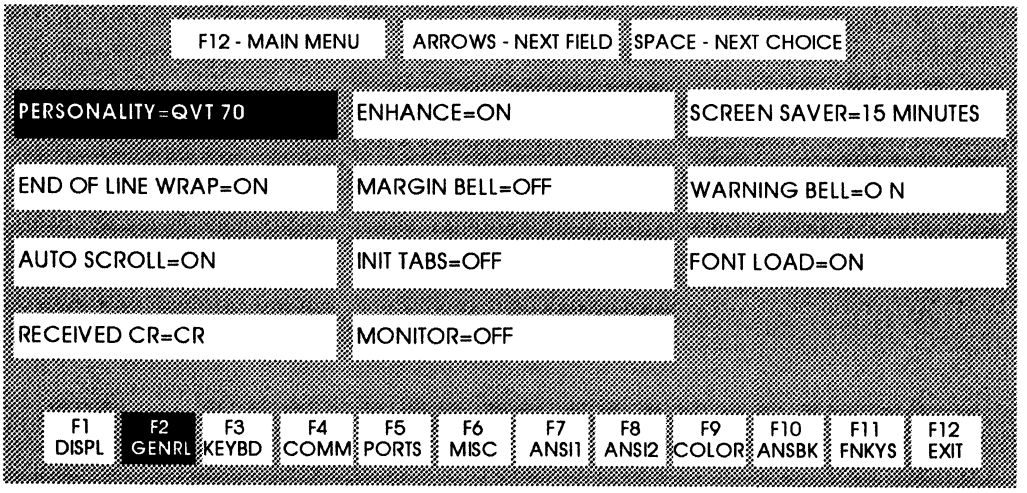


Figure 2-3
General Menu

Personality=QVT 70 This parameter tells you what emulation (WY370-7, WY370-8, Intercolor 220, Esprit III, SCO Unix, WY325, WY350, WY60, WY50+, TVI 910+, TVI 925, TVI 950, TVI 955, PC-TERM, ADDS A2, VT52, VT100, VT220-7, VT220-8, QVT 70, or QVT 62) your terminal is currently in.

NOTE: The terminal personality must match the system software.

Enhance=On When set to ON, this parameter allows the terminal to recognize an enhanced set of WYSE 60 commands which are inaccessible when the terminal is in non-native personalities (WYSE 350, for example). When set to OFF, native personalities have no access to WYSE 60 superset.

Screen Saver= 15 Minutes This parameter selects the amount of time of inactivity on the terminal before the screen saver (blank screen) feature is activated. The screen will reappear after a keystroke or after the terminal receives data from the host. The time selections are OFF, 1, 5, and 15 minutes.

End of Line Wrap=Off This parameter will cause the cursor to move to the start of the next line when additional characters are entered at the end of the line with End Of Line Wrap Mode ON. OFF=Cursor will stay in last column.

Margin Bell=Off This parameter enables or disables the terminal's bell that rings when the cursor reaches the column where the bell is set. The default is column 72 in 80-column mode or column 124 in 132-column mode.

Warning Bell=Off This parameter enables or disables a warning bell when the operator presses an illegal key sequence or when the inactive session receives data.

Auto Scroll=On This parameter will cause the data to scroll up a line when the cursor moves past the last line of the page. When Auto Scroll=Off, data will not be scrolled up when the cursor moves past the last line of the page.

Init Tabs=Off With Init Tabs ON, tab stops are initialized from non-volatile memory when the terminal is turned on. Tab stops will be cleared with the Init Tabs Mode OFF.

Font Load=On If Font Load mode is ON, the terminal loads the appropriate character set when it changes personalities or the number of display lines. The terminal does not change the current character set if the Font Load mode is OFF.

Received CR=CR This parameter will cause the cursor to move to the start of the current line (CR) or the start of the next line (CRLF) when the terminal receives an ASCII CR.

Monitor=Off With Monitor Mode ON, the terminal will display symbols for escape sequences and control codes but won't act on them. With Monitor Mode OFF, the terminal will execute escape sequences and control codes.

When you have configured the General Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the General Menu. The next menu to set is the Keyboard Menu; press F3 to access it.

Keyboard (F3) Menu

The Keyboard Menu (F3) is used to define the operational features of the keyboard. Figure 2-4 illustrates the Keyboard Menu you will see on your screen. A description of the parameter blocks within the Keyboard Menu follows Figure 2-4. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

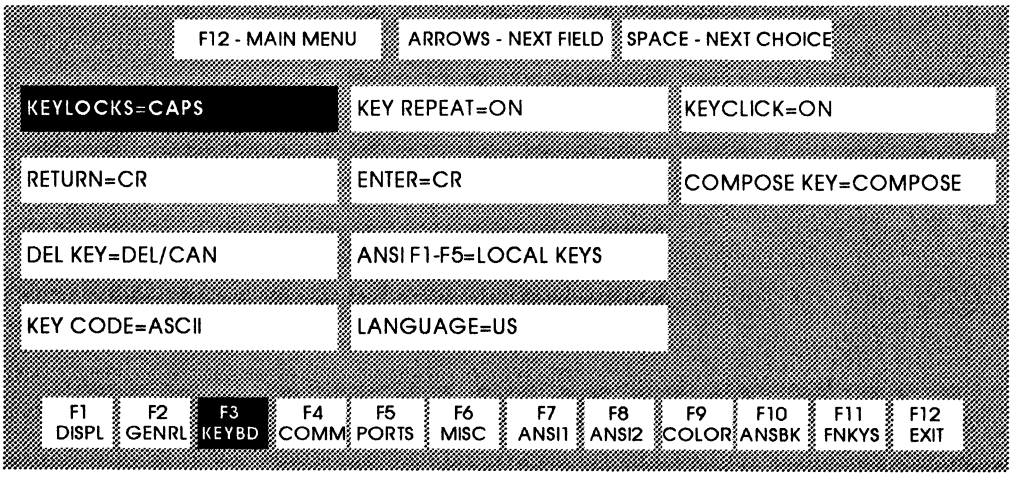


Figure 2-4
Keyboard Menu

Keylock=Caps When CAPSLOCK is engaged, and CAPS Mode is selected, alphabetic keys generate uppercase characters only. When you select REV Mode, shifted alphabetic keys generate lower case characters and unshifted keys generate uppercase characters.

Key Repeat=On This parameter will cause the keys to repeat when they are held down for more than half a second.

Keyclick=Off This parameter enables or disables the terminal to sound a muted beep each time a key is pressed or repeated.

Return=CR Press the Return Key to send the ASCII Carriage Return (CR) character, Carriage Return and Line Feed (CRLF), or Horizontal Tab (TAB).

Enter=CR Press the Enter Key to send the ASCII Carriage Return (CR) character, Carriage Return and Line Feed (CRLF) or Horizontal Tab (TAB).

FUNCT KEY=FUNCT When FUNCT KEY=FUNCT is selected, the FUNCT key, followed by any other key, transmits a user-selected character bracketed by a Start of Header (SOH) code and a Carriage Return (CR) code. When FUNCT KEY=HOLD is selected, the HOLD key freezes the data on the screen. When FUNCT KEY=COMP is selected, pressing this key starts a compose sequence to create characters that don't appear on any single key (e.g., an umlaut). When COMPOSE KEY=INACTIVE, Funct key has no effect or use.

The above applies to an ASCII keyboard. With an ANSI keyboard, 'FUNCT' automatically changes to 'Compose.' With an EPC keyboard, 'FUNCT' automatically changes to 'Left Alt.' The featuresabove apply for allkeyboards.

DEL Key=DEL/CAN This parameter selects whether the DEL key generates BS/DEL code or DEL/CAN codes.

ANSI F1-F5= LOCAL KEYS This field defines the function keys F1 through F5 on the 105 key ANSI keyboard to perform predefined special functions you cannot change and that are independent of your application programs (LOCAL KEYS) or to be user definable function keys (FUNCTION KEYS). With an ANSI keyboard, ANSI F1-F5=FUNCTION KEYS causes the F1, F2, F3, and F5 functions to move to, respectively, F17, F18, F19, and F20. Note that the F3 key, the Setup key, moves to F19.

Key Code=ASCII This field selects whether the terminal sends the ASCII data or IBM make/break SCAN Codes. Options are ASCII and SCAN. When the PC TERM personality mode is selected (see General Menu, page 2-7), SCAN is

automatically selected. When any other personality mode is selected, this field automatically becomes ASCII.

Language=US This parameter sets the correct terminal operation for the language of the keyboard connected to the terminal. Your choices are US, UK, Danish, German, German, Spanish, Swedish, Norwegian, Italian, FR Canadian, Finnish, Swiss (French), Swiss (German), and German (GS). Your choice will depend on the type of keyboard you attach.

When you have configured the Keyboard Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Keyboard Menu. The next menu to set is the Communications Menu; press F4 to access it.

Communications (F4) Menu

The Communications Menu (F4) is used to define the communications parameters between the terminal and the host. Figure 2-5 illustrates the Communications Menu you will see on your screen. A description of the parameter blocks within the Communications Menu follows Figure 2-5. Each of these parameter blocks, in Figure 2-5, are described below. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

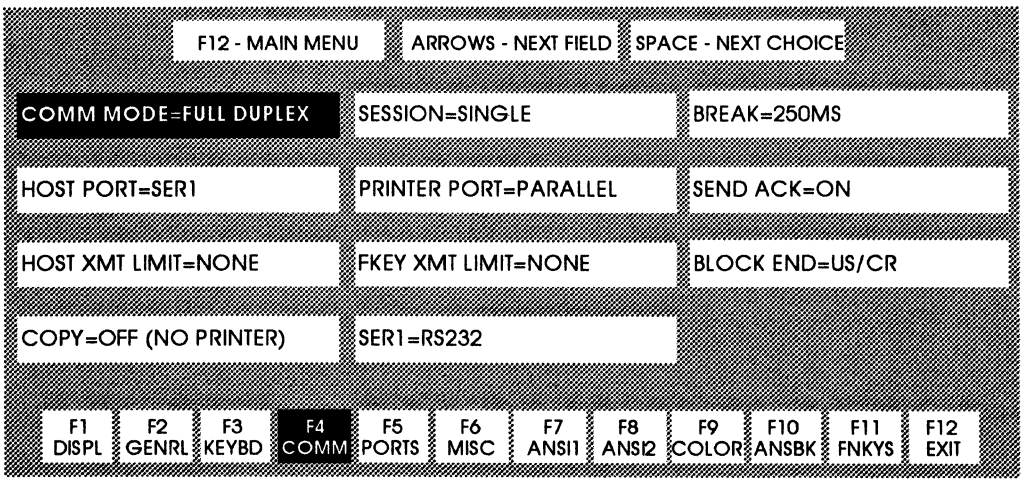


Figure 2-5
Communications Menu

NOTE: These parameters must be selected to match your system setup.

Comm Mode=Full Duplex	This parameter sets the terminal communication mode to full duplex (FDX), block (BLK), half-duplex (HDX), or half-duplex block (HBLK).
Session=Single	This parameter selects either a single or dual session.
Break=250ms	The Break parameter sets the duration of the BREAK signal sent from the terminal to the Comm port. Your choices are 170ms, 250ms, and 500ms.
Host Port=SER1	This parameter selects whether SER1 or SER2 will be the host port for the current active session.
Printer Port=Parallel	This parameter selects whether a serial port or a parallel port is used as the printer port. If dual session is selected in the SESSION field, data to printer port will be routed to the parallel port.
Send ACK=On	With Send ACK ON the terminal sends an ASCII ACK (06) hex character to the computer after executing certain commands. With ACK OFF, no acknowledgement occurs.
Host Xmt Limit=None	This parameter causes terminal to send host data as baud rate allows (NONE) or a maximum rate of 60, 35, or 150 cps.
Fkey Xmt Limit= NONE	This parameter causes the terminal to send function key content as fast as the baud rate allows (NONE) or at a maximum rate of 60 cps, 35 cps, or 150 cps.
Block End=US/CR	This parameter causes the terminal to send a block of data to the computer with a line terminator as an ASCII US character and block terminator as an ASCII CR character (US/CR), or with line terminators as ASCII CR and LF characters and the block terminator as an ASCII ETX character (CRLF/ETX).
Copy=Off (No Printer)	This parameter selects the current status of the copy mode. Your choices are OFF, AUTO PRINT, or CTRL PRINT. This parameter affects what happens to data received from the host. In AUTO PRINT mode, the printer prints the current cursor line when you move the cursor off that line with an LF, FF, or VT character, or an Autowrap occurs. The printed

line ends with a CR LF. CTRL PRINT lets the host control the printer operation. The terminal bypasses data from the host and sends them directly to the printer without displaying them on the screen. OFF disables printer interface. If there is no printer attached to the printer port, (No Printer) will be displayed.

SER1=RS232 This parameter selects RS232 or RS422/current loop for Serial Port 1.

When you have configured the Communications Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Communications Menu. The next menu to set is the Ports Menu; press F5 to access it.

Ports (F5) Menu

The Ports Menu (F5) is used to define terminal parameters. Figure 2-6 illustrates the Ports Menu you will see on your screen. A description of the parameter blocks within the Ports Menu follows Figure 2-6. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

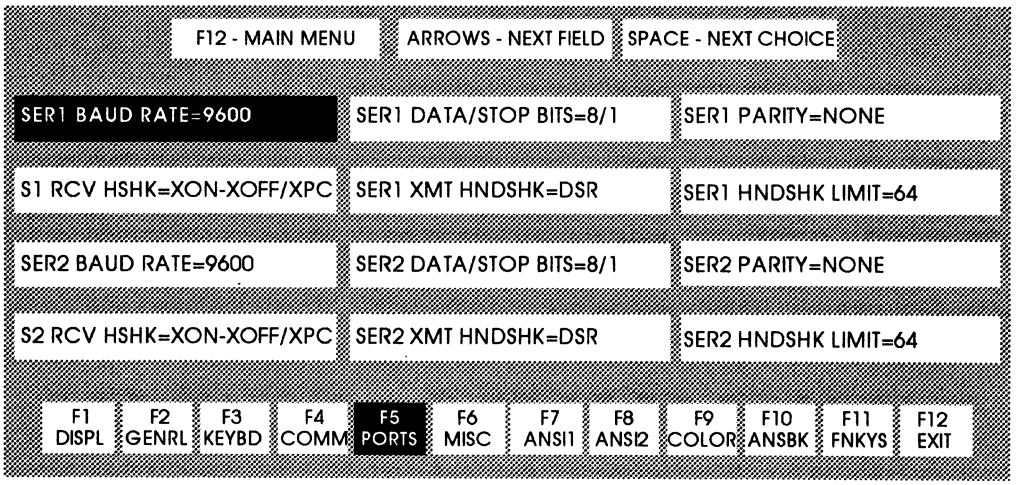


Figure 2-6
Ports Menu

SER1 Baud Rate=9600	This parameter sets the SER1 port baud rate to 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 19200, 38400, 57600, or 76800.
SER1 Data/Stop Bit=8/1	Through the SER1 port, the terminal sends and receives 8-bit data with one stop bit (8/1), 7-bit data with two stop bits (7/2), 8-bit data with 2 stop bits (8/2), or 7-bit data with one stop bit (7/1).
SER 1 Parity=NONE	The terminal sends data to SER1 port with No Parity (NONE), ODD Parity (ODD), a high parity (MARK), a low parity (SPACE), or EVEN parity (EVEN).
SER1 RCV Hndshk= XON-XOFF/XPC	This parameter allows the terminal to control the receipt of data from a device connected to the SERIAL 1 Port with no handshaking (NONE), XOn/XOff/XPC handshaking, DTR handshaking, or both DTR and XOn/XOff handshaking. When KEY CODE=SCAN is selected (see parameter below), then the XOn/XOff value is replaced with XPC (also with combinations of hardware handshaking). When XON/XOFF option is selected and the input buffer fills to 64, 128, or 192 characters, the terminal sends an XOFF character to stop the host system from sending more characters.

NOTE: To prevent data loss, settings must match your system setup.

SER1 XMT Hndshk= DSR	This parameter causes the terminal to ignore all incoming software handshaking signals (NONE) when it sends data to the SER1 port. Your other options are XON/XOff, DSR handshaking, or both. If XON/XOFF option is enabled, the terminal recognizes received XON and XOFF characters. When terminal receives XOFF, it stops sending data. The terminal resumes transmission when it receives XON.
SER1 HNDSHK LMT=64	The handshake level parameter regulates whether the SER1 port handshakes when 64, 128, or 192 characters have accumulated in the buffer.
SER2 Baud Rate=	This parameter sets the SER2 port baud rate to 50, 75,

9600	110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 19200, 38400, 57600, or 76800.
SER2 Data/Stop Bit=8/1	Through the SER2 port, the terminal sends and receives 8-bit data with one stop bit (8/1), 7-bit data with two stop bits (7/2), 8-bit data with 2 stop bits (8/2), or 7-bit data with one stop bit (7/1).
SER2 Parity=NONE	The terminal sends data to the SER2 port with No Parity (NONE), ODD Parity (ODD), a high parity (MARK), a low parity (SPACE), or EVEN parity (EVEN).
SER2 RCV Hndshk= XON-XOFF/XPC	This parameter allows the terminal to control the receipt of data from a device connected to the Serial Port with no handshaking (NONE), XOn/XOff/XPC handshaking, DTR handshaking, or both DTR and XOn/XOff handshaking. When KEY CODE=SCAN is selected (see parameter below), then the XOn/XOff value is replaced with XPC (also with combinations of hardware handshaking). When XON/XOFF option is selected and the input buffer fills to 64, 128, or 192 characters, the terminal sends an XOFF character to stop the host system from sending more characters.

NOTE: To prevent data loss, settings must match your system setup.

SER2 XMT Hndshk= DSR	This parameter causes the terminal to ignore all incoming software handshaking signals (NONE) when it sends data to the SER2 port. Your other options are XON/XOff, DSR handshaking, or both. If XON/XOFF option is enabled, the terminal recognizes received XON and XOFF characters. When terminal receives XOFF, it stops sending data (except XON/XOFF characters). The terminal resumes transmission when it receives XON.

SER2 HNDSHK LMT=64 — The handshake level parameter regulates whether the SER2 handshakes when 64, 128, or 192 characters have accumulated in the buffer.

When you have configured the Ports Menu, and you are ready to configure the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys at the bottom of the Ports Menu. The next menu is the Miscellaneous Menu; press F6 to access it.

Miscellaneous (F6) Menu

The Miscellaneous Menu (F6) is used to define terminal parameters. Figure 2-7 illustrates the Miscellaneous Menu you will see on your screen. A description of the parameter blocks within the Miscellaneous Menu follows Figure 2-7. The parameter block and its default value are followed by a brief description. Use cursor arrows to move between parameter blocks and spacebar to scroll settings.

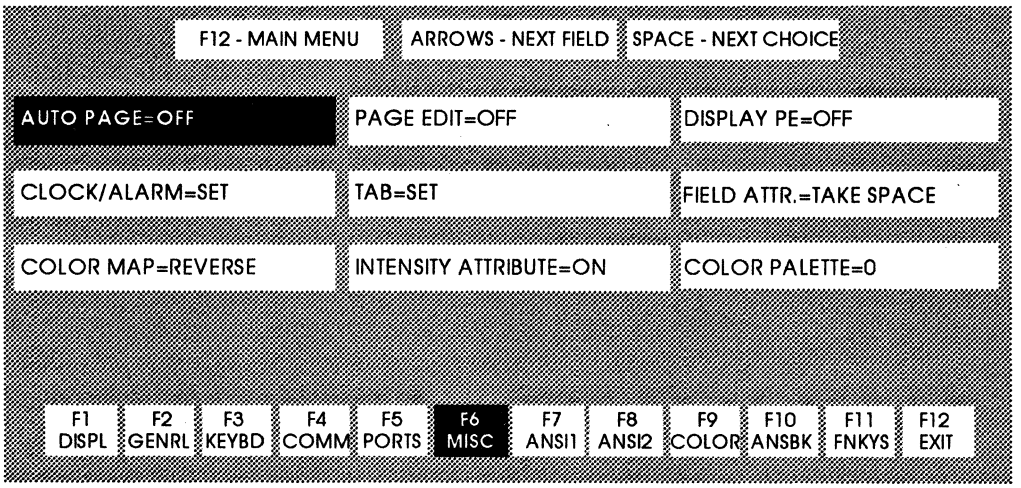


Figure 2-7
Miscellaneous Menu

Auto Page=Off — When Auto Page=On, the terminal brings a new page of memory onto the screen when cursor reaches the top or bottom of page.

Page Edit=Off — The terminal's edit functions affect entire page if Page Edit Mode is ON and affects cursor line if Page Edit Mode is OFF.

Display PE=Off This parameter selects whether to display the parity error symbol or not. The parity error symbol is 0.

Clock/Alarm=Set This parameter allows you to set the terminal clock, alarm, and an alarm message of up to 40 ASCII characters. Press the spacebar to call up the menu, use the Up Arrow and Down Arrow to move up and down the clock/alarm menu, then press the Enter key on the keypad to change values. Clock/Alarm settings are cleared when terminal is powered off.

TAB=Set This parameter allows you to set tab stops. Press the spacebar to access the Tabs submenu. Press the spacebar to call up the menu, use the Right and Left Arrows to move around the tabulation line, then press the Home key to clear, the Spacebar to toggle tabs, and the Backspace key to return to default settings. A tab setting cannot be set in Column 1. When finished, press any Function key to return to that Setup menu.

FIELD ATTR= TAKE SPACE This parameter determines whether field attributes take up spaces. Your choices are no (TAKE SPACE) or yes (NO SPACE).

NOTE: The 'Color Map,' 'Intensity Attribute,' and 'Color Palette' parameters below select foreground and background colors for WY 325, WY 60, WY 50+, TVI 910+, TVI 925, TVI 955, QVT 70, QVT 62, PC Term, and ADDS A2 emulations. The color palette also selects foreground colors for WYSE 350, Esprit III, and TVI 950 emulations. To select background and foreground colors in ANSI, VT, WY 350, WY 370, Intercolor, Esprit III, and TVI 950 emulations, refer to the Color (F9) Setup Menu.

Color Map=Reverse The color map parameter controls the intensity of three types of characters, Data, Replacement, and Status Line. The settings are Reverse and Blank. In order for these characters to be blanked (invisible), this parameter must be set to Blank and a blank attribute assigned to the character. If this parameter is set to Reverse and a blank attribute is assigned to the character, the character will display as if it had a normal attribute. The default setting is Reverse. Table 2-1 details the different effects of these two settings.

Table 2-1
Color Map Setting Effects

Setting	Assigned Attribute	Effect
Reverse	Reverse	Characters will be displayed in the colors that are assigned in the color palette.
	Blank	Characters will be visible in the colors assigned to the normal attribute.
Blank	Reverse	Characters will be displayed in the reverse of the colors that are assigned to the normal attribute.
	Blank	Characters will be invisible. Background color will be the color assigned to the blank attribute in the color palette.

Intensity Attribute=On This parameter enables (ON) (default) or disables (OFF) the intensity control in the terminal's hardware. Characters can be dimmed through terminal hardware or by assigment of a Dim attribute. If ON, all characters assigned Dim attribute appear dimmer than usual, even dimmer than those on screen. If OFF, all characters assigned Dim attribute will appear normal brightness.

Color Palette=5 This parameter allows access to 16 different color palettes, with eight colors for each palette. Each palette determines the foreground and background colors for each of the eight attribute combinations. See Table 2-2 for the 16 color palettes and attribute combinations for WY 325/60/50+, TVI 910+/925/955, QVT 70/62, PC Term, and ADDS A2. See Table 2-3 for foreground colors of WYSE 350, Esprit III, and TVI 950 emulations.

Table 2-2
Color Palettes

Palette	Foreground	Background	Attribute
0	Green	Black	Normal
	Black	Yellow	Reverse (or Blank)
	Blue	Black	Dim
	Black	Blue	Dim, Reverse (or Blank)
	Cyan	Black	Underline
	Black	Cyan	Underline, Reverse (or Blank)
	Red	Black	Dim Underline
	Black	Red	Dim, Underline, Reverse (or Blank)

Palette	Foreground	Background	Attribute
1	Green	Black	Normal
	Black	Red	Reverse (or Blank)
	Yellow	Black	Dim
	Black	Yellow	Dim, Reverse (or Blank)
	Cyan	Black	Underline
	Black	Cyan	Underline, Reverse (or Blank)
	White	Black	Dim Underline
	Black	White	Dim, Underline, Reverse (or Blank)
2	Cyan	Black	Normal
	Black	White	Reverse (or Blank)
	Red	Black	Dim
	Black	Red	Dim, Reverse (or Blank)
	Magenta	Black	Underline
	Black	Magen ta	Underline, Reverse (or Blank)
	Blue	Black	Dim Underline
	Black	Blue	Dim, Underline, Reverse (or Blank)
3	Cyan	Black	Normal
	Black	Blue	Reverse (or Blank)
	White	Black	Dim
	Black	White	Dim, Reverse (or Blank)
	Magenta	Black	Underline
	Black	Magenta	Underline, Reverse (or Blank)
	Yellow	Black	Dim Underline
	Black	Yellow	Dim, Underline, Reverse (or Blank)
4	Magenta	Black	Normal
	Black	Cyan	Reverse (or Blank)
	Blue	Black	Dim
	Black	Blue	Dim, Reverse (or Blank)
	Green	Black	Underline
	Black	Green	Underline, Reverse (or Blank)
	Red	Black	Dim Underline
	Black	Red	Dim, Underline, Reverse (or Blank)
5	Magenta	Black	Normal
	Black	Yellow	Reverse (or Blank)
	White	Black	Dim
	Black	White	Dim, Reverse (or Blank)
	Green	Black	Underline
	Black	Green	Underline, Reverse (or Blank)
	Cyan	Black	Dim Underline
	Black	Cyan	Dim, Underline, Reverse (or Blank)

Palette	Foreground	Background	Attribute
6	Yellow	Black	Normal
	Black	Yellow	Reverse (or Blank)
	Red	Black	Dim
	White	Red	Dim, Reverse (or Blank)
	Cyan	Black	Underline
	Red	Cyan	Underline, Reverse (or Blank)
	Magenta	Black	Dim Underline
	White	Magenta	Dim, Underline, Reverse (or Blank)
7	Red	Black	Normal
	Yellow	Red	Reverse (or Blank)
	Magenta	Black	Dim
	Yellow	Magenta	Dim, Reverse (or Blank)
	Cyan	Black	Underline
	Red	Cyan	Underline, Reverse (or Blank)
	Green	Black	Dim Underline
	Magenta	Green	Dim, Underline, Reverse (or Blank)
8	White	Black	Normal
	Black	White	Reverse (or Blank)
	Red	Black	Dim
	Black	Red	Dim, Reverse (or Blank)
	Yellow	Black	Underline
	Black	Yellow	Underline, Reverse (or Blank)
	Magenta	Black	Dim Underline
	Black	Magenta	Dim, Underline, Reverse (or Blank)
9	White	Black	Normal
	Black	White	Reverse (or Blank)
	Yellow	Black	Dim
	Black	Yellow	Dim, Reverse (or Blank)
	Blue	Black	Underline
	Black	Blue	Underline, Reverse (or Blank)
	Cyan	Black	Dim Underline
	Black	Cyan	Dim, Underline, Reverse (or Blank)
10	Green	Black	Normal
	Black	Yellow	Reverse (or Blank)
	Blue	Black	Dim
	Black	Blue	Dim, Reverse (or Blank)
	Cyan	Black	Underline
	Black	Cyan	Underline, Reverse (or Blank)
	Red	Black	Dim Underline
	Black	Red	Dim, Underline, Reverse (or Blank)

Palette	Foreground	Background	Attribute
11	Amber	Black	Normal
	Black	White	Reverse (or Blank)
	Red Orange	Black	Dim
	Black	Red Orange	Dim, Reverse (or Blank)
	Pale Yellow	Black	Underline
	Black	Pale Yellow	Underline, Reverse (or Blank)
	Red Orange	Black	Dim Underline
	Black	Red Orange	Dim, Underline, Reverse (or Blank)
12	Purple	Black	Normal
	Black	Hot Pink	Reverse (or Blank)
	Faded Rose	Black	Dim
	Black	Faded Rose	Dim, Reverse (or Blank)
	Bright Blue	Black	Underline
	Black	Bright Blue	Underline, Reverse (or Blank)
	Faded Rose	Black	Dim Underline
	Black	Faded Rose	Dim, Underline, Reverse (or Blank)
13	Gray	Black	Normal
	Black	Blue Purple	Reverse (or Blank)
	Charcoal Gray	Black	Dim
	Black	Charcoal Gray	Dim, Reverse (or Blank)
	Medium Blue	Black	Underline
	Black	Medium Blue	Underline, Reverse (or Blank)
	Charcoal Gray	Black	Dim Underline
	Black	Charcoal Gray	Dim, Underline, Reverse (or Blank)
14	Sky Blue	Black	Normal
	Black	Blue Green	Reverse (or Blank)
	Bright Green	Black	Dim
	Black	Bright Green	Dim, Reverse (or Blank)
	Chartreuse	Black	Underline
	Black	Chartreuse	Underline, Reverse (or Blank)
	Bright Green	Black	Dim Underline
	Black	Bright Green	Dim, Underline, Reverse (or Blank)
15	Lime Green	Black	Normal
	Black	Chartreuse	Reverse (or Blank)
	Khaki Green	Black	Dim
	Black	Khaki Green	Dim, Reverse (or Blank)
	Bright Green	Black	Underline
	Black	Bright Green	Underline, Reverse (or Blank)
	Khaki Green	Black	Dim Underline
	Black	Khaki Green	Dim, Underline, Reverse (or Blank)

Table 2-3 (Left Half)
TVI950/WY350/ESPRIT III Foreground Colors
[Normal, Reverse, Underline, Underline Reverse]

	Normal	Reverse	Underline	Underline Reverse
1	Amber	White	Pale Yellow	Pale Yellow
2	Green	Cyan	Faded Blue Green	Faded Blue Green
3	White	Yellow	Amber	Amber
4	Cyan	White	Green	Green
5	Light Purple	Hot Pink	Bright Blue	Bright Blue
6	Yellow	Red Orange	Orange Brown	Orange Brown
7	Sky Blue	Blue-Green	Chartreuse	Chartreuse
8	Gray	Blue-Purple	Medium Blue	Medium Blue
9	Lime Green	Chartreuse	Bright Green	Bright Green
10	Cream	Orange Brown	Sage Green	Sage Green
11	White	Sky Blue	Chartreuse	Magenta
12	White	Red-Orange	Green	Yellow
13	Green	Green	Green	Green
14	White	White	White	White
15	Amber	Amber	Amber	Amber
16	White	Red	Green	Yellow

Table 2-3 (Right Half)
TVI950/WY350/ESPRIT III Foreground Colors
[Dim, Dim Reverse, Dim Underline, Dim Reverse Underline]

	Dim	Dim Reverse	Dim Underline	Dim Reverse Underline
1	Red Orange	Red Orange	Red Orange	Red Orange
2	Light Blue-green	Light Blue-green	Light Blue-green	Light Blue-green
3	Red	Red	Red	Red
4	Electric Blue	Electric Blue	Electric Blue	Electric Blue
5	Faded Rose	Faded Rose	Faded Rose	Faded Rose
6	Deep Red	Deep Red	Deep Red	Deep Red
7	Bright Green	Bright Green	Bright Green	Bright Green
8	Charcoal Gray	Charcoal Gray	Charcoal Gray	Charcoal Gray
9	Khaki Green	Khaki Green	Khaki Green	Khaki Green
10	Tan	Tan	Tan	Tan

	Dim	Dim Reverse	Dim Underline	Dim Reverse Underline
11	Blue-Green	Purple	Amber	White
12	Blue	Light Purple	Cyan	White
13	Bright Green	Bright Green	Bright Green	Bright Green
14	Light Gray	Light Gray	Light Gray	Light Gray
15	Orange Brown	Orange Brown	Orange Brown	Orange Brown
16	Blue	Light	Cyan	Amber

When you have configured the Miscellaneous Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Miscellaneous Menu. The next menu to set is the ANSI1 Menu; press F7 to access it.

ANSI1 (F7) Menu

Figure 2-8 illustrates the ANSI1 Menu (F7) you will see on your screen. A description of the parameter blocks in the ANSI1 Menu follows Figure 2-8. Each of these parameter blocks, in bold in Figure 2-8, are described below. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

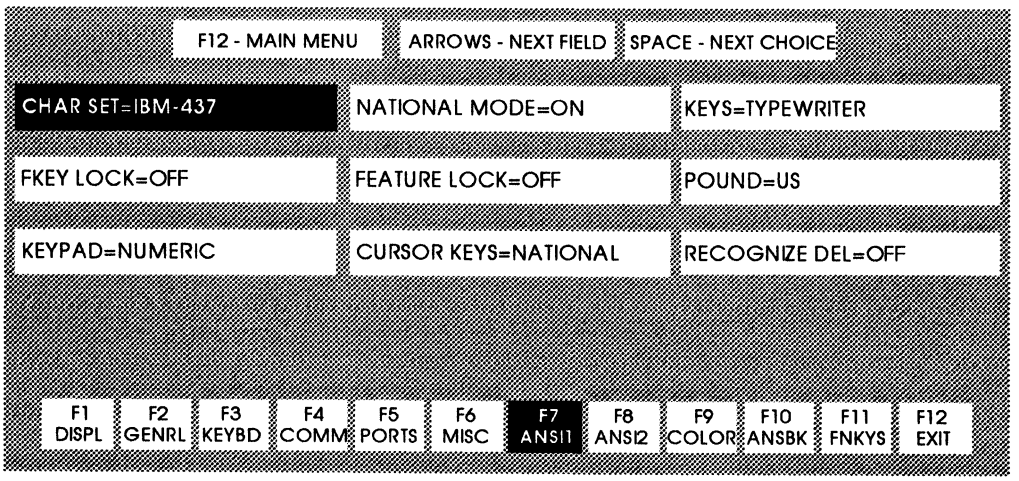


Figure 2-8
ANSI1 Menu

Character Set= DEC-Supl	This parameter selects the character set. Your options are IBM-437, IBM-850, DEC Supplemental, or ISO Latin.
National Mode=Off	This parameter determines whether or not the terminal processes 8-bit multinational characters (OFF) or 7-bit national replacement characters based on the keyboard language (ON).
Keys=Typewriter	This parameter determines whether you use the standard characters shown on the left half of the keycaps (TYPEWRITER) or the alternate characters shown on the right half of the keycaps (DATA PROCESSING).
FKey Lock=Off	Redefinable function key definitions can be redefined by the host application programs (OFF) or cannot be redefined by the host (ON).
Feature Lock=Off	This User Preference feature can be redefined by the host application program (OFF) or locked so that they cannot be redefined by the host (ON).
Pound=US	When the terminal receives an ASCII # character (23H), the character displayed is a US pound symbol (#) or a British pound symbol (£).
Keypad=Numeric	Numeric keypad keys send numeric digits on the keypad or application specific control codes and escape sequences. The application setting cannot be saved in nonvolatile memory. This parameter always returns to numeric option when power is turned on.
Cursor Keys=Normal	The cursor keys send NORMAL cursor movement commands or the application specific control codes and escape sequences. The application option cannot be saved in nonvolatile memory. This parameter always returns to normal when power is turned on.
Recognize DEL=Off	When RECOGNIZE DEL=ON, receipt of a DEL code will move the cursor back one character from the cursor position and delete the character. There is no action when Recognize DEL is set in the OFF position.

When you have configured the ANSI1 Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the ANSI1 Menu. The next menu to set is the ANSI2 Menu; press F8 to access it.

Figure 2-9 illustrates the ANSI2 Menu (F8) you will see on your screen. A description of the parameter blocks within the ANSI2 Menu follows Figure 2-9. Each of these parameter blocks, in bold in Figure 2-9, are described below. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

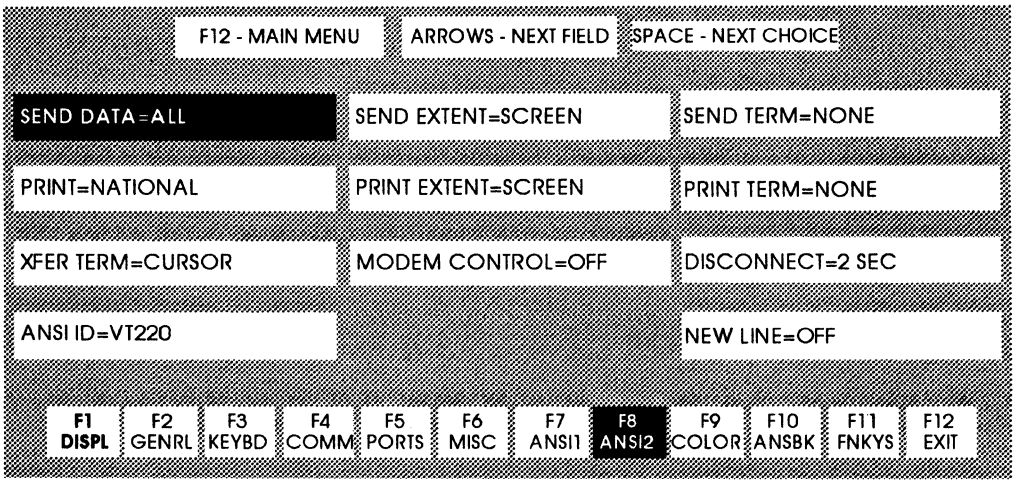


Figure 2-9
ANSI2 Menu

Send Data=All — In block transmission mode, erasable and nonerasable data is sent to the host (ALL) or only erasable data is sent to the host (ERASABLE).

Send Extent=Screen — In a send page operation, the terminal sends to the host the data from the page (SCREEN) or defined scrolling region (SCROLL REGION).

Send Term=None — At the end of a send page operation, no terminator character is sent (NONE) or a formfeed character (FF) is sent (FORMFEED).

Print=National — While in a print page or print line operation, escape sequences are not sent and non-ASCII characters are replaced with ASCII underline characters (NATIONAL) or escape sequences and control codes are sent, which allows ASCII and line-draw graphics characters to print, and

character and line attributes (LINE DRAWING) or escape sequences and control codes are sent, which allows ASCII, line-draw, multinational, and softfont characters to print, and character and line attributes (MULTINATIONAL).

Print Extent=Screen — In a page print operation, the terminal sends to the printer port the data from the page (SCREEN) or defined scrolling region (SCROLL REGION).

Print Term=None — At the end of a send page operation, no terminator character is sent (NONE) or a formfeed character (FF) is sent (FORMFEED).

Xfer Term= Cursor — Terminal transmits blocks of data to the host that end at cursor position (CURSOR) or at end of page or line (EOS).

Modem Control=Off — When the terminal transmits and receives data, modem control pins on the host port are either ignored (OFF) or enabled (ON). Set to ON if you use a modem that requires DEC-compatible modem control signals, pin 5 CTS, pin 6 DSR, pin 8 DCD.

Disconnect=2 Sec — When the Modem Control parameter is set to ON, the terminal will disconnect after the receive line signal detect (RLSD) goes low for 2 seconds or 60 milliseconds.

ANSI ID=VT220 — In response to a host request, your terminal will identify itself as either a VT100 type terminal, a VT101 type terminal, a VT102 type terminal, or a VT220 type terminal.

NEW LINE=OFF — This parameter works only in ANSI modes. When OFF, received LF, FF, and VT will perform LineFeed function (go to next line). When ON, received LF, FF, and VT will perform NewLine function (go to column 1 of the next line).

When you have configured the ANSI2 Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the ANSI2 Menu. The next menu to set is the Color Menu; press F9 to access it.

Color (F9) Menu

The Color Menu (F9) is used to select color for attributes settings. Figure 2-10 illustrates the Color Menu you will see on your screen. A description of the

parameter blocks within the Color Menu follows Figure 2-10. Each of these parameter blocks, in bold in Figure 2-10, are described below. The parameter block is highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

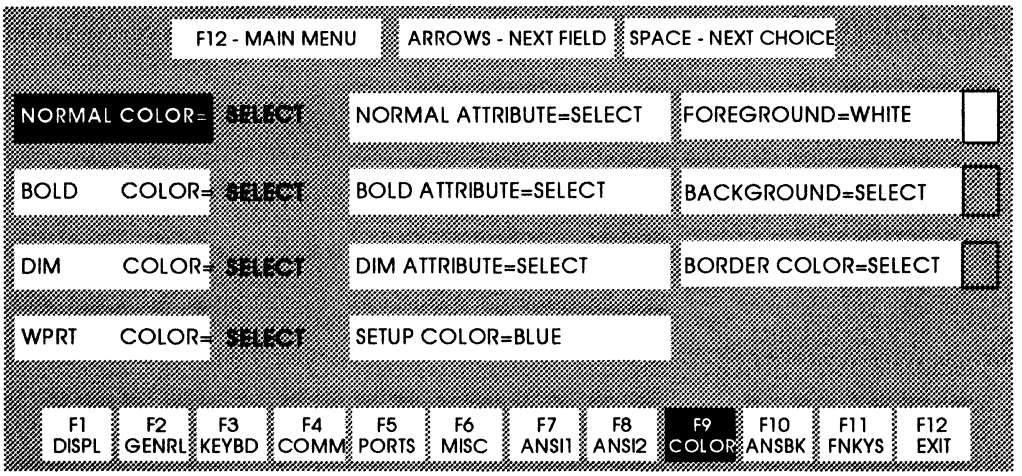


Figure 2-10
Color Menu

Normal Color=Select This parameter selects the color of Normal characters. When you select this parameter, the terminal will display a submenu, Figure 2-10B. This submenu is a 64 color spectrum for foreground colors, a 64 color spectrum for background colors, and fields that represent the basic attributes for normal characters: blank, blink, reverse, and underline. The colors for each of these attributes can also be set from this submenu. Move the cursor to the attribute parameter to be set, press the spacebar to turn the attribute ON, then move the cursor and set the attribute color. Note that display attributes controlled by this parameter are base character attributes, without associated attributes. When you turn on any of the associated attributes on the submenus, you change the definition of the base character attribute from no associated attributes to one or more associated attributes. The word 'select' to the right of this parameter field shows the current defined color for normal characters.

Normal Attr= Select This parameter selects the colors for the attributes of normal characters. When you select this parameter, the terminal will display a submenu, Figure 2-10A. This

submenu lists 15 different attributes for normal characters. Each attribute can be selected with the cursor and spacebar. When you move the cursor to one of the associated attribute combinations on the submenu and press the spacebar, a new submenu (Figure 2-10B) displays the 64 color spectrum for foreground colors, the 64 color spectrum for background colors, and fields that represent each associated attributes for normal characters: blank, blink, reverse, and underline. The colors for each of these attributes can be set from this submenu. Move the cursor to the attribute parameter to be set, press the spacebar to turn the attribute ON, then move the cursor and set the attribute color. If you have not changed anything under this parameter, each attribute combination on the submenu displays a sample of its default definition. The default definition includes the palette-assigned colors set by Foreground and Background Colors.

In addition to changing the colors, you can change the default definition of the attribute by adding other associated attributes or subtracting the one or more attribute(s) that are part of the default definition. The attribute combinations on the submenu are independent of each other, just as they are in your program. For example, redefining one attribute combination does not affect the other attribute combination.

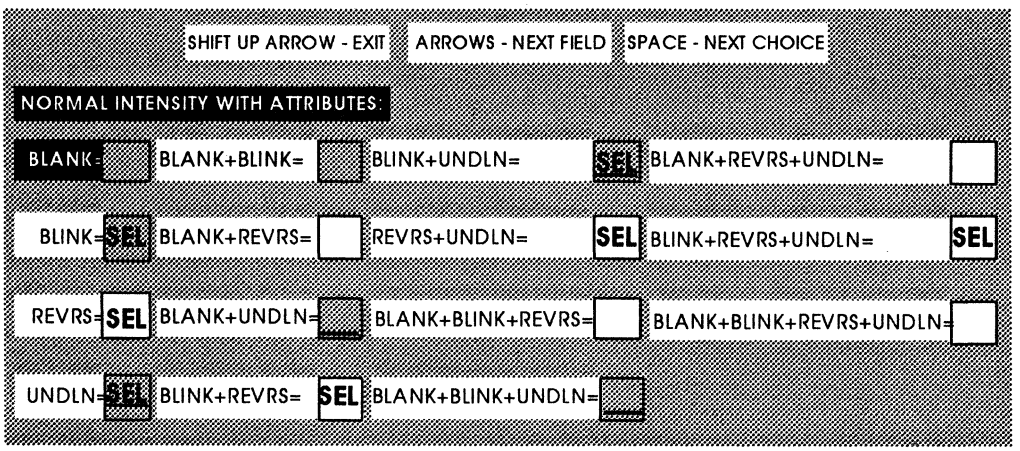


Figure 2-10A
Attribute Color Submenu

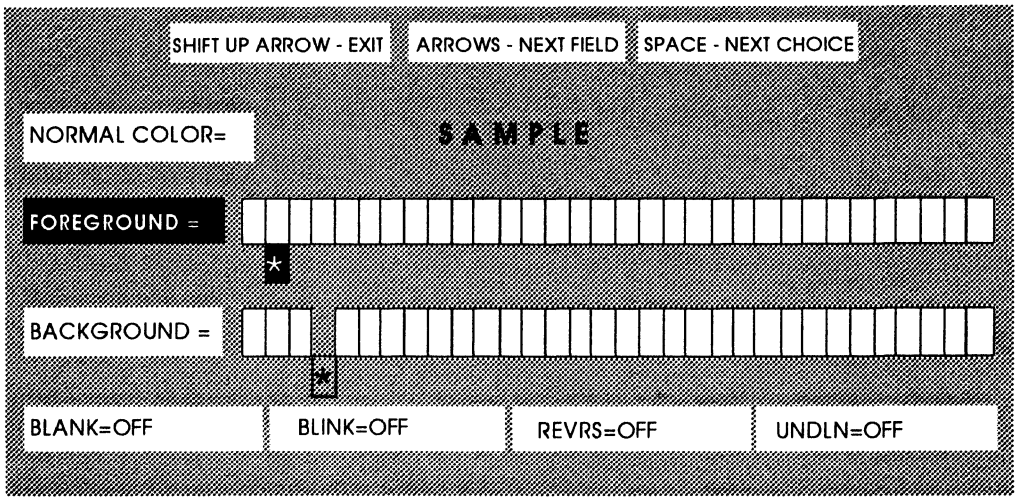


Figure 2-10B
Intensity Color Submenu

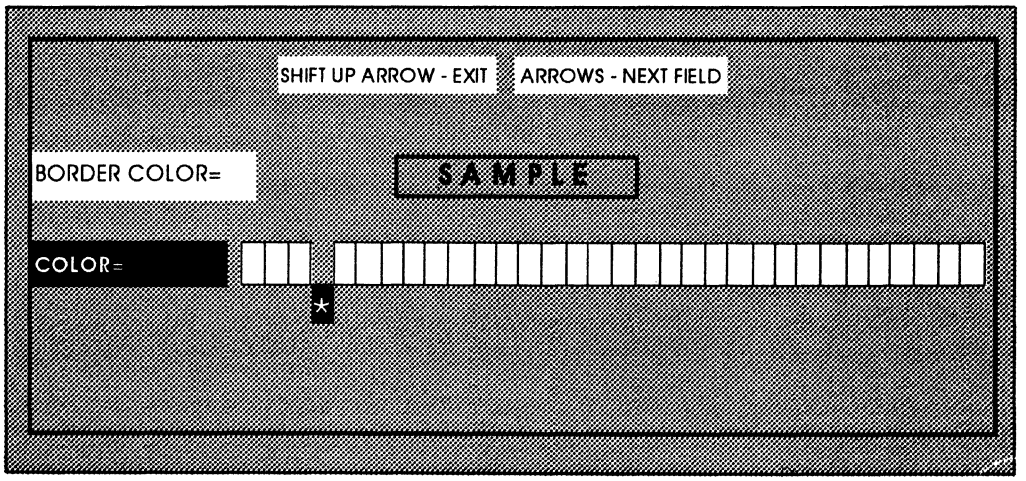


Figure 2-10C
Border Color Submenu

Foreground=Color This parameter selects foreground color from 16 possible colors. Press the spacebar to scroll through the color choices. Note the word 'select' next to the left hand parameter blocks will also change as you scroll the foreground colors. Refer to Tables 2-1 and 2-2 for foreground colors and default attribute colors.

NOTE: The 'Foregound=Color' and 'Background=Select' parameters select foreground and background colors for all ANSI, WY 370, VT, and Intercolor emulations. In addition, the 'Background=Color' parameter below selects the background colors for WYSE 350, Esprit III, and TVI 950 emulations.

To select foreground colors for WY 350, Esprit III, and TVI 950 emulations, and the foreground and background colors for WY 325, WY 60, WY 50+, TVI 910+, TVI 925, and TVI 955 emulations, refer to the Miscellaneous (F6) Setup Menu.

Table 2-4
Intercolor 220/WY370/ANSI Foreground Color Selections

Normal	Dim	Bold
Gray	Charcoal Gray	White
Red	Pale Pink	Light Purple
Blue	Light Blue Purple	Electric Blue
Amber	Orange Brown	Red Orange
Green	Blue	White
Black	Gray	Charcoal Gray
Bright Green	Grass Green	Green
Pale Cyan	Turquoise	Cyan
Dull Chartreuse	Khaki Green	Yellow
Bright Green	Khaki Green	Light Green
Medium Purple	Violet	Light Purple
Medium Purple	Brick Red	Magenta
Medium Purple	Teal Blue	Purple Blue
Deep Red	Dark Blue	Rose
Gray	Khaki Green	Cream
Turquoise	Dark Blue	Sky Blue

Bold Color=Select This parameter controls the color selections for the Bold character, as well as these attributes: Blank, Blink, Reverse, and Underline. Refer to 'Normal Color=Select' above for details.

Bold Attribute= Select This parameter controls the color selections for 15 attributes of Bold characters. Refer to 'Normal Attribute=Select' above for details.

Background=Select This parameter selects the background color from 64 possible colors. Press the spacebar to generate the Figure 2-

10C submenu, then use the cursor to select a color. The default color is black. This parameter selects the background colors when in all ANSI, WY 350, WY 370, Intercolor, Esprit III, and TVI 950 emulations.

Dim Color=Select This parameter controls the color selections for the Dim character, as well as these attributes: Blank, Blink, Reverse, and Underline. Refer to 'Normal Color=Select' above for details.

Dim Attribute= Select This parameter controls the color selections for 15 attributes of Bold characters. Refer to 'Normal Attribute=Select' above for details.

Border Color= Select This parameter selects the border color from 64possible colors. Press the spacebar to generate the Figure 2-10C submenu, then use the cursor to select a color. The default color is black.

WPRT Color=Select This parameter controls the color selections for the WPRT characters, as well as these attributes: Blank, Blink, Reverse, and Underline. Refer to 'Normal Color=Select' above for details.

Setup Color=Blue This parameter allows you to choose the color of the Setup Menus. Your choices are Blue, Red, Yellow, or Grey. These color settings do not affect the display of characters outside of Setup Mode. The default color is blue.

When you have configured the Color Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Color Menu. The next menu to set is the ANSI1 Menu; press F10 to access it.

Answerback (F10) Menu

The Answerback Menu (F10) allows you to program a message of up to 20 characters to identify the terminal to the computer. Figure 2-11 illustrates the Answerback Menu you will see on your screen. The parameter block and its default value are highlighted and followed by a brief description. Use the cursor arrows to move between parameter blocks and the spacebar to scroll between settings.

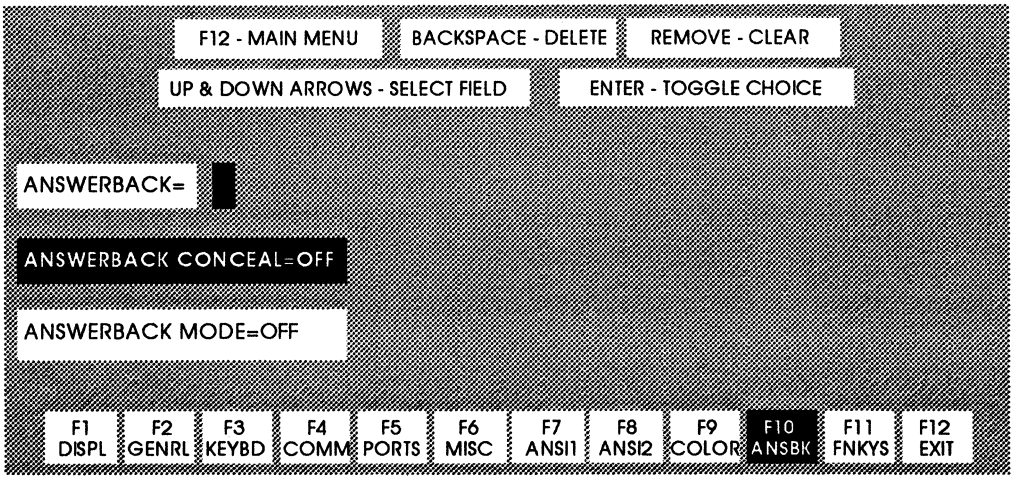


Figure 2-11
Answerback Menu

NOTE: Answerback messages will not be saved unless you select SAVE ALL in the Main Setup Menu. Otherwise, all answerback messages will be erased when the terminal is powered down.

Answerback= This space allows you to enter message up to 20 characters at cursor position to identify terminal to the computer.

Answerback Conceal =Off This parameter selects whether to hide (ON) or not to hide (OFF) the answerback message so it is not displayed in setup mode. After setting to ON, 'Conceal' is displayed in answerback message area. To set to OFF after setting to ON, press the Home key.

NOTE: Pressing the Home key also deletes the Answerback message.

Answerback Mode =Off This parameter selects whether the answerback message is sent to computer (ON) or not sent (OFF) when the terminal receives an ENQ code.

When you have configured the Answerback Menu, and you are ready to move to the next Setup Menu, press the appropriate Function Key. Refer to the list of Function Keys and their values at the bottom of the Answerback Menu. The next menu to set is the Function Key Menu; press F8 to access it.

The Function Key Menu (F11) is used to define the function keys and many of the edit keys to send a unique character string of up to 64 characters. Figure 2-12 illustrates the Function Key Menu you will see on your screen. The parameter block and its default value are highlighted and followed by a brief description. Use cursor arrows to move between parameter blocks and spacebar to scroll settings.

NOTE: Function key definitions will not be saved unless you select SAVE ALL in the Main Setup Menu. Otherwise, all function key definitions will be erased when the terminal is powered down. Refer to Section 5 for a list of the programmable keys.

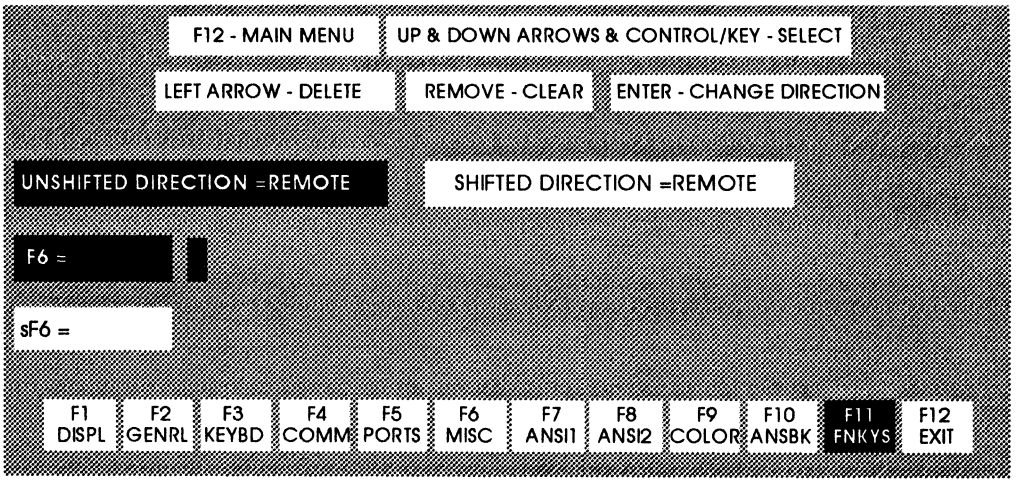


Figure 2-12
Function Key Menu

Unshifted Direction= Normal Direction determines where the key is sent. REMOTE sends data to the computer only, regardless of the terminal's communication mode. Until they are redefined, the direction of all the programmable keys is remote. NORMAL sends data to the computer and/or terminal, depending on the terminal's communications mode. LOCAL sends data to the terminal only, regardless of the terminal's communications mode.

Shifted Direction= Direction determines where the key is sent. REMOTE

Remote sends data to the computer only, regardless of the terminal's communication mode. Until they are redefined, the direction of all the programmable keys is remote. NORMAL sends data to the computer and/or terminal, depending on the terminal's communications mode. LOCAL sends data to the terminal only, regardless of the terminal's communications mode.

Fn= The unshifted key definition field allows up to 64 characters at the cursor position.

To select the key to be programmed, press and hold the Control key, then press the desired programmable key.

sFn= Shifted key definition field allows up to 64 characters at the cursor position.

To select the key to be programmed, press and hold the Shift and Control keys, then press the desired programmable key.

Table 2-5 lists the programmable function keys.

Table 2-5
Programmable Function Keys

ASCII Keyboard	ANSI Keyboard	EPC Keyboard
Up Arrow	Up Arrow	Up Arrow
Dn Arrow	Dn Arrow	Dn Arrow
Left Arrow	Left Arrow	Left Arrow
Right Arrow	Right Arrow	Right Arrow
Backspace		Backspace
Clr Scrn/Line	PF3	Delete
DEL		End
Del Line/Char	PF2	Enter (both)
Enter	Enter	Escape
F1 - F16	F6 - F20	F1 - F12
Home		Insert
Ins Line/Char	PF1	Page Down
Ins/Repl	PF4	Page Up
Page Prev/Next		Print Screen
Print/Send	Delete	Tab
Return	Return	Home

ASCII Keyboard	ANSI Keyboard	EPC Keyboard
Tab	Tab	
	Find	
	Insert Here	
	Remove	
	Select	
	Prev Scrn	
	Next Scrn	

This is the last setup menu for your terminal. If you want to return to previous menus, press the appropriate function key listed on the bottom of your screen.

Status Line Description

The Status Line is the top line of the display on your screen. It serves as a reference line to note the current status of the more common operating parameters. Some settings may be blank. Settings will also be determined by whether the terminal is in standard (see Figure 2-13) or extended mode (see Figure 2-14). The italicized settings list possible settings and their location on the Status Line.

```
                FDX          11:30a   111-132
CAPS    1  *    HDX   %PRN                Row-Col  S1  Message Line
LOCK    2       BLK   >PRN                         S2
COMP    3       HBLK  <PRN
NUM     4             =PRN
        5
        6
```

Figure 2-13
Standard Status Line

```
                FDX
CAPS    1  *    HDX   %PRN   PROT  WPRT  INS  S1  Message Line
LOCK    2       BLK   >PRN                     S2
COMP    3       HBLK  <PRN
NUM     4             =PRN
        5
        6
```

Figure 2-14
Extended Status Line

Keyboard Lock — If this first space is blank, the Keyboard Lock and CAPS mode are off (default). If LOCK is displayed, Keyboard input will be ignored until the Host sends the Keyboard Unlock command or until you press the Shift and Setup Keys, or until the Shift and Break Keys are pressed. If CAPS is displayed, when alphanumeric keys are depressed, they will generate upper case characters. Press the CAPS key once to turn the CAPS mode off.

Page Number — It reveals the page number. The total number of pages available is determined by free memory. Memory available is determined by the terminal emulation, column length, and page length. Page 0, the first page, is indicated by a blank space.

Monitor Mode — If this second space is blank, the monitor mode is off (default). If the terminal is in standard mode and an "*" is displayed, the monitor mode is enabled. Monitor mode is a feature that enables the display of all control codes and escape sequences, in addition to the alphanumeric character set. Commands are only displayed and not interpreted when monitor mode is selected. For proper operation, the line wrap feature should also be enabled.

Transmission Mode — Specifies the transmission mode in which the terminal communicates with the host system. In Full Duplex mode (FDX) (default), data typed from the keyboard is sent immediately to the host; unless the host echoes this data it cannot be viewed on the display. Conversely, data processed in Half Duplex mode (HDX) is processed to the host and internally to the terminal display. In Block mode (BLK), the terminal processes the data locally and sends the data in a block when the Send Key is pressed. Data from the host is received and displayed.

Printer Port Mode — This field specifies the operation of the printer port. When COPY OFF (default) is selected, the field is blank and the bidirectional printer interface is disabled. COPY enables the printer port so that the displayed data is also sent to the printer port. XCOPY (transparent copy) also enables the printer port, but causes all data sent to the terminal to be copied to the printer port; nothing is displayed on the screen. BCOPY (bidirectional copy) allows all data from the host computer to the terminal to

be displayed and sent to the printer interface; all data from the printer port is sent to the host but not displayed. XBCOPY (transparent bidirectional copy) causes all data sent to the terminal to be copied to the printer port; all data sent to the terminal from the printer port is transmitted to the host but not displayed.

Time — The time of day will be displayed.

Cursor Position — The Row Number-Column number will be displayed.

Protect Mode — Blank (default) indicates that the protect mode is not selected. PROT indicates that the protect mode is selected.

Write-Protect Mode — If Write Protect is ON, WPRT will be displayed.

Insert Mode — A blank (default) indicates that the insert mode is not selected and, therefore, the replace mode is in effect. INS indicates that insert mode is selected.

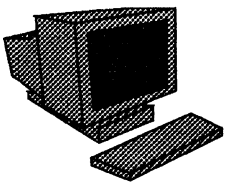
Session Number — The right-hand column in standard and extended modes. Disabled when 'Session=Single' is selected in the Communications Setup Menu (page 2-12). When 'Session=Dual' is selected, the active session number (S1 or S2) will be displayed.

Message Line — This is the area where the host can write some message on the status line. To program and display computer messages on the status line, type ESC F "message" CR. Your message is a string of up to 48 characters for an 80 column screen or 100 characters for a 132-column screen, when 'Session=Single' is selected (see Communications Setup Menu, page 2-12); it is a string of up to 45 characters for an 80-column screen or 97 characters for a 132-column screen, when 'Session=Dual' is selected (see Communications Setup Menu).

3

Section 3

Calculator Mode



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Calculator Mode

Calculator Mode is a feature that lets you perform the arithmetic operations of addition, subtraction, multiplication, and division on numeric data in the display field. This feature is particularly helpful in spread-sheet applications.

In Calculator Mode, the symbols on the numeric keypad keys specify the calculator functions. In Calculator Mode, the following conditions apply. Please note that all other keys are ignored.

- Calc displays on the bottom Status Line in reverse video
- No screen updating can occur
- The active keys are:
  - Numeric Keypad Keys
  - Cursor Keys
  - Control Keys
  - Shift Keys

Calculator Mode uses an eight digit mode and computes with both positive and negative numbers. Please note that extra digits are truncated to eight digits:

- Smallest absolute number is .0000001
- Largest number is 99999999.
- Calculator functions are disabled in SCO console mode

Entering/Exiting Calculator Mode

To enter and exit Calculator Mode, use the following commands:

1. Press Ctrl/Shift and . (numeric keypad Decimal Key) to enter Calculator Mode.
2. Press Ctrl/Shift and . (numeric keypad Decimal Key) to exit Calculator Mode.

Key Definitions

The following provides definitions for calculator keys when the terminal is in Calculator Mode.

Numeral and Decimal Point Keys (0-9)(.)	The Numeral Keys (0-9) enter numerals. The Decimal Key (.) enters the decimal point in its logical sequence.

Function Command and Equal Keys (+, -, *, /)

The four Function Keys (+, -, *, /) perform the four basic basic calculations when pressed in formula sequence. The Equal Key displays the calculated number.

NOTE: If you press the wrong Function Key by mistake, immediately press the correct Function Key to override the previous mistake.

Percent Key (%)

The Percent Key (%) performs percentage calculations.

Clear Entry (CE)/ Clear (C) Key

Press the Clear Entry (CE)/Clear Key (C) once to clear current entry for correction, and release overflow or error check without clearing memory or current function.

Press Clear Entry (CE)/Clear (C) Key twice to clear the calculator registers and release overflow or error check.

Storing Contents

During an operation, if a math key (+, -, *, /) is pressed twice, it stores the last entered value for use as a constant to be added, subtracted, multiplied, or divided (depending on which key was pressed twice) to the number displayed when the = key is pressed. When there is a constant, a lower case 'k' will appear (highlighted) on the Bottom Status Line to the left of the data field. The following example is provided to aid you in storing constants:

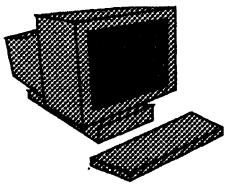
1. Press 3++=. "3++" stores 3 as a constant and "add" as the function. Thus, the constant 3 is added to 3 in the data field to yield 6, now displayed in the data field.
2. Press the Equal Key again. The calculator adds the stored constant 3 to the displayed number 6 to yield 9.
3. Press 8 and Equal Key. The calculator adds the stored constant 3 to the displayed number 8 to yield 11.
4. Press + and 6. Pressing the + sign clears the stored constant and 6 is added to the displayed number 11, which yields 17.

Please note that pressing any function other than the Percent Key (%) will clear the constant.

A

Appendix A

ASCII Commands



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QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Monitor Mode								
Monitor Mode Enable								
ESC U	ESC U	ESC U	ESC U	ESC U	ESC U	ESC U	ESC U	
Monitor Mode Disable								
ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	ESC u or ESC X	
Selecting Emulations								
Enhance Mode On								
ESC ~ Sp	ESC ~ Sp	ESC ~ Sp	ENH	ENH	ENH	ENH		
Enhance Mode Off								
ESC ~ I	ESC ~ I		ENH	ENH	ENH	ENH	ESC v I	
Select Terminal Emulation								
ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode	ESC~Mode

Mode is defined as follows. WY60 - 4; WY50 - "; WY350 - @; WY370-7 - B; WY370-8 - C; TVI910+ - #; TVI925 - $; TVI950 - (; TVI 955 - ,; PC Term - 5; VT52 - 6; VT100 - ; ; VT220-7 - <; VT220-8 - =; ESPRIT III - A; ADDS A2 - %; Intercolor 220 - -; SCO Unix - D; QVT 70 - 0; QVT 62 - 1. To select TVI955 from TVI950, use ESC[10;0v. To select TVI950 from TVI955, use ESC[10;1v. To select WY60 from VT220 (7 or 8), use ESC[42h. In addition, to select WY350 mode from QVT70/62, WY325/60/50+, TVI910+/925/955, ADDS A2 emulations, use ESC ~ @; in PC Term, use ESC v @; in TVI950, Esprit III emulations, use ESC[42h. To select QVT70 mode from QVT62, WY325/60/50+, TVI910+/925/955, ADDS A2 emulations, use ESC ~ 0; in PC Term, use ESC v 0; in TVI950, Esprit III emulations, use ESC[70h. To select QVT62 mode from QVT70, WY325/60/50+, TVI910+/925/955, ADDS A2 emulations, use ESC ~ 1; in PC Term, use ESC v 1; in TVI950, Esprit III emulations, use ESC[62h. To select SCO Unix mode from QVT70, WY325/60/50+, TVI910+/925/955, ADDS A2 emulations, use ESC ~ D; in PC Term, use ESC v D; in TVI950, Esprit III emulations, use ESC[82h.

Communications								
Enable Transmission								
CTRL Q	CTRL Q	CTRL Q	CTRL Q	CTRL Q	CTRL Q	CTRL Q	CTRL Q	CTRL Q
Disable Transmission								
CTRL S	CTRL S	CTRL S	CTRL S	CTRL S	CTRL S	CTRL S	CTRL S	CTRL S
Send ACK (If ACK Mode On)								
CTRL E	CTRL E		CTRL E	CTRL E	CTRL E	CTRL E	CTRL E	CTRL E
ACK Mode Off								
ESC e 6	ESC e 6		ENH	ENH	ENH	ENH		
ACK Mode On								
ESC e 7	ESC e 7		ENH	ENH	ENH	ENH		
Full Duplex Mode On								
ESC DF	ESC DF		ESC DF	ESC DF	ESC DF	ESC DF	ESC DF	ESC DF
Half Duplex Mode On								
ESC DH	ESC DH		ESC DH	ESC DH	ESC DH	ESC DH	ESC DH	ESC DH
Block Mode On								
ESC B	ESC B		ESC B	ESC B	ESC B	ESC B	ESC B	ESC B
Block Mode Off (Conversation)								
ESC C	ESC C		ESC C	ESC C	ESC C	ESC C	ESC C	ESC C
Half Duplex Block Mode On								
ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	ESC DH ESC B	
Functions								
Select Modem Port for Data Communications								
ESC e 8	ESC e 8							

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Select AUX Port for Data Communications								
ESC e 9	ESC e 9							
Select 8 Data Bits								
						ESC[=1h		
Select 7 Data Bits								
						ESC[=1l		
Set Modem Port Operating Parameters								
ESC c 0 baud stop parity word	ESC c 0 baud stop parity word				ESC {	ESC {		
Set AUX Port Operating Parameters								
ESC c 1 baud stop parity word	ESC c 1 baud stop parity word				ESC }	ESC }		
Set Modem Port Receive Handshaking								
ESC c 2 hndshk	ESC c 2 hndshk					ESC[1;n.v.		
Set AUX Port Receive Handshaking								
ESC c 3 hndshk	ESC c 3 hndshk							
Set Modem Port Transmit Handshaking								
ESC c 4 hndshk	ESC c 4 hndshk					ESC[=0h		
Set AUX Port Transmit Handshaking								
ESC c 5 hndshk	ESC c 5 hndshk							
Set Maximum Data Transmission Speed								
ESC c 6 max	ESC c 6 max					ESC[0;n.v.		
Reset Modem Port Transmit Handshaking								
						ESC[=0l		
Enable DTR Modem Port Handshaking			CTRL N	CTRL N	CTRL N	CTRL N		
Enable XON/XOFF Modem Port Handshaking			CTRL O	CTRL O	CTRL O	CTRL O	CTRL O	
Send Terminal ID								
ESC Sp	ESC Sp	ENH	ESC M	ESC M	ESC M	ESC M		ESC M
Program Answerback Message								
ESC c; answer CTRL Y	ESC c; answer CTRL Y					ESC ^ answer CTRL Y	ESC] answer CTRL Y	
Send Answerback Message								
ESC c <	ESC c <				CTRL E	CTRL E		
Conceal Answerback Message								
ESC c =	ESC c =							
Answerback Mode Off								
ESC e Sp	ESC e Sp							

ASCII COMMANDS FOR QVT 70

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Answerback Mode On								
ESC e !	ESC e !							
Load Time of Day								
ESC c 8 hh mm	ESC c 8 hh mm	ENH	ESC Sp | Pn hh mm	ESC Sp | Pn hh mm	ESC Sp | Pn hh mm	ESC Sp	ESC Sp	
Cursor Movement Commands								
Cursor Home								
ESC { or CTRL ^	ESC { or CTRL ^	ENH or CTRL A	ESC {	ESC { CTRL ^		ESC [H or CTRL ^	CTRL ^	CTRL ^
Cursor Right								
CTRL L	CTRL L	CTRL F	CTRL L	CTRL L	CTRL L	CTRL L or ESC [C ESC { Pn C	CTRL L	CTRL L
Cursor Left/Backspace								
CTRL H	CTRL H	CTRL H or CTRL U	CTRL H	CTRL H	CTRL H	CTRL H or ESC [C ESC Pn C	CTRL H	CTRL H
Up/No Scroll								
CTRL K	CTRL K	CTRL Z	CTRL K	CTRL K	CTRL K	CTRL K or ESC [A ESC Pn A	CTRL K	CTRL K
Up/Reverse Scroll								
ESC J	ESC J	ESC H	ESC J	ESC J	ESC J	ESC J	ESC J	ESC J
Down Scroll								
CTRL J	CTRL J	CTRL J	CTRL J	CTRL J	CTRL J	CTRL J	CTRL J	CTRL J
Down/No Scroll								
			CTRL V	CTRL V	CTRL V	CTRL V ESC [B ESC Pn B	CTRL V	
Return								
CTRL M	CTRL M	CTRL M	CTRL M	CTRL M	CTRL M	CTRL M	CTRL M	
New Line								
CTRL _	CTRL _	ENH	CTRL _	CTRL _	CTRL _	CTRL _	CTRL _	
Cursor to Specified Column								
		CTRL P col	ESC [c					
Cursor to Specified Line								
		CTRL K ln	ESC] r					
End of Line Wrap Off								
ESC d .	ESC d .		ENH	ENH	ENH	ESC[=7l	ESC O	
End of Line Wrap On								
ESC d /	ESC d /		ENH	ENH	ENH	ESC[=7h	ESC ~	
Received CR Mode Off								
ESC e 4	ESC e 4		ENH	ENH	ENH	ESC[=6l	ESC 9	
Received CR Mode On								
ESC e 5	ESC e 5		ENH	ENH	ENH	ESC[=6h	ESC 8	
Autopage Mode Off								
ESC d *	ESC d *		ESC w	ESC w	ESC w	ESC w		

ASCII COMMANDS FOR QVT 70

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Autopage Mode On								
ESC d +	ESC d +		ESC v	ESC v	ESC v	ESC v		
Autoscroll Mode Off								
ESC N	ESC N							
Autoscroll Mode On								
ESC O	ESC O							
Line Lock Mode On								
ESC ` H					ESC l 1	ESC l 1		
Line Lock Mode Off								
ESC ` I					ESC l 2	ESC l 2		
Address Cursor in Current 80-Column Page								
ESC = ln, col	ESC = ln, col	ENH or ESC Y	ESC = ln, col	ESC = ln, col	ESC = ln, col	ESC = ln, col	ESC = ln, col	ESC = ln, col
Address Cursor in Specific 80-Column Page								
ESC w@ page, ln, col	ESC w@ page, ln, col	ENH	ESC - prc	ESC - prc	ESC - prc			ESC -
Address Cursor in Specific 80-Column Window/Page								
ESC - w/p ln col	ESC - w/p ln col	ENH				ESC - w/p ln col	ESC - w/p ln col	
Address Cursor in Current 80/132 Column Page								
ESCalll R ccc C	ESCalll R ccc C	ENH				ESC [lll; ccc H or ESC [lll; ccc f		
Read Cursor Address in Current 80-Column Mode								
ESC ?	ESC ?	ENH	ESC ?	ESC ?	ESC ?	ESC ? or ESC [6 n	ESC ?	ESC ?
Read 80-Column Page Number and Cursor Address								
ESC w	ESC w							
Read 80-Column Window/Page Number and Cursor Address								
ESC /	ESC /		ENH	ESC /	ESC /	ESC /	ESC /	ESC /
Read Cursor Address in 80/132 Column Page								
ESC b	ESC b					ESC[?6n		
Tab Commands								
Set Tabs								
ESC 1	ESC 1		ESC 1	ESC 1	ESC 1	ESC 1	ESC 1	ESC 1
Clear Current Tab Stop								
ESC 2	ESC 2		ESC 2	ESC 2	ESC 2	ESC 2	ESC 2	ESC 2
Clear All Tabs								
ESC 0	ESC 0		ESC 3	ESC 3	ESC 3	ESC 3	ESC 3	ESC 3
Column Tab								
CTRL I	CTRL I	ENH	CTRL I	CTRL I	CTRL I	CTRL I	CTRL I	
Field Tab								
	ESC I		ESC ;	ESC ;	ESC ;	ESC ;	ESC ;	ESC I
Back Tab								
ESC I	ESC I	ENH	ESC I	ESC I	ESC I	ESC I	ESC I	ESC I

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Edit Commands								
Insert Mode On; Replace Mode Off								
ESC q	ESC q	ENH	ENH	ENH	ESC q	ESC q	ESC Z	ESC q
Insert Mode Off; Replace Mode On								
ESC r	ESC r	ENH	ENH	ENH	ESC r	ESC r	ESC r	ESC r
Page Edit Mode Off								
ESC e "	ESC e "				ESC O	ESC O		
Page Edit Mode On								
ESC e #	ESC e #				ESC N	ESC N		
Space Character Insert								
ESC Q	ESC Q	ENH	ESC Q	ESC Q	ESC Q	ESC Q	ESC Q	ESC Q
Character Delete								
ESC W	ESC W	ENH	ESC W	ESC W	ESC W	ESC W	ESC W	ESC W
Line Insert								
ESC E	ESC E	ESC M	ESC E	ESC E	ESC E	ESC E	ESC E	ESC E
Cursor Line Delete								
ESC R	ESC R	ESC I	ESC R	ESC R	ESC R	ESC R	ESC R	ESC R
Insert n Characters								
						ESC[n@		
Delete n Characters								
						ESC[nP		
Insert n Lines								
						ESC[nL		
Delete n Lines								
						ESC[nM		
Insert Column of Nulls								
ESC c M	ESC c M							
Delete Cursor Columns								
ESC c J	ESC c J							
Clearing Data								
Clear From Cursor to End of Line With Spaces								
ESC T	ESC T	ESC K	ESC T	ESC T	ESC T	ESC T	ESC T	ESC T
Clear From Cursor to End of Line With Nulls								
ESC t	ESC t		ESC t	ESC t	ESC t	ESC t	ESC t	ESC t
Clear From Cursor to End of Page/Segment With Spaces								
ESC Y	ESC Y	ESC k	ESC Y	ESC Y	ESC Y	ESC Y	ESC Y	ESC Y
Clear From Cursor to End of Page/Segment With Nulls								
ESC y	ESC y	ENH	ESC y	ESC y	ESC y	ESC y	ESC y	ESC y
Clear All Page/Segment to Nulls								
ESC *	ESC *	ENH	ESC *	ESC *	ESC *	ESC *	ESC *	ESC *
Clear All Page/Segment to Spaces								
ESC +	ESC +	CTRL L or ENH				ESC +		
Clear Page to Write Protected Spaces								
ESC ,	ESC ,	ENH					ESC ,	

ASCII COMMANDS FOR QVT 70

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Clear All Unprotected Page/Segment to Nulls								
ESC :	ESC :	ENH	ESC :	ESC :	ESC :	ESC :	ESC :	ESC :
Clear All Unprotected Page/Segment to Spaces								
ESC ; or CTRL Z	ESC ; or CTRL Z	ESC ;	ESC ; or ESC +	ESC ; or ESC +	ESC ; or ESC +	ESC ; or CTRL Z	ESC ; or CTRL Z or ESC +	ESC ; or ESC +
Clear All Unprotected to the Attribute								
	ESC I attr	ENH	ESC I attr	ESC I attr				
Clear Unprotected Page/Segment With Character								
ESC . char	ESC . char	ENH						
Clear Unprotected Pages to Protected Spaces								
			ESC .	ESC .	ESC .			
Clear Unprotected Page Foreground to Spaces								
ESC c P	ESC c P							
Clear Unprotected Page Foreground to Nulls								
ESC c Q	ESC c Q							
Clear Unprotected Character in Page								
						ESC[nJ		
Clear Unprotected Character in Line								
						ESC[nK		
Clear Unprotected to End of Line With Spaces								
ESC c O	ESC c O							
Clear Unprotected to End of Line With Nulls								
ESC c L	ESC c L							
Clear Unprotected Line Foreground With Spaces								
ESC c R	ESC c R							
Clear Unprotected Line Foreground With Nulls								
ESC c S	ESC c S							
Clear Unprotected Column to Nulls								
ESC c K	ESC c K							
Clear Unprotected Column to Specific Character								
ESC cl char	ESC cl char							
Box Rectangle to Right of Cursor								
ESC c N wdth, ht	ESC c N wdth, ht							
Box Rectangle in 80-Column Page								
ESC c G ln col	ESC c G ln col					ESC H wh		
Box Rectangle in 132-Column Page								
ESC c G ln ~ col	ESC c G ln ~ col					ESC H w~h		
Clear Unprotected Rectangle in 80-Column Page								
ESC c F ln col char	ESC c F ln col char							

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Clear Unprotected Rectangle in 132-Column Page								
ESC c F ln ~ col char	ESC c F ln ~ col char							
Clear Entire Rectangle in 80-Column Mode								
ESC c H ln col char	ESC c H ln col char							
Clear Entire Rectangle in 132-Column Mode								
ESC c H ln ~ col char	ESC c H ln ~ col char							
Fill Page/Screen With H's								
							ESC F	
Keyboard and Terminal Controls								
Local Edit Mode On								
ESC k	ESC k		ESC k	ESC k	ESC k	ESC k	ESC k	ESC k
Duplex Edit Mode On								
ESC l	ESC l		ESC l	ESC l	ESC l	ESC l	ESC l	ESC l
Initialize Tabs Off/On								
ESC e :	ESC e :							
Application Key Mode Off								
ESC ~ 2	ESC ~ 2		ENH	ENH	ENH		ESC v 2	
Application Key Mode On								
ESC ~ 3	ESC ~ 3		ENH	ENH	ENH		ESC v 3	
Ring Bell								
CTRL G	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G
Keyboard Enable								
CTRL N or ESC "	CTRL N or ESC "	CTRL B or ESC 5	ESC "	ESC "	ESC "	ESC "	ESC "	ESC "
Keyboard Disable								
CTRL O or ESC #	CTRL O or ESC #	CTRL B or ESC 5	ESC #	ESC #	ESC #	ESC #	ESC #	ESC #
Key Click Off								
ESC e $	ESC e $		ESC <	ESC <	ESC <	ESC <	ESC <	ESC <
Key Click On								
ESC e %	ESC e %		ESC >	ESC >	ESC >	ESC >	ESC >	ESC >
Keyboard Controls								
Caps Lock On								
ESC e &	ESC e &		ENH	ENH	ENH	ENH	ESC Sp L	
Caps Lock Off								
ESC e '	ESC e '		ENH	ENH	ENH	ENH	ESC Sp M	
Num Lock On								
ESC e A	325/60: ESC e A						ESC Sp J	
Num Lock Off								
ESC e @	325/60: ESC e @						ESC Sp K	
Margin Bell On								
ESC e M	ESC e M					ESC[=4h		

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Margin Bell Off								
ESC e L	ESC e L					ESC[=4l		
Set Margin Bell at Current Position								
ESC 'J	ESC 'J					CTRL W		
Turn Margin Bell On and Set Position								
							ESC o	
Down Key Control								
						ESC[=9h/l		
Key Repeat Off								
ESC e,	ESC e,		ENH	ENH	ENH	ESC[=8l		
Key Repeat On								
ESC e -	ESC e -		ENH	ENH	ENH	ESC[=8h		
Define Caps Lock Key as Caps Lock								
ESC e T	ESC e T							
Define Caps Lock as REV								
ESC e U	ESC e U							
Read Status								
							ESC [	
Default Unit								
							ESC m	
Redefining The Keys								
Program Function Key Label								
ESC z fkey seq DEL	ESC z fkey seq DEL	ENH	ESC z fkey seq DEL	ESC z fkey seq DEL	ESC z fkey seq DEL	ESC z fkey seq DEL		
Program Key Direction and Definition								
ESC z dir fkey seq DEL	ESC z dir fkey seq DEL	ENH	ESC z dir fkey seq DEL	ESC z dir fkey seq DEL	ESC z dir fkey seq DEL	ESC z dir fkey seq DEL		
Read Key Direction and Definition								
ESC Z ~ key	ESC Z ~ key							
Clear Key Definition								
ESC z fkey DEL	ESC z fkey DEL	ENH						
Clear Key Direction and Definition								
ESC Z dir DEL	ESC Z dir DEL	ENH						
Set Maximum Function Key Transmission Speed								
ESC c 7 max	ESC c 7 max							
Invoke Function Key								
						ESC[n|		
Default All Programmable Keys								
ESC c U	ESC c U							
Protecting Data								
Write-Protect Mode Off								
ESC (	ESC (	CTRL O	ESC (	ESC (	ESC (	ESC (	ESC (	ESC (

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Half-intensity On; Write Protect Mode On								
ESC)	ESC)	CTRL N	ESC)	ESC)	ESC)	ESC)	ESC)	ESC)
Set Tag Bit								
		CTRL N						
Reset Tag Bit								
		CTRL O						
Protect Mode Enable								
ESC '	ESC '	ENH	ESC '	ESC '	ESC '	ESC '	ESC '	ESC '
Protect Mode Disable								
ESC &	ESC &	ENH	ESC &	ESC &	ESC &	ESC &	ESC &	ESC &
Clear Cursor Column to Write Protected Spaces								
ESC V	ESC V		ESC V	ESC V	ESC V			ESC V
Screen and Cursor Attributes								
Screen Display Off								
ESC '8	ESC '8	ENH	ESC o	ESC o	ESC o	ESC o	ESC o	
Screen Display On								
ESC '9	ESC '9	ENH	ESC n	ESC n	ESC n	ESC n	ESC n	
Screen Saver Off								
ESC e P	ESC e P		ENH	ENH	ENH	ESC{8:nv		
Screen Saver On								
ESC e Q	ESC e Q		ENH	ENH	ENH	ESC[8:nv		
Reverse Video								
ESC ^ 1	ESC ^ 1	ENH	ESC b	ESC b	ESC b	ESC b		
Restore Normal Video								
ESC ^ 0	ESC ^ 0	ENH	ESC d	ESC d	ESC d	ESC d		
Set Scroll Speed and Type								
ESC ` scrl	ESC ` scrl	ENH				ESC[6:nv		
Smooth Scroll On								
			ESC 8	ESC 8	ESC 8	ESC 8		
Smooth Scroll Off								
			ESC 9	ESC 9	ESC 9	ESC 9		
Scroll Lock On								
ESC e C	325/60: ESC e C						ESC Sp N	
Scroll Lock Off								
ESC e B	325/60: ESC e B						ESC Sp O	
Set Cursor Display Features								
ESC ` cur	ESC ` cur	ENH	ESC . cur	ESC . cur	ESC . cur	ESC . cur		ESC . cur
Cursor Visible								
		CTRL X	ESC .	ESC .				
Cursor Invisible								
		CTRL W						
25th Line Display Off								
							ESC e	
Message Fields Display								
Extended Status Line On								
ESC ` a	ESC ` a	ENH						

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Standard Status Line On								
ESC ` b	ESC ` b	ENH						
Status Line Off								
ESC ` c	ESC ` c	ENH						
Program/Display Computer Message on Status Line								
ESC F msg CR	ESC F msg CR		ENH	ENH	ENH			
Program Computer Message on Bottom Unshifted Label Line								
ESC z (text CR	ESC z (text CR	ENH	ESC f data CR	ESC f data CR	ESC f data CR	ESC f data CR	ESC f data CR	
Program Computer Message on Shifted Label Line								
ESC z) text CR	ESC z) text CR	ENH						
Turn On Unshifted Label Line								
			ESC g	ESC g	ESC g		ESC g	
Turn Off Unshifted Label Line								
ESC A 11	ESC A 11		ESC h	ESC h	ESC h			
Turn On Shifted Label Line								
ESC z P CR	ESC z P CR	ENH	ENH	ENH	ENH			
Turn Off Shifted Label Line								
ESC z DEL	ESC z DEL	ENH	ENH	ENH	ENH			
Clear Unshifted Label Line								
ESC z (CR	ESC z (CR	ENH						
Clear Shifted Label Line								
ESC z) CR	ESC z) CR	ENH	ENH	ENH	ENH			
Select Top/Bottom Line								
						SETUP DEFLT Ps=0/1		
Program/Display Function Key Label								
ESC z field label CR	ESC z field label CR	ENH	ENH	ENH	ENH	ESC z field label CR		
Clear Function Key Label								
ESC z field CR	ESC z field CR	ENH	ENH	ENH	ENH	ESC z field CR		
Don't Save Function Key Labels								
ESC e J	ESC e J							
Save Function Key Labels								
ESC e K	ESC e K							
Data Area								
80-Column Mode								
ESC ' :	ESC ' :					ESC[=3l	ESC Sp :	
132-Column Mode								
ESC 1 :	ESC 1 :					ESC[=3h	ESC Sp ;	
Economy 80-Column Mode Off								
ESC e F	ESC e F							
Economy 80-Column Mode On								
ESC e G	ESC e G							

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Width Change Clear Mode Off								
ESC e .	ESC e .							
Width Change Clear Mode On								
ESC e /	ESC e /							
Display Memory/Split Screen								
Display 24 Data Lines								
ESC e (	ESC e (							
Display 25 Data Lines								
ESC e)	ESC e)						ESC ^	
Display 42 Data Lines								
ESC e *	ESC e *							
Display 43 Data Lines								
ESC e +	ESC e +						ESC _	
Divide Memory into Pages								
ESCw ingth	ESCw ingth				ESC \	ESC \		
Display Next Page/Segment								
ESC w B or ESC J	ESC w B or ESC J		ESC J	ESC J	ESC J	ESC J		
Display Previous Page/Segment								
ESC w C or ESC K	ESC w C or ESC K		ESC K	ESC K	ESC K	ESC K		
Display Page 0								
ESC w 0	ESC w 0					ESC[1;0}		
Display Page 1								
ESC w 1	ESC w 1					ESC[1;1}		
Display Page 2								
ESC w 2	ESC w 2					ESC[1;2}		
Display Page 3								
	ESC w 3							
Display Page 4								
	ESC w 4							
Display Page 5								
	ESC w 5							
Display Page 6								
	ESC w 6							
Split Screen Horizontally (2 Pages Only)								
ESC x A line	ESC x A line	ENH						
Split Screen Horizontally and Clear Pages (2 Pages Only)								
ESC x 1 line	ESC x 1 line	ENH						
Define Scrolling Region								
						ESC[tline; bline r		

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Split Screen Horizontally (Multiple Pages)								
ESC x C line	ESC x C line							
Split Screen Horizontally and Clear Pages (Multiple Pages)								
ESC x 3 line	ESC x 3 line							
Activate Upper Window								
ESC]	ESC]							
Activate Lower Window								
ESC }	ESC }							
Activate Other Window or Page								
ESC J or ESC K	ESC J or ESC K							
Lower Horizontal Split								
ESC x P	ESC x P							
Raise Horizontal Split								
ESC x R	ESC x R							
Roll Window Up in Page								
ESC x E	ESC x E							
Roll Window Down in Page								
ESC x F	ESC x F							
Redefine Screen as One Window								
ESC x @	ESC x @	ENH						
Redefine Screen as One Window and Clear Pages								
ESC x 0	ESC x 0							
Display Attributes								
Assign Display Attribute to Message Field								
ESC A natt	ESC A natt		ESC \	ESC \	ESC \	ESC[3;nv		
Assign Character Display Attribute								
ESC G att	ESC G att	ENH	ESC G att	ESC G att	ESC G att	ESC G att		
Character Attribute Mode Off								
ESC e 0	ESC e 0							
Character Attribute Mode On								
ESC e 1	ESC e 1							
Page Attribute Mode On								
ESC e 2	ESC e 2					ESC[=2h		
Line Attribute Mode On								
ESC e 3	ESC e 3					ESC[=2l		
Assign Write Protected Character Display Attribute								
ESC ` wpca	ESC ` wpca	ESC 0						
Assign Write Protected Character Display Attribute; Write Protect On								
							ESC G attr	
Clear Unprotected Page to Display Attribute								
	ESC I	ENH	ESC I	ESC I				

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Assign Line Attribute								
ESC G att	ESC G att							ESC G att
Non Hidden Attribute (SP)								
						ESC F 0		
Hidden Attribute (No SP)								
						ESC F 1		
Set/Reset Normal Intensity Mode								
						ESC[=5h/l		
Graphics Characters								
Graphics Mode Enable								
ESC H CTRL B	ESC H CTRL B		ESC $	ESC $	ESC $	ESC $	ESC $	ESC $
Graphics Mode Disable								
ESC H CTRL C	ESC H CTRL C		ESC %	ESC %	ESC %	ESC %	ESC %	ESC %
Display Graphics Characters								
ESC H key	ESC H key							ESC H key
Display Attributes/Color (see Appendix I for additional color commands)								
Select Color Palette								
ESC % fcolor			ENH					
Redefine Color Association								
	ESCm att-c color attr-n	ENH						
Assign Write Protected Character Attribute								
	ESC ` wpca	ESC 0						
Send Commands								
Begin Print/Send at Top of Page								
ESC d &	ESC d &							
Send Cursor Character								
ESC M	ESC M							
Send Entire Cursor Line								
ESC 6	ESC 6		ESC 6	ESC 6	ESC 6	ESC 6	ESC 6	ESC 6
Send Unprotected Line								
ESC 4	ESC 4		ESC 4	ESC 4	ESC 4	ESC 4	ESC 4	ESC 4
Send Entire Page								
ESC 7	ESC 7		ESC 7	ESC 7	ESC 7	ESC 7	ESC 7	ESC 7
Mark Block Beginning								
ESC 8	ESC 8 or CTRL B	ENH	ESC 8	ESC 8	ESC 8	ESC 8	ESC 8	
Mark Block End								
ESC 9	ESC 9 or CTRL C	ENH	ESC 9	ESC 9	ESC 9	ESC 9	ESC 9	
Send Entire Block								
ESC s	ESC s	ENH	ESC s	ESC s	ESC s	ESC s	ESC s	
Send Unprotected Character in Block								
ESC S	ESC S	ENH	ESC S	ESC S	ESC S	ESC S	ESC S	ESC S

ASCII COMMANDS FOR QVT 70

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Report Terminal Status							ESC [	
Report Attribute Under Cursor							ESC d	
Set Print Terminator			ESC p	ESC p	ESC p	ESC p	ESC p	
Define Delimiters			ESC x	ESC x	ESC x	ESC x	ESC x	
Print Formatted Page								
ESC P	ESC P	ENH	ESC P	ESC P	ESC P	ESC P	ESC P	ESC P
Print Unformatted Page								
ESC p or ESC L	ESC p or ESC L	ESC p	ESC L		ESC L	ESC L		ESC L
Print Page With Time				ESC L				
Print All Unprotected							ESC L	
Auxiliary Print Mode Off								
CTRL T	CTRL T	CTRL T	ESC A	ESC A	ESC A	ESC A	ESC A	ESC A
Auxiliary Print Mode On								
CTRL R	CTRL R	CTRL R	ESC@	ESC@	ESC@	ESC@	ESC@	ESC@
Transparent Print Mode Off								
CTRL T	CTRL T	ESC 4	ESC a	ESC a	ESC a	ESC a	ESC a	ESC a
Transparent Print Mode On								
ESC d #	ESC d #	ESC 3	ESC `	ESC `	ESC `	ESC `	ESC `	ESC `
Secondary Receive Mode Off								
ESC d Sp	ESC d Sp	ENH						
Secondary Receive Mode On								
ESC d !	ESC d !	ENH						
Bi-Directional Mode Off								
ESC d $	ESC d $	ENH	CTRL T	CTRL T	CTRL T	CTRL T	CTRL T	CTRL T
Bi-Directional Mode On								
ESC d %	ESC d %		CTRL R	CTRL R	CTRL R	CTRL R	CTRL R	CTRL R
Select parallel printer port								
ESC e D	325/60: ESC e D							
Select serial printer port								
ESC e E	325/60: ESC e E							
Character Sets								
Select Primary Character Set								
ESC c D	ESC c D							
Select Secondary Character Set								
ESC c E	ESC c E							
Define Primary Character Set								
ESC c B bank	ESC c B bank							

QVT70 QVT62	WY350 WY325/ 60/50+	ADDS VP A2	TVI910+	TVI925	TVI950	TVI955	PC TERM	ESPRIT III
Define Secondary Character Set								
ESC c C bank	ESC c C bank							
Automatic Font Load Off								
ESC e N	ESC e N							
Automatic Font Load On								
ESC e O	ESC e O							
Load Font Bank With Predefined Character Set								
ESC c@ bank set	ESC c@ bank set							
Clear Font Bank								
ESC c ? bank	ESC c ? bank							
Define and Load Character								
ESC c A bank pp bb...bb CTRL Y	ESC c A bank pp bb...bb CTRL Y							

B

Appendix B

ANSI Commands

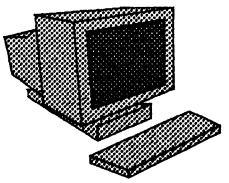


Table of Contents

ANSI Commands

This section describes the ANSI commands for the VT52, VT100, and VT220 emulations provided with your terminal. All ANSI Commands and terminal responses are in the 8-bit format recognized in the VT220 8-bit personality. Table B-1 lists the 7-bit equivalents for the 8-bit CI control characters that are recognized in VT 220 7-bit and VT100 personalities.

Table B-1
7-Bit Equivalents

8-bit Control Character	7_bit Equivalent
IND	ESC D
NEL	ESC E
HTS	ESC H
RI	ESC M
SS2	ESC O
SS3	ESC P
DCS	ESC P
CSI	ESC [
ST	ESC \

In this section, Pn represents a numerical parameter; Ps represents a selective parameter. Parameter values are listed after the command.

Control Code Summary

WY370	Intecolor VT220	VT100	Mnemonic

CONTROLLING COLOR ATTRIBUTES

Define Character Attributes

CSI Ps;...; Ps m CSI Ps;...; Ps m CSI Ps;...; Ps m SOR

Ps	Character Attribute	Ps	Character Attribute	Ps	Character Attribute
0	Normal (All attr off)	24	Underline off	35	Magenta character
1	Bold (dim, blank off	25	Blink off	36	Cyan character
2	Dim (bold, blank off)	27	Reverse off	37	White character
4	Underline	28	Blank off	40	Black background
5	Blink	29	Overstrike off	41	Red background
7	Reverse	30	Black character	42	Green background
8	Blank (bold, dim off)	31	Red character	43	Yellow background
9	Overstrike	32	Green character	44	Blue background
22	Normal Intensity	33	Yellow character	45	Magenta background
	(bold, dim, blank off)	34	Blue character	46	Cyan background
				47	White background

Up to 16 attributes may be combined by separating character attribute parameters with semicolons.

WY370	Intecolor VT220	VT100	Mnemonic
Select overstrike position			
CSI 53; Pn w			WYSOVR
Ps Number of line in character cell where overstrike is positioned (0-19)			
Define erasable character			
CSI 0 " q	CSI 0 " q or CSI 2 " q		DECSCA
Define nonerasable character			
CSI 1 " q	CSI 1 " q		DECSA
Enable separate assignment of attributes (SOR) to erasable and nonerasable characters			
CSI ? 84 h			WYENAT
Enable attribute assignment (SGR) to extend to both erasable and nonerasable characters			
CSI ? 84 l			WYENAT
Define top half of double-high, double-wide line			
ESC # 3	ESC # 3	ESC # 3	DECDHL
Define bottom half of double-high, double-wide line			
ESC # 4	ESC # 4	ESC # 4	DECDHL
Define single-high, single-wide line			
ESC # 5	ESC # 5	ESC # 5	DECSWL
Define single-high, double-wide line			
ESC # 6	ESC # 6	ESC # 6	DECSWL
Define top half of double-high, single-wide line			
ESC # :	ESC # :	ESC # :	WYDHL
Define bottom half of double-high, single-wide line			
ESC # ;	ESC # ;	ESC # ;	WYDHL
DEFINING COLOR ASSOCIATIONS			
Redefine character display attribute association			
CSI Ps; Ps1; Ps2; Ps3 w			WYCAA

Ps A value from 0 to 47 specifying the existing attribute association (blank, blink, reverse, underline) to be redefined for a given base character attribute (normal, dim, or bold)

Attribute Association	Base Character Attribute Normal Ps	Dim Ps	Bold Ps
Normal (no attributes)	0	16	32
Blank	1	17	33
Blink	2	18	34
Blink and blank	3	19	35
Reverse	4	20	36
Reverse and blank	5	21	37
Reverse and blink	6	22	38
Reverse, blink, blank	7	23	39
Underline	8	24	40
Underline and blank	9	25	41
Underline and blink	10	26	42
Underline, blank, blink	11	27	43
Underline and reverse	12	28	44
Underline, blank, reverse	13	29	45
Underline, blink, reverse	14	30	46
Underline, blank, blink, reverse	15	31	47

Ps1 A value from 0 to 64 specifying the new foreground color (see below)

Ps2 A value from 0 to 64 specifying the new background color (see below)

Colors (Ps1 and Ps2), as they appear from left to right in the F9 Setup menu (see Section 2):

color	Color	color	Color	color	Color
0	Default (NVR)	3	Deep Blue	63	Cream
64	White	2	Dark Blue	62	Pale Yellow
43	Gray	6	Teal Blue	61	Yellow
22	Charcoal Gray	11	Turquoise	57	Amber
1	Black	27	Blue-Gray	58	Tan
18	Violet	15	Blue-Green	59	Faded Purple
35	Medium Purple	31	Pale Blue-Green	60	Pale Purple
39	Purple Gray	47	Faded Blue-Green	56	Light Violet
36	Purple	14	Sea Green	52	Light Purple
40	Purple Blue	30	Seafoam Green	55	Purple Pink
44	Light Blue-Purple	10	Light Blue-Green	51	Magenta
48	Pale Cyan	26	Green-Blue	54	Pale Pink
16	Cyan	5	Grass-Green	49	Red
32	Light Cyan	21	Khaki-Green	50	Hot Pink
28	Light Blue	9	Bright-Green	53	Red Orange
12	Sky Blue	25	Medium Green	17	Brick Red
24	Medium Blue	13	Green	33	Deep Red
8	Bright Blue	29	Lime Green	34	Rose
20	Blue Purple	41	Dull Chartreuse	38	Faded Rose
4	Blue	42	Sage Green	37	Orange Brown
23	Powder Blue	45	Chartreuse		
7	Electric Blue	46	Pale Green		
19	Indigo				

Ps3 A value from 0 to 15 specifying the new attribute or attribute combination (see next table below)

Value	Attribute	Value	Attribute
0	Normal	8	Underline
1	Blank	9	Blank, underline
2	Blink	10	Blink, underline
3	Blank and blink	11	Blank, blink, and underline
4	Reverse	12	Reverse and underline
5	Blank and reverse	13	Blank, reverse, and underline
6	Blink and reverse	14	Blink, reverse, and underline
7	Blank, blink, and reverse	15	Blank, blink, reverse, and underline

WY370	Intecolor VT220	VT100	Mnemonic

Select foreground color
CSI 48; Ps w — WYCOLOR

Ps	Foreground Color	Ps	Foreground Color
0	Normal (white)	8	Yellow
1	Red	9	Light Green
2	Blue	10	Light Purple
3	Amber	11	Magenta
4	Intecolor	12	Purple Blue
5	Black	13	Rose
6	Green	14	Cream
7	Cyan	15	Sky Blue

Select background color
CSI 49; Ps w — WYCOLOR

Ps A value (0-64) from the color chart (page B-5). This also sets the border color to background color selected.

Restore foreground and background colors to last saved in NVR
CSI 50 w — WYCOLOR

When color index mode is on, colors are assigned to characters directly from a color index. Dim and bold attributes are not supported. The remaining commands in this section apply only when the terminal is in color index mode.

Select border color
CSI 51; Ps w — WYCOLOR

Ps A value (0-64) from the color chart (page B-5).

Select user status line attributes/color
CSI 54; Ps; Ps1; Ps2 w — WYCOLOR

Select system status line attributes/color
CSI 55; Ps; Ps1; Ps2 w — WYCOLOR

Select replacement character attributes/color
CSI 56; Ps; Ps1; Ps2 w — WYCOLOR

Select nonerasable character attributes/color
CSI 57; Ps; Ps1; Ps2 w — WYCOLOR

Select current character attributes/color
CSI Ps; Ps1; Ps2 x — CSI Ps;Ps1;Ps2x — WYCOLOR

Ps Foreground color, a value (0-64) from the color chart (page B-5)
Ps1 Background color, a value (0-64) from the color chart (page B-5)
Ps2 Attribute value (0-15) from the attribute table above

Turn color index mode on/off
CSI 63; Ps w — WYIND

Ps 0=Off, 1=On

When color index mode is on, colors are assigned to characters directly from a color index. Dim and bold attributes are not supported. The remaining commands in this section apply only when the terminal is in color index mode.

Return color index values to default
CSI 60 w — WYIND

Change current foreground color

CSI 61; Ps w — WYIND

Ps A value from the color table below that assigns new foreground color. Also turns on color index mode.

Index Mode Colors (Ps), as they appear from left to right in the F9 Setup menu (see Section 2)

Value	Color	Value	Color	Value	Color
63	White	2	Deep Blue	62	Cream
42	Gray	1	Dark Blue	61	Pale Yellow
21	Charcoal Gray	5	Teal Blue	60	Yellow
0	Black	10	Turquoise	56	Amber
17	Violet	26	Blue-Gray	57	Tan
34	Medium Purple	14	Blue-Green	58	Faded Purple
38	Purple Gray	30	Pale Blue-Green	59	Pale Purple
35	Purple	46	Faded Blue-Green	55	Light Violet
39	Purple Blue	13	Sea Green	51	Light Purple
43	Light Blue-Purple	29	Seafoam Green	54	Purple Pink
47	Pale Cyan	9	Light Blue-Green	50	Magenta
15	Cyan	25	Green-Blue	53	Pale Pink
31	Light Cyan	4	Grass-Green	48	Red
27	Light Blue	20	Khaki-Green	49	Hot Pink
11	Sky Blue	8	Bright-Green	52	Red Orange
23	Medium Blue	24	Medium Green	16	Brick Red
7	Bright Blue	12	Green	32	Deep Red
19	Blue Purple	28	Lime Green	33	Rose
3	Blue	40	Dull Chartreuse	37	Faded Rose
22	Powder Blue	41	Sage Green	36	Orange Brown
6	Electric Blue	44	Chartreuse		
18	Indigo	45	Pale Green		

Change current character background

CSI 62; Ps w — WYIND

Ps A value from the Index Mode Color table (page B-7) that assigns new background color. Also turns on color index mode.

Change current nonerasable character foreground color

CSI 64; Ps w — WYIND

Ps A value from the Index Mode Color table (page B-7) that assigns new foreground color. Also turns on color index mode. This command assings a separate color to nonerasable characters.

Change current nonerasable character background color

CSI 65; Ps w — WYIND

Ps A value from the Index Mode Color table (page B-7) that assigns new background color. Also turns on color index mode. This command assings a separate color to nonerasable characters.

Redefine color index value

CSI 66; Ps; Ps1 ; w WYIND

Ps A value from the Index Mode Color table (page B-7) that will be redefined

Ps1 A value from the Index Mode Color table (page B-7) specifying the new color to be assigned to the color table (page B-4)

	Control Code Summary					
Keybd Code	**Mnem**	**Name**	**Function**	**VT220**	**VT100**	**VT 52**
Ctrl @	NUL	Null	Ignored when received			
Ctrl A	SOH	Start of Header				
Ctrl B	STX	Start of text				
Ctrl C	ETX	End of text				
Ctrl D	EOT	End of transmission				
Ctrl E	ENQ	Enquiry	Causes answerback message to be transmitted	X	X	X
Ctrl F	ACK	Acknowledge				
Ctrl G	BEL	Bell (audible tone)	Generates bell tone if bell enabled	X	X	X
Ctrl H	BS	Backspace	Moves cursor to the left one character position; ignored when cursor is at left margin	X	X	X
Ctrl I	HT	Horizontal tab	Moves cursor to next tab stop, or to right margin if there are no more t ab stops. Does not cause autowrap.	X	X	X
Ctrl J	LF	Linefeed	Causes a linefeed or a new line operation, depending on setting of new line mode	X	X	X
Ctrl K	VT	Vertical tabulation	Same as LF	X	X	X
Ctrl L	FF	Form feed	Same as LF	X	X	X
Ctrl M	CR	Carriage return	Moves cursor to left margin on current line	X	X	X
Ctrl N	SO	Shift out (Lock shift G1)	Invokes G1 character set into GL. G1 is designated by a select-character set (SCS) sequence.	X	X	X
Ctrl O	SI	Shift in (Lock shift G0)	Invokes G0 character set into GL. G0 is designated by a select-character set (SCS) sequence.	X	X	X
Ctrl P Ctrl Q	DLE DC1	Data link escape Device control 1	Same as XON. If XOFF support is enabled, DC1 resets DC3 (XOFF), causing the terminal to continue t ransmitting characters (keyboard unlocks)unless KAM mode is currently set.	X	X	X
Ctrl R	DC2	Device control 2				
Ctrl S	DC3	Device control 3	Same as COFF. If XOFF support is enabled, DC3 causes the terminal to stop transmitting characters until DC1 control character is received.	X	X	X
Ctrl T	DC4	Device control 4				

Control Code Summary						
Keybd Code	Mnem	Name	Function	VT220	VT100	VT 52
Ctrl U	NAK	Negative Acknowledge				
Ctrl V	SYN	Synchronous idle				
Ctrl W	ETB	End of transmission block				
Ctrl X	CAN	Cancel	Abort the execution of Ctrl, ESC, or device controlsequences. No error character is displayed.	X	X	X
Ctrl Y	EM	End of medium				
Ctrl Z	SUB	Substitute	Processed as CAN except reverse question mark is displayed.	X	X	X
Ctrl [	ESC	Escape	Processed as escape sequence introducer. Terminates any escape, control, or device control sequence in progress.	X	X	X
Ctrl \	FS	File seperator				
Ctrl]	GS	Group separator				
Ctrl ^	RS	Record separator				
Ctrl _	US	Unit separator				

CONTROLLING THE TERMINAL MODES

Terminal Modes On (Set)

SM	(1)CSI Ps;...; Ps h	(1)CSI Ps;...; Ps h
SM	(2)CSI ? Ps ;...; Ps h	(2)CSI ? Ps ;...; Ps h

Terminal Modes Off (Reset)

RM	(1)CSI Ps;...; Ps l	(1)CSI Ps;...; Ps l
RM	(2)CSI ? Ps ;...; Ps l	(2)CSI ? Ps ;...; Ps *l*

(1)	Ps(2)	Mode	Mnemonic	Default(3)
	1	Nonerasable area transmit4	WYGATM	NVR
	2	Keyboard Lock	KAM	Off
	4	Insert	IRM	Off
	12	Local echo disable	SRM	NVR
	13	Control execution disable	FEAM	NVR
	16	Transfer termination	TTM	NVR
	20	Newline	LNM	NVR
	30	Display disable	LNM	NVR
	31	Status line display	WYSTLINM	NVR
	32	Screen saver	WYCRTSAVM	NVR
	33	Steady cursor	WYULCURM	NVR
	34	Underline cursor	SYULCURM	NVR
	35	Width Change Clear Disable	WYCLRM	NVR

(1) Final character in sequence a lowercase l.

(1)	Ps(2)	Mode	Mnemonic	Default(3)
	36	Denote key redefinition	WYDELKM	NVR
	37	Nonerasable area transmit (4)	WYGATM	NVR
	40	Last data line (6)	WYEXTDM	NVR
	41	Maximum data lines (7)	WYMAXDM	NVR
	42	Select QVT 70 personality (8)	WYASCII	Off
	45	Host port (9)	WYHP	NVR
	49	Recognize DEL (10)	WYDEL	NVR
	53	Cell size 2 (10x16) (11)	WYCELL	NVR

(2)	? Ps(2)	Mode	Mnemonic	Default(3)
	1	Cursor key application	DECCKM	Off
	2	ANSI/VT52 (12)	DECANM	NVR
	3	132-column	DECCOLM	NVR
	4	Scrolling	DECSCLM	NVR
	5	Reverse screen	DECSCNM	NVR
	6	Origin	DECOM	Off
	7	Autowrap	DECAWM	NVR
	8	Key autorepeat	DECARM	NVR
	10	Block mode	DECEDM	NVR
	16	Local key	DECEKEM	NVR
	18	Print form feed	DECPFF	NVR
	19	Print extent	DECPEX	NVR
	24	Select parallel printer port (12A)	QVTSPP	NVR
	25	Text cursor enable	DECTCEM	NVR
	42	National Replacement Character Set	DECNRCM	NVR
	54	ASCII key code mode	WYKCM	NVR
	61	Select IBM 437 char set	QVT437	NVR
	62	Select IBM 850 char set	QVT850	NVR

(2) Ps variables are listed in two groups. In the first group are the variables for terminal modes that can be set with SM command sequence (1) or reset with RM command sequence (1),; in the second group are the variables for terminal modes that can be set with SM sequence (;2) or reset with RM sequence (2). The second group is shown as ? Ps to indicate that sequence (w) includes a question mark immediately following the control sequence introducer CSI. Up to 16 Ps variables can be specified (separated by semicolons) in any one SM or RM command sequence.

(3) Mode status when terminal is turned on or reset NVR means that the status depends on the value last saved in nonvolatile memory in setup mode.

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
Save cursor position, attributes, character sets, wrap flag, origin mode			
DECSC	ESC 7	ESC 7	ESC7
WYSEC	or CSI s	or CSI s	or CSI S
Restore last saved cursor position, attributes, character sets, wrap flag, origin mode			
DECRC	ESC8	ESC 8	esc 8
WYRC	or CSI u	or CSI u	or CSI u
Delay processing about 250 ms			
WYDELAY	ESC ,	ESC ,	ESC ,
Sound bell, if enabled			
BEL	CTRL G	CTRL G	CTRL G
Abort escape sequence, display checkerboard character in VT100 personality			
CAN	CTRL X	CTRL X	CTRL X
Abort escape sequence display reverse question mark in VT200 personality; display checkerboard character in VT100 personality.			
SUB	CTRL Z	CTRL Z	CTRL Z
CONTROLLING THE SCREEN DISPLAY			
Monitor Mode on			
CRM	CSI 3 h	CSI 3 h	CSI 3 h
Monitor Mode off			
CRM	CSI 3 l	CSI e l	CSI e l
Control execution off			
FEAM	CSI 13 h	CSI 13 h	CSI 13 h
Control execution on			
FEAM	CSI 13 l	CSI 13 l	CSI 13 l
Display off (blank screen)			
WYDSCM	CSI 30 h	CSI 30 h	CSI 30 h
Display on			
WYDSCM	CSI 30 l	CSI 30 l	CSI 30 l
Status Line on			
WYSTLINM	CSI 31 h	CSI 31 h	CSI 31 h
Status Line off			
WYSTLINM	CSI 31 l	CSI 31 l	CSI 31 l
Screen Saver on			
WYCRTSAVM	CSI 32 h	CSI 32 h	CSI 32 h
Screen Saver off			
WYCRTSAVM	CSI 32 l	CSI 32 l	CSI 32 l
Width change clear off			
WYCLRM	CSI 35 h	CSI 35 h	CSI 35 h
Width change clear on (4)			
WYCLRM	CSI 35 l	CSI 35 l	CSI 35 l
25 or 43 data lines			
WYEXTDM	CSI 40 h	CSI 40 h	CSI 40 h
24 or 42 data lines			
WYEXTDM	CSI 40 l	CSI 40 l	CSI 40 l

(4) Clears the page when you change the number of columns; all pages are cleared if Enhance Setup parameter is set to off.

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
Select 10x16 character cell (60 Hz)			
WYCELL	CSI 53 h	CSI 53 h	CSI 53 h
Select 10x13 character cell (76 Hz)			
WYCELL	CSI 53 l	CSI 53 l	CSI 53 l
Select 10x13 character cell (76 Hz)			
WYCELL	CSI 39 l	CSI 39 l	CSI 39 l
132-column display			
DECCOLM	CSI ? 3 h	CSI ? 3 h	CSI ? 3 h
80-column display			
DECCOLM	CSI ? 3 l	CSI ? 3 l	CSI ? 3 l
Reverse Screen			
DECSCNM	CSI ? 5 h	CSI ? 5 h	CSI ? 5 h
Normal Screen			
DECSCNM	CSI ? 5 l	CSI ? 5 l	CSI ? 5 l
Line 1 is top line of scrolling region			
DECOM	CSI ? 6 h	CSI ? 6 h	CSI ? 6 h
Line 1 is top line of page			
DECOM	CSI ? 6 l	CSI ? 6 l	CSI ? 6 l
Autowrap on			
DECAWM	CSI ? 7 h	CSI ? 7 h	CSI ? 7 h
Autowrap off			
DECAWM	CSI ? 7 l	CSI ? 7 l	CSI ? 7 l
Cursor displayed			
DECTCEM	CSI ? 25 h	CSI ? 25 h	CSI ? 25h
Cursor invisible			
DECTCEM	CSI ? 25 l	CSI ? 25 l	CSI ? 25 l
Cursor steady (nonblinking)			
WYSTCURM	CSI 33 h	CSI 33 h	CSI 33 h
Cursor blinking			
WYSTCURM	CSI 33 l	CSI 33 l	CSI 33 l
Underline cursor on			
WYULCURM	CSI 34 h	CSI 34 h	CSI 34 h
Block cursor			
WYULCURM	CSI 34 l	CSI 34 l	CSI 34 l
Define scrolling region (5)			
DECSTBM	CSIU Pn;Pnlr	CSI Pn;Pnlr	CSI Pn;PnlR
Pn Top line number			
Pnl Bottom line number **(6)**			
Smooth scrolling on			
DECSCLM	CSI ? 4 h	CSI ? 4 h	CSI ? 4 h
Jump scrolling on			
DECSCLM	CSI ? 4 l	CSI ? 4 l	CSI ? 4 l

(5) Command is valid only when the Page Setup parameter is set to 1xlines. Scrolling region can be defined in currently displayed page only.

(6) The ending line is the last line on the screen if the second command is 0 or absent.

Mnemonic	Intecolor VT220	VT100	WY370
Set 1 lps smooth scrolling speed (7)			
WYSCRATE	CSI 1 z	CSI 1 z	CSI 1 z
Set 2 lps smooth scrolling speed (7)			
WYSCRATE	CSI 2 z	CSI 2 z	CSI 2 z
Set 4 lps smooth scrolling speed (7)			
WYSCRATE	CSI 3 z or CSI 10 z	CSI 3 z or CSI 10 z	CSO 3 z or CSI10z
Set 8 lps smooth scrolling speed (7)			
WYSCRATE	CSI 4 z	CSI 4 z	CSI 4 z
Control simulated keyboard LEDs in computer			
DECLL	CSI Ps;...; Ps q	CSI Ps;...; Ps q	CSI Ps;...; Ps q

Ps	LED
0	L1 to L4 off
1	L1 on
2	L2 on
3	L3 on
4	L4 on

SELECTING TERMINAL PERSONALITIES (8)			
VT220 8-bit (VT320 ID)			
DECSCL	CSI 63;2* p	CSI 63;2* p	CSI 63;2"p
VT220 7-bit (VT320 ID)			
DECSCL	CSI 63;1* p	CSI 63;1* p	CSI 63;1"p
VT220 8-bit			
DECSCL	CSI 62;2* p	CSI 62;2* p	CSI 62;2"p
VT220 7-bit			
DECSCL	CSI 62;1" p	CSI 62;1" p	CSI 62;1"p
VT100			
DECSCL	CSI 61;" p	CSI 61;" p	CSI 61 " p
VT 52			
DECANM	CSI ? 2I	CSI ? 2I	CSI ? 2 I
WY350			
	CSI47h	CSI42h	CSI42h
WY370 8 bit			
	CSI90;0"p	CSI90;0"p	CSI90;0"p
WY370 7-bit			
	CSI90;1"p	CSI90;1 p	CSI90;1"p

(7) Smooth scrolling must be on.

(8) When the personality is changed the terminal performs a soft reset (DECSTR).

Mnemonic	Intecolor VT220	VT100	WY370

LABELLING CHARACTER SETS (9)

Label Character Set

SCS ESC fcode scode ESC fcode scode

fcode	Font Bank
(	G0 94 character
)	G1 94 character
*	G2 94 character
+	G3 94 character
-	G1 96 character (VT220 only)
.	G2 96 character (VT220 only)
/	G3 96 character (VT220 only)

scode	Character Set
0	Special Graphics (page G-6)
A	ISO Latin-1 (VT220 only (19) or UK ANSI (VT100) (20) (pages G-2, G-5)
B	US ANSI (page G-5)
<	User-preferred suplemental (21) or ISO Latin 1 (pages G-10, G-2)
% 5	Multinational (VT200 only) (page G-10)
%7	ISO Latin 2 (page G-3)
name	Soft font name assigned by the name parameter in soft font load command (DECDLD)
A	UK
4	Dutch
5 or C	Finnish
R	French/Belgian/Flemish
9 or Q	French Canadian
K	German
Y	Italian
` or E or 6	Norwegian/Danish
% 6	Portuguese
Z	Spanish
7 or H	Swedish
=	Swiss
X	Latin American

Assign Multinational Supplemental as user-preferred supplemental set (default)

DECAUPSS DCS 0 !u%5 ST DCS 0 !u%5 ST

Assign ISO Latin-1 as user-defined supplemental set

DECAUPSS DCS 1 !u A ST DCS 1 !uA ST

National replacement character set mode on

DECNRCM CSI ? 42 h CSI ? 42 h CSI ? 42 h

National replacement character set mode off

DECNRCM CSI ? 42 l CSI ? 42 l CSI ? 42 l

(9) See Appendix G for character set illustrations.

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
ASSIGNING CHARACTER SETS			
Assign G0 character set to GL			
SI or LS0	CTRL O	CTRL O	CTRL O
Assign G1 character set to GL			
SO or LS1	CTRL N	CTRL N	CTRL N
Assign G1 character set to GR			
LS1R	ESC ~		ESC ~
Assign G2 character set to GL			
LS2	ESC n		ESC n
Assign G2 character set to GR			
LS2R	ESC }		ESC }
Assign G3 character set to GL			
LS3	ESC o		ESC o
Assign G3 character set to GR			
LS3R	ESC |		ESC |
Assign G2 character set to GL for the next character only			
SS2	ESC N		ESC N
Assign G3 character set to GL for the next character only			
SS3	ESC O		ESC O
CONTROLLING ATTRIBUTES			
LOADING SOFTFONTS (10)			
Load softfont character			
DECDLD	DCS Ps;Ps1;Ps2; (name Sxbp;...;Sxbp ST		DCS Ps;Ps1;Ps2; (name Sxbp; ...;Sxbp ST

Ps	Character Set Size
0	96-character softfont
2	32-character softfont

Ps1 Initial Character Position

A decimal number identifying the position of the initial character to be loaded. Character positions are numbered consecutively starting with 1 = 21H through 94 = 7EH for a 96-character set, or 63 df= 5FH through 94 = 7EH for a 32-character set.

Ps1	Erase Control
0 or 2	Erase all characters in the set before redefining (default)
1	Erase each character as it is defined
;	A separator

(10) Softfont characters will be lost after loading if you change any of the following setup mode parameter settings: Char Cell, Data Lines, Page, Personality.

Ps1	Erase Control
name	A one, two, or three character name assigned to the softfont character set and referenced when labelling the set (SCS)
	First character (optional): ASCII character from SP to /(20H-EH)
	Second character (optional): ASCII from SP to /(20H-2EH)
	Third character (required): ASCII character from 0 to ~(30H-7EH)
Sxbp	Six bit patterns (separated by /) defining the character. Multiple characters can be specified.
ST	String terminator

Define character attributes

SGR	CSI Ps;...; Ps m	CSI Ps;...; Ps m	

Ps	Character Attribute (11)
0	Normal (all attributes off)
1	Bold (dim, invisible, off)
2	Dim (bold, invisible, off)

Ps	Character Attribute (11)
4	Underline
5	Blink
7	Reverse
8	Invisible (bold, dim, off)
22	Normal intensity (bold, dim, invisible, off)
24	Underline off
25	Blink off
27	Reverse off

Define erasable character

DECSCA	CSI 0 " q or CSI 2 " q		CSI 0 " q or CSI 2 " q

Define nonerasable character

DECSCA	CSI 1 " q		CSI 1 " q

Define top half of double-high, double-wide line

DECDHL	ESC # 3	ESC # 3	ESC # 3

Define bottom half of doulbe-high, double-wide line

DECDHL	ESC # 4	ESC # 4	ESC # 4

Define single-high, single-wide line

DECSWL	ESC # 5	ESC # 5	ESC # 5

(11) Any number of attributes may be combined in one sequence by separating parameter values with semicolons (;).

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
Define single-high, double-wide line			
DECDWL	ESC # 6	ESC # 6	ESC # 6
Define top half of double-high, single-wide line			
WYDHL	ESC # :	ESC # :	ESC # :
Define bottom half of double-high, single-wide line			
WYDHL	ESC # ;	ESC # ;	ESC # ;
CONTROLLING CURSOR MOVEMENTS			
Move cursor to column n			
CHA	CSI Pn G	CSI Pn G	CSI Pn G
JPA	or CSI Pn	or CSI Pn	or CSI Pn
Move cursor up n lines			
CUU	CSI Pn A	CSI Pn A	CSI Pn A
Move cursor down n lines			
CUD	CSI Pn B or	CSI Pn B or	CSI Pn B or
VPR	CSI Pn e	CSI Pn e	CSI Pn e
Move curwsor right n columns			
CUF	CSI Pn C or	CSI Pn C or	CSI Pn C or
HPR	CSI Pn a	CSI Pn a	CSI Pn a
Move cursor left n columns			
CUB	CSI Pn D	CSI Pn D	CSI Pn D
Move cursor to line n			
VPA	CSI Pn d	CSI Pn d	CSI Pn d
Move cursor to line n, column n			
CUP	CSI Pn;Pn H	CSI Pn;Pn H or	CSI Pn;Pn H or
HVP	CSI Pn;Pn f	CSI Pn;Pn f	CSI Pn;Pn f
Move cursor down one line in current column; execute CR if new line mode is on			
LF	CTRL J	CTRL J	CTRL J
V T	or CTRL K	or CTRL K	or CTRL K
FF	or CTRL L	or CTRL L	or CTRL L
Move cursor up one line in current column or scroll down if at top line of scrolling region			
RI	ESC M	ESC M	ESC M
Move cursor down one line and to column 1			
NEL	ESC E	ESC E	ESC E
Move cursor down n lines and to column 1			
CNL	CSI Pn E	CSI Pn E	CSI Pn E
Move cursor up n lines and to column 1			
CPL	CSI Pn F	CSI Pn F	CSI Pn F
Backspace cursor			
BS	CTRL H	CTRL H	CTRL H
Backspace cursor and delete preceding character (12)			
WYDEL	DEL	DEL	DEL
Move cursor to next tab stop			
HT	CTRL I	CTRL I	CTRL I
Move cursor column 1 of current line			
CR	CTRL M	CTRL M	CTRL M

(12) When Recognize DEL setup parameter is set to ON.

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
EDITING FUNCTIONS			
Insert mode on			
IRM	CSI 4 h	CSI 4 h	CSI 4 h
Insert mode off			
IRM	CSI 4 l	CSI 4 l	CSI 4 l
Erase from cursor to end of display 26			
ED	CSI 0 J	CSI 0 J	CSI 0 J
Erase from start of display to cursor			
ED	CSI 1 J	CSI 1 J	CSI 1 J
Erase entire display (13)			
ED	CSI 2 J	CSI 2 J	CSI 2 J
Erase from cursor to end of line			
EL	ESC 0 K	ESC 0 K	ESC 0 K
Erase from start of line to cursor			
EL	ESC 1 K	ESC 1 K	ESC 1 K
Erase entire line			
EL	CSI 2 K	CSI 2 K	CSI 2 K
Erase erasable characters from cursor to end of display			
DECSED	CSI ? 0 J	CSI ? 0 J	
Erase erasable characters from start of display to cursor			
DECSED	CSI ? 1 J	CSI ? 1 J	
Erase erasable characters in entire display			
DECSED	CSI ? 2 J	CSI ? 2 J	
Erase erasable characters from cursor to end of line			
DECSEL	CSI ? 0 K	CSI ? 0 K	
Erase erasable characters from start of line to cursor			
DECSEL	CSI ? 1 K	CSI ? 1 K	
Erase erasable characters from entire line			
DECSEL	CSI ? 2 K	CSI ? 2 K	
Erase n characters beginning at cursor			
ECH	CSI Pn X	CSI Pn X	CSI Pn X
Insert n blank characters beginning at cursor			
ICH	CSI Pn @	CSI Pn @	CSI Pn @
Insert n blank lines beginning at cursor line			
IL	CSI kPn L	CSI kPn L	CSI kPn L
Delete n lines beginning at cursor line			
DL	CSI Pn M	CSI Pn M	CSI Pn M
Delete n characters beginning at cursor			
DCH	CSI Pn P	CSI Pn P	CSI Pn P
Clear tab stop at cursor			
TBC	CSI 0 g or	CSI 0 g or	CSI Pn P
CTC	CSI 2 W	CSI 2 W	CSI 2 W
Clear all tab stops			
TBC	CSI 3 g or	CSI 3 g or	CSI 3 g or
CTC	CSI 5 W	CSI 5 W	CSI 5 W

(13) When an entire line is erased, erases line attributes as well as character attributes.

Mnemonic	Intecolor VT220	VT100	WY370
Set tab stop at cursor			
CTC	CSI 0 W	CSI 0 W	CSI 0 W
HTS	or ESC H	or ESC H	or ESC H
Set tab stop every 8th column			
CTC	CSI ? 5 W	CSI ? 5 W	CSI ? 5 W
Move forward n tab stops			
CHT	CSI Pn I	CSI Pn I	CSI Pn I
Move backward n tab stops			
CBT	CSI Pn Z	CSI Pn Z	CSI Pn Z
Move cursor to next tab stop			
HT	CTRL I	CTRL I	CTRL I
CONTROLLING THE KEYBOARD			
Keyboard lock on			
KAM	CSI 2 h	CSI 2 h	CSI 2 h
Unlock keyboard			
KAM	CSI 2 I	CSI 2 I	CSI 2 I
Set delete key to BS/DEL			
WYDELKM	CSI 36 h	CSI 36 h	CSI 36 h
Reset delete key to DEL/CAN			
WYDELKM	CSI 36 I	CSI 36 I	CSI 36 I
Key autorepeat on			
DECARM	CSI ? 8 h	CSI ? 8 h	CSI ? 8 h
Key autorepeat off			
DECARM	CSI ? 8 I	CSI ? 8 I	CSI ? 8 I
Cursor keys send application-dependent codes			
DECCKM	CSI ? 1 h	CSI ? 1 h	CSI ? 1 h
Cursor keys send movement codes			
DECCKM	CSI ? 1 I	CSI ? 1 I	CSI ? 1 I
Numeric keypad numeric mode on			
DECKPNM	ESC >	ESC >	ESC >
Numeric keypad application mode on			
DECKPAM	ESC =	ESC =	ESC =
Unshifted function keys operate locally			
DECEKEM	CSI ? 16 h	CSI ? 16 h	CSI ? 16 h
Unshifted function keys operate remotely			
DECEKEM	CSI ? 16 I	CSI ? 16 I	CSI ? 16 I
Program function keys (14)			
DECUDK	DCS Ps;Ps1 | kc/hc ST	DCS Ps;Ps1 | kc/hc ST	DCS Ps;Ps1 | kc/hc ST

Ps	Clear
0	Clear all key definitions (default)
1	Clear keys only as they are redefined

(14) Multiple function key definitions can be programmed by entering the kc/hc parameters for each, separated by semicolons(;).

Ps 1	Key Lock
0	Lock key definitions
1	Don't lock key definitions

kc	kc	KEYBOARD STYLE		
Unshifted	Shifted	105-key ANSI	ASCII	Enhanced PC
6	12		F1	
7	13		F2	
8	14		F3	
9	15		F4	
10	16		F5	
37	17	F6	F6	F1
38	18	F7	F7	F2
39	19	F8	F8	F3
40	20	F9	F9	F4
41	21	F10	F10	F5
43	23	F11	F11	F6
44	24	F12	F12	F7
45	25	F13	F13	F8
46	26	F14	F14	F9
48	28	Help	F15	F10
49	29	Do	F16	F11
51	31	F17		F12
52	32	F18		
53	33	F19		
54	34	F20		

hc Key definition (string of B-digit hexadecimal codes, each digit being in the range 0-9 or A-F, representing ASCII values of the character string to load the key; maximum of 255 characters per key, 512.

Report function key redefinition

WYFKEX	CSI < Ps	CSI < Ps	CSI < Ps

Ps	Ps	KEYBOARD STYLE		
Unshifted	Shifted	105-key ANSI	ASCII	Enhanced PC
A	a	F6	F6	F6
B	b	F7	F7	F7
C	c	F8	F8	F8
D	d	F9	F9	F9
E	e	F10	F10	F10
F	f	F11	F11	F11
G	g	F12	F12	F12
H	h	F13	F13	F1
I	i	F14	F14	F2
J	j	Help	F15	F3
K	k	Do	F16	F4

Mnemonic	Intecolor VT220	VT100	WY370

kc Unshifted	kc Shifted	KEYBOARD STYLE 105-key ANSI	ASCII	Enhanced PC
L	l	F17	F1	F5
M	m	F18	F2	
N	n	F19	F3	
O	o	F20	F4	
P	p		F5	

TRANSMISSION/PRINTER CONTROL

Local echo off			
SRM	CSI 12 h	CSI 12 h	CSI 12 h
Local echo on			
SRM	CSI 12 l	CSI 12 l	CSI 12 l
Print through cursor position			
TTM	CSI 16 h	CSI 16 h	CSI 16 h
Print to end of line or end of screen			
TTM	CSI 16 l	CSI 16 l	CSI 16 l
Don't send form feed character to host port after send page operation			
DECTTC	CSI 0 |	CSI 0 |	CSI 0 |
Send form feed character to host port after print page operation			
DECTTC	CSI 1 |	CSI 1 |	CSI 1 |
Send form feed after print page operation			
DECPFF	CSI ? 18 h	CSI ? 18 h	CSI ? 18 h
Don't send form feed after print page operation			
DECPFF	CSI ? 18 l	CSI ? 18 l	CSI ? 18 l
Print full screen			
DECPEX	CSI ? 19 h	CSI ? 19 h	CSI ? 19 h
Print scrolling region			
DECPEX	CSI ? 19 l	CSI ? 19 l	CSI ? 19 l
8-bit transmission mode on			
S8CIT	ESC SPACE G	ESC SPACE G	
7-bit transmission mode on			
S7CIT	ESC SPACE F		ESC SPACE F
Send cursor character to host			
SYXCH	ESC 5	ESC 5	ESC 5
Send page to host			
MC	CSI 2 I	CSI 2 I	CSI 2 I
Send line to host			
MC	CSI ? 3 I	CSI ? 3 I	CSI ? 3 I
Print page			
MC	ESC 0 I	ESC 0 I	ESC 0 I
Print line			
MC	CSI ? 1 I	CSI ? 1 I	CSI ? 1 I
Controller print mode off			
MC	CSI 4 I	CSI 4 I	CSI 4 I
Controller print mode on			
MC	CSI 5 I	CSI 5 I	CSI 5 I

Control Code Summary

Mnemonic	Intecolor VT220	VT100	WY370
AUX receive mode off			
MC	CSI 6 i	CSI 6 i	CSI 6 i
AUX receive mode on			
MC	CSI 7 i	CSI 7 i	CSI 7 i
Autoprint mode off			
MC	CSI ? 4 i	CSI ? 4 i	CSI ? 4 i
Autoprint mode on			
MC	CSI ? 5 i	CSI ? 5 i	CSI ? 5 i
Send answerback message			
ENQ	CTRL E	CTRL E	CTRL E
Suspend transmission to host port (15)			
DC3	CTRL S	CTRL S	CTRL S
Resume transmission to host port (15)			
DC1	CTRL Q	CTRL Q	
TERMINAL REPORTS			
Request Terminal ID (Response: 160 CR)			
WYIID		ESC SPACE	
Request primary device attributes			
DA	CSI 0 c or	ESC [0 c or	CSI 0 c or
DECID	ESC Z	ESC Z	ESC Z
Response: (16)			
VT320 (8-bit)		CSI ? 63; 1; 2; 6; 7; 8; 9 c	CSI ? 63; 1; 2; 6; 7; 8; 9 c
VT320 (7-bit)		ESC [63; 1; 2; 6; 7; 8; 9 c	ESC [63; 1; 2; 6; 7; 8; 9 c
VT220 (8-bit)		CSI ? 62; 1; 2; 6; 7; 8; 9 c	CSI ? 62; 1; 2; 6; 7; 8; 9 c
VT220 (7-bit)		ESC [? 62; 1; 2; 6; 7; 8; 9 c	ESC [? 62; 1; 2; 6; 7; 8; 9 c
VT100		ESC [? 1; 2 c	ESC [? 1; 2 c
VT101		ESC [? 1; 0 c	ESC [? 1; 0 c
VT102		ESC [? 6 c	
Request secondary device attributes			
DA	CSI > 0 c	ESC [> 0 c	CSI > 0 c
Response:			
Ps	Current firmware revision		
Request terminal status			
DSR	CSI 5 n	CSI 5 n	CSI 5 n
Response:			
Terminal functioning and ready		CSI 0 n	CSI 0 n
Request cursor position			
DSR	CSI 6 n	CSI 6 n	CSI 6 n
Response:			
Cursor at line n, column n		CSI Pn; Pn R	CSI Pn;

(15) When XON/XOFF transmit handshaking is enabled.

(16) Response depends on personality selected in setup mode and on setting of ANSI ID setup parameter.

Mnemonic	Intecolor VT220	VT100	WY370
Request printer status			
DSR	CSI ? 15 n	CSI ? 15 n	CSI ? 15 n
Response:			
Printer ready		CSI ? 10n	CSI ? 10 n
Printer not ready		CSI ? 11n	CSI ? 11 n
Printer not connected		CSI ? 13n	CSI ? 13 n
Request function key definition lock			
DSR	CSI ? 25n	CSI ? 25n	CSI ? 25 n
Response:			
Key definitions unlocked		CSI ? 20n	CSI ? 20
Key definitions locked		CSI ? 21 n	CSI ? 21 n
Request keyboard language			
DSR	CSI ? 26n	CSI ? 26n	CSI ? 26 n
Response:		CSI ? 26; Ps n	CSI ? 26;Ps n

Ps (17)	105-key ANSI	ASCII	Enhanced PC
1	US	US	US
2	UK	UK	UK
3	Flemish	French Belgian	Belgian
4	French Canadian	French Canadian	French Canadian
6	Finnish		Finnish
7	German	German	German
8	Dutch		
9	Italian	Italian	Italian
10	Swiss French	Swiss German/French	Swiss French
11	Swedish	Swedish	Swedish
13	Norwegian	Norwegian	Norwegian
14	French/Belgian	French	French
15	Spanish	Spanish	Spanish
16	Portuguese		
30			Latin American

Display screen adjustment pattern			
DECALN	ESC # 8	ESC # 8	ESC # 8
Soft terminal reset (18)			
DECSTR	CSI ! p		CSI ! p
Hard terminal reset (19)			
RIS	ESC c	ESC c	ESC c
Terminal mode reset (20)			
WYSTR	ESC ! p	ESC ! p	ESC ! p

(17) North American model supports only US, French Canadian, and Latin American keyboard languages.

(18) Performs the following functions:
Turns cursor on (if off). Resets insert mode; origin mode; autowrap mode; keyboard lock mode; keypad application mode; cursor key application mode. Resets top margin to line 1. Resets bottom margin to line 24 or 25 (according to Data Line ANSI Commands for QVT61 is setup parameter. Resets G0, G1, G2, G3, GL, and GR to defaults. Resets character attributes to normal; selective erase attribute to erasable; save cursor state to default; national mode (7-bit) to multinational mode (8-bit); and user-preferred character sets to value last saved in setup mode.

(19) Performs the following functions in addition to all functions of a soft terminal reset:
Performs communicatioln line disconnect, reconnect. Restores all setup mode parameter settings to value last saved; an tab stops, answerback message, and function key definitions to values last saved in setup mode. Clears softfonts; screen; screen hold (no scroll); L1 to L4 status line labels; XOFF receive status on host port (transmit lock); and XOFF receive state on printer port (print lock). Homes cursor

(20) Performs the following functions:
Turns on screen display, if off. Clears block mode (set to full duplex); CAPS LOCK mode; L1 to L4 status line labels; XON receive state on the host port (transmit lock); XOFF receive state on the auxiliary port (print lock); and handshake status, raises DTR if low, sends XON if XON/XOFF handshaking is enabled. Resets insert mode; cursor key application mode; keyboard lock mode; keypad application mode; and G0, G1, G2, G3, GL, and GR to defaults

Command Set Summary

VT52 ESCAPE SEQUENCES (21)

Command	Sequence
Move cursor up one line	ESC A
Move cursor down one line	ESC B
Move cursor right one column	ESC C
Move cursor left one column	ESC D
Move cursor to home position	ESC H
Move cursor up one line with scroll	ESC I
Position cursor	ESC Y line col (22)
Select special graphics character set	ESC F
Select US ANSI character set	ESC G
Erase from cursor to end of display	ESC J
Erase from cursor to end of line	ESC K
Print cursor line	ESC V
Print display	ESC]
Controller print mode on	ESC W
Controller print mode off	ESC X
Autoprint mode on	ESC ^
Autoprint mode off	ESC _
Keypad application mode on	ESC =
Keypad application mode off	ESC >
Select VT100 personality	ESC <
Identify terminal	ESC Z
Respond VT52	ESC / Z

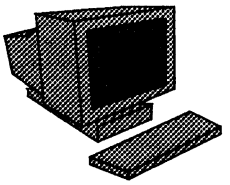
(21) See table for supported control codes.

(22) See line/col under variable values.

C

Appendix C

Port Pinouts



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Serial 1, Parallel, and Serial 2 Port Pinout Assignments

The Serial 1 Port Pinouts for your terminal are as follows:

Table C-1
Serial 1 Port Pinouts
(25-Pin Serial Port)

Pin Number	To Terminal	From Terminal	Signal
1			Chassis Ground
2		X	Transmit Data
3	X		Receive Data
4		X	Request to Send
5	X		Clear to Send
6	X		Data Set Ready
7			Signal Ground
8	X		Data Carrier Detect
15*	X		Current Loop, Receive +; or RS 422-A Receive -
17*		X	Current Loop, Transmit -; or RS 422-A Transmit +
20		X	Data Terminal Ready
24*	X		Current Loop, Receive -; or RS 422-A Receive +
25*		X	Current Loop, Transmit +; or RS 422-A Transmit -

**Optional. When the Current Loop/RS 422-A option board is installed, Pins 15, 17, 24, and 25 become active when RS 422/CL is selected in Setup Mode. Pins 2 and 3 (RS 232) become active when RS 232 is selected in Setup Mode.*

The Parallel Port Pinouts for your terminal are as follows:

Table C-2
Parallel Port Pinouts

Pin Number	To Terminal	From Terminal	Signal
1		X	- Strobe
2		X	+ Data Bit 0
3		X	+ Data Bit 1
4		X	+ Data Bit 2

Pin Number	To Terminal	From Terminal	Signal
5		X	+ Data Bit 3
6		X	+ Data Bit 4
7		X	+ Data Bit 5
8		X	+ Data Bit 6
9		X	+ Data Bit 7
10	X		- Acknowledge
11	X		+ Busy
12	X		+ Paper End
15	X		- Error
18-25			Ground 16, 17, 19-30, 33

The SERIAL 2 Port Pinouts for your terminal are as follows:

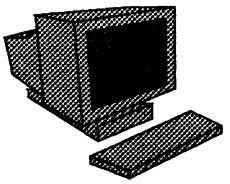
Table C-3
Serial 2 Port Pinouts
(9-Pin Serial Port)

Pin Number	To Terminal	From Terminal	Signal
1	X		Data Carrier Detect
2	X		Receive Data
3		X	Transmit Data
4		X	Data Terminal Ready
5			Ground
6	X		Data Set Ready
7		X	Request to Send
8	X		Clear to Send

D

Appendix D

Keyboard Remapping



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Keyboard Remapping

This section provides keyboard remapping information for ASCII and ANSI emulations, and three keyboard configurations, ASCII, ANSI, and EPC (extended PC), for each emulation. Tables D-1 through D-4 detail the keyboard remapping for ASCII emulation. Tables D-5 through D-13 detail ANSI keyboard remapping.

Table D-1
Edit and Special Key Codes, ASCII Keyboard

Key	Native Code	ADDS VP A2
Backspace	CTRL H	CTRL H
Clear Line	ESC T	ESC K
Clear Screen	ESC Y	ESC k
Up Arrow	CTRL K	CTRL Z
Down Arrow	CTRL J	CTRL J
Right Arrow	CTRL L	CTRL F
Left Arrow	CTRL H	CTRL U
Del	DEL	DEL
Del Char	ESC W	ESC W
Del Line	ESC R	ESC I
ESC	CTRL [	CTRL [
Enter	CTRL M	CTRL M
Home	CTRL ^	CTRL A
Shift Home	ESC {	CTRL A
Ins	ESC q	ESC q
Ins Char	ESC Q	ESC Q
Ins Line	ESC E	ESC M
Next Page	ESC K	ESC J
Prev Page	ESC J	ESC J
Print	ESC P	ESC P
Repl	ESC r	ESC r
Return	CTRL M	CTRL M
Send	ESC 7	ESC 7
Tab	CTRL I	CTRL I
Shift Tab	ESC I	ESC O

Table D-2
Edit and Special Key Codes, ANSI Keyboard

Key	Native Code	ADDS VP A2
Up Arrow	CTRL K	CTRL Z
Down Arrow	CTRL J	CTRL J
Right Arrow	CTRL L	CTRL F
Left Arrow	CTRL H	CTRL U
Backspace	CTRL H	CTRL H
Enter	CTRL M	CTRL M
Insert Here	ESC Q	ESC Q
Shift Insert Here	ESC E	ESC M
Next Scrn	ESC K	ESC J
PF1	ESC Q	ESC Q
Shift PF1	ESC E	ESC M
PF2	ESC w	ESC W
Shift PF2	ESC R	ESC I
PF3	ESC T	ESC K
Shift PF3	ESC Y	ESC k
PF4	ESC r	ESC r
Shift PF4	ESC q	ESC q
Prev Scrn	ESC J	ESC J
Remove	DEL	DEL
Return	CTRL M	CTRL M
Tab	CTRL I	CTRL I
Shift Tab	ESC I	ESC O

Table D-3
Edit and Special Key Codes, EPC Keyboard

Key	Native Code	ADDS VP A2
Backspace	CTRL H	CTRL H
Up Arrow	CTRL K	CTRL Z
Down Arrow	CTRL J	CTRL J
Right Arrow	CTRL L	CTRL F
Left Arrow	CTRL H	CTRL U
Del (Keypad)	DEL	DEL
Delete	ESC W	ESC W
Shift Delete	ESC R	ESC I
End	ESC T	ESC K
Shift End	ESC Y	ESC k

Key	Native Code	ADDS VP A2
Enter (Keypad)	CTRL M	CTRL M
Enter	CTRL M	CTRL M
Esc	CTRL [	CTRL [
Home	CTRL ^	CTRL A
Shift Home	ESC {	CTRL A
Insert	ESC q	ESC q
Shift Insert	ESC z	ESC z
Ins (Keypad)	ESC r	ESC r
Shift Ins (Keypad)	ESC q	ESC q
Page Down	ESC K	ESC J
Page Up	ESC J	ESC J
Print Screen	ESC P	ESC P
Tab	CTRL I	CTRL I
Shift Tab	ESC I	ESC O

Table D-4
Function Key Codes for ASCII Emulations

Key	Native	ADDS VP A2
F1	CTRL A @ CR	CTRL B 1 CR
Shift F1	CTRL A ' CR	CTRL B ! CR
F2	CTRL A A CR	CTRL B 2 CR
Shift F2	CTRL A a CR	CTRL B " CR
F3	CTRL A B CR	CTRL B 3 CR
Shift F3	CTRL A b CR	CTRL B # CR
F4	CTRL A C CR	CTRL B 4 CR
Shift F4	CTRL A c CR	CTRL B $ CR
F5	CTRL A D CR	CTRL B 5 CR
Shift F5	CTRL A d CR	CTRL B % CR
F6	CTRL A E CR	CTRL B 6 CR
Shift F6	CTRL A e CR	CTRL B & CR
F7	CTRL A F CR	CTRL B 7 CR
Shift F7	CTRL A f CR	CTRL B ' CR
F8	CTRL A G CR	CTRL B 8 CR
Shift F8	CTRL A g CR	CTRL B (CR
F9	CTRL A H CR	CTRL B 9 CR
Shift F9	CTRL A h CR	CTRL B) CR
F10	CTRL A I CR	CTRL B : CR
Shift F10	CTRL A i CR	CTRL B * CR
F11	CTRL A J CR	CTRL B ; CR
Shift F11	CTRL A j CR	CTRL B + CR

Key	Native	ADDS VP A2
F12 Shift F12	CTRL A K CR CTRL A k CR	CTRL B < CR CTRL B , CR
F13 Shift F13	CTRL A L CR CTRL A l CR	CTRL B = CR CTRL B - CR
F14 Shift F14	CTRL A M CR CTRL A m CR	CTRL B > CR CTRL B . CR
F15 or Help Shift F15	CTRL A N CR CTRL A n CR	CTRL B ? CR CTRL B / CR
F16 or Do Shift F16	CTRL A O CR CTRL A o CR	CTRL B @ CR CTRL B 0 CR
F17 Shift F17	CTRL A P CR CTRL A p CR	CTRL B A CR CTRL B 1 CR
F18 Shift F18	CTRL A Q CR CTRL A q CR	CTRL B B CR CTRL B 2 CR
F19 Shift F19	CTRL A R CR CTRL A r CR	CTRL B C CR CTRL B 3 CR
F20 Shift F20	CTRL A S CR CTRL A s CR	CTRL B D CR CTRL B 4 CR

Table D-5
Edit and Special Key Codes, ASCII Keyboard

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
Backspace	CTRL H	CTRL H	CTRL H	CTRL H
Clr Line	ESC O R	SS3 R	ESC O R	ESC R
Clr Scrn	ESC O R	SS3 R	ESC O R	ESC R
Up Arrow	ESC [A	CSI A	ESC [A	ESC A
Down Arrow	ESC [B	CSI B	ESC [B	ESC B
Right Arrow	ESC [C	CSI C	ESC [C	ESC C
Left Arrow	ESC [D	CSI D	ESC [D	ESC D
Del	DEL or CTRL H	DEL or CTRL H	DEL or CTRL H	DEL or CTRL H
Shift Del	CTRL X or DEL	CTRL X or DEL	CTRL X or DEL	CTRL X or DEL
Del Char	ESC O Q	SS3 Q	ESC O Q	ESC Q
Del Line	ESC O Q	SS3 Q	ESC O Q	ESC Q
Enter	CTRL M	CTRL M	CTRL M	CTRL M
Esc	CTRL [	CTRL [	CTRL [	CTRL [
Home	ESC [H	CSI H	ESC [H	ESC H

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
Ins	ESC O S	SS3 S	ESC O S	ESC S
Ins Char	ESC O P	SS3 P	ESC O P	ESC P
Ins Line	ESC O P	SS3 P	ESC O P	ESC P
Next Page	ESC [U	CSI U	ESC [U	
Prev Page	ESC [H	CSI V	ESC [V	
Repl	ESC O S	SS3 S	ESC O S	ESC S
Return	CTRL M	CTRL M	CTRL M	CTRL M
Tab	CTRL I	CTRL I	CTRL I	CTRL I
Shift Tab	ESC [Z	CSI Z	ESC [Z	CTRL I

Table D-6
Edit and Special Key Codes, ANSI Keyboard

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
Up Arrow	ESC [A	CSI A	ESC [	ESC A
Down Arrow	ESC [B	CSI B	ESC [B	ESC B
Right Arrow	ESC [C	CSI C	ESC [C	ESC C
Left Arrow	ESC [D	CSI D	ESC [D	ESC D
Backspace	DEL or CTRL H	DEL or CTRL H	DEL or CTRL H	DEL or CTRL H
Shift Backspace	CTRL X or DEL	CTRL X or DEL	CTRL X or DEL	CTRL X or DEL
Enter	CTRL M	CTRL M	CTRL M	CTRL M
Find	ESC [1 ~	CSI 1 ~		
Insert Here	ESC [2 ~	CSI 2 ~		
Shift Insert Here	ESC [2 ~	CSI 2 ~		
Next Scrn	ESC [6 ~	CSI 6 ~		
Prev Scrn	ESC [5 ~	CSI 5 ~		
Remove	ESC [3 ~	CSI 3 ~		
Return	CTRL M	CTRL M	CTRL M	CTRL M
Select	ESC [4 ~	CSI 4 ~		
Tab	CTRL I	CTRL I	CTRL I	CTRL I
Shift Tab	ESC [Z	CSI Z	ESC [Z	CTRL I

Table D-7
Edit and Special Key Codes, EPC Keyboard

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
Backspace	CTRL H	CTRL H	CTRL H	CTRL H
Up Arrow	ESC [A	CSI A	ESC [A	ESC A
Down Arrow	ESC [B	CSI B	ESC [B	ESC B
Right Arrow	ESC [C	CSI C	ESC [C	ESC C
Left Arrow	ESC [D	CSI D	ESC [D	ESC D
Del (Keypad) Shift Del (Keypad)	DEL or CTRL H CTRL X or DEL	DEL or CTRL H CTRL X or DEL	DEL or CTRL H CTRL X or DEL	DEL or CTRL H DEL
Delete Shift Delete	DEL or CTRL H CTRL X or DEL	DEL or CTRL H CTRL X or DEL	DEL or CTRL H CTRL X or DEL	DEL or CTRL H DEL
End Shift End	ESC [1 ESC [1 ~	CSI 1 ~ CSI 1 ~		
Enter Enter (Keypad)	CTRL M CTRL M	CTRL M CTRL M	CTRL M CTRL M	CTRL M CTRL M
Esc	CTRL [	CTRL [	CTRL [	CTRL [
Home	ESC [H	CSI H	ESC [H	ESC H
Ins (Keypad) Shift Ins (Keypad)	ESC O S ESC O S	SS3 S SS3 S	ESC O S ESC O S	ESC S ESC S
Insert Shift Insert	ESC [2 ~ ESC 2 ~	CSI 2 ~ CSI 2 ~		
PgDn (Keypad) Page Down	ESC [U ESC [6	CSI U CSI [6 ~	ESC [U	
PgUp (Keypad) Page Up	ESC [V ESC [5 ~	CSI V CSI [5 ~	ESC [V	
Tab Shift Tab	CTRL I ESC [Z	CTRL I CSI Z	CTRL I ESC [Z	CTRL I CTRL I

Table D-8
PF Key Codes

ASCII	ANSI	EPC	VT220 7-Bit	VT220 8-Bit	VT52
PF1	Ins Char	F1	ESC O P	SS3 P	ESC P
PF2	Del Char	F2	ESC O Q	SS3 Q	ESC Q
PF3	Clr Line	F3	ESC O R	SS3 R	ESC R
PF4	Repl	F4	ESC O S	SS3 S	ESC S

Table D-9
Numeric Keypad Application Mode

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
-	ESC O m	SS3 m	ESC O m	ESC ? m
+	+	+	+	+
/	/	/	/	/
*	*	*	*	*
.	ESC O l	SS3 l	ESC O l	ESC ? l
,	ESC O n	SS3 n	ESC O n	ESC ? n
0	ESC O p	SS3 p	ESC O p	ESC ? p
1	ESC O q	SS3 q	ESC O q	ESC ? q
2	ESC O r	SS3 r	ESC O r	ESC ? r
3	ESC O s	SS3 s	ESC O s	ESC ? s
4	ESC O t	SS3 t	ESC O t	ESC ? t
5	ESC O u	SS3 u	ESC O u	ESC ? u
6	ESC O v	SS3 v	ESC O v	ESC ? v
7	ESC O w	SS3 w	ESC O w	ESC ? w
8	ESC O x	SS3 x	ESC O x	ESC ? x
9	ESC O y	SS3 y	ESC O y	ESC ? y
Enter	ESC O M	SS3 M	ESC O M	ESC ? M

Table D-10
Cursor Key Application Mode Codes

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
Up Arrow	ESC O A	SS3 A	ESC O A	
Down Arrow	ESC O B	SS3 B	ESC O B	
Right Arrow	ESC O C	SS3 C	ESC O C	
Left Arrow	ESC O D	SS3 D	ESC O D	

Table D-11
Function Key Default Codes - ASCII Keyboard

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F1 Shift F1	ESC [? 5 i ESC [5 i	CSI ? 5 I CSI 5 I	ESC [? 5 i ESC [5 i	
F2 Shift F2	ESC [? 3 i ESC [? 1 i	CSI ? 3 i CSI ? 1 i	ESC [? 3 i ESC [? 1 i	

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F3 Shift F3	ESC [2 i ESC [0 i	CSI 2 i CSI 0 i	ESC [2 i ESC [0 i	
F4 Shift F4	ESC [@ ESC [L	CSI @ CSI L	ESC [@ ESC [L	
F5 Shift F5	ESC [M ESC [K	CSI M CSI K	ESC [M ESC [K	
F6 Shift F6	ESC [17~ ESC [31~	CSI 17~ CSI 31~	ESC [17~ ESC [31~	
F7 Shift F7	ESC [18~ ESC [32~	CSI 18~ CSI 32~	ESC [18~ ESC [32~	
F8 Shift F8	ESC [19~ ESC [33~	CSI 19~ CSI 33~	ESC [19~ ESC [33~	
F9 Shift F9	ESC [20~ ESC [34~	CSI 20~ CSI 34~	ESC [20~ ESC [34~	
F10 Shift F10	ESC [21~ ESC [35~	CSI 21~ CSI 35~	ESC [21~ ESC [35~	
F11 Shift F11	ESC [23~ ESC [1~	CSI 23~ CSI 1~	ESC [23~ ESC [1~	
F12 Shift F12	ESC [24~ ESC [2~	CSI 24~ CSI 2~	ESC [24~ ESC [2~	
F13 Shift F13	ESC [25~ ESC [3~	CSI 25~ CSI 3~	ESC [25~ ESC [3~	
F14 Shift F14	ESC [26~ ESC [4~	CSI 26~ CSI 4~	ESC [26~ ESC [4~	
F15 Shift F15	ESC [28~ ESC [5~	CSI 28~ CSI 5~	ESC [28~ ESC [5~	
F16 Shift F16	ESC [29~ ESC [6~	CSI 29~ CSI 6~	ESC [29~ ESC [6~	

Table D-12
Function Key Default Codes - ANSI Keyboard

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F6 Shift F6	ESC [17 ~	CSI 17 ~		
F7 Shift F7	ESC [18 ~	CSI 18 ~		
F8 Shift F8	ESC [19 ~	CSI 19 ~		
F9 Shift F9	ESC [20 ~	CSI 20 ~		

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F10 Shift F10	ESC [21 ~	CSI 21 ~		
F11 Shift F11	ESC [23 ~	CSI 23 ~	CTRL [CTRL [	
F12 Shift F12	ESC [24 ~	CSI 24 ~	CTRL H CTRL H	
F13 Shift F13	ESC [25 ~	CSI 25 ~	CTRL J CTRL J	
F14 Shift F14	ESC [26 ~	CSI 26 ~	ESC [H ESC [H	
Help Shift Help	ESC [28 ~	CSI 28 ~		
Do Shift Do	ESC [29 ~	CSI 29 ~		
F17 Shift F17	ESC [31 ~	CSI 31 ~		
F18 Shift F18	ESC [32 ~	CSI 32 ~		
F19 Shift F19	ESC [33 ~	CSI 33 ~		
F20 Shift F20	ESC [34 ~	CSI 34 ~		

Table D-13
Function Key Default Codes - EPC Keyboard

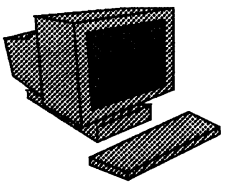
Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F1 Shift F1	ESC O P ESC O P	SS3 P SS3 P	ESC O P ESC O P	ESC P ESC P
F2 Shift F2	ESC O Q ESC O Q	SS3 Q SS3 Q	ESC O Q ESC O Q	ESC Q ESC Q
F3 Shift F3	ESC O R ESC O R	SS3 R SS3 R	ESC O R ESC O R	ESC R ESC R
F4 Shift F4	ESC O S ESC O S	SS3 S SS3 S	ESC O S ESC O S	ESC S ESC S
F5 Shift F5	ESC [M ESC [K	CSI M CSI K	ESC [M ESC [K	ESC [M ESC [K
F6 Shift F6	ESC [17 ~ ESC [31 ~	CSI 17 ~ CSI 31 ~	ESC [17 ~ ESC [31 ~	ESC [17 ~ ESC [31 ~
F7 Shift F7	ESC [18 ~ ESC [32 ~	CSI 18 ~ CSI 32 ~	ESC [18 ~ ESC [32 ~	ESC [18 ~ ESC [32 ~

Key	VT220 7-Bit	VT220 8-Bit	VT100	VT52
F8	ESC [19 ~	CSI 19 ~	ESC [19 ~	ESC [19 ~
Shift F8	ESC [33 ~	CSI 33 ~	ESC [33 ~	ESC [33 ~
F9	ESC [20 ~	CSI 20 ~	ESC [20 ~	ESC [20 ~
Shift F9	ESC [34 ~	CSI 34 ~	ESC [34 ~	ESC [34 ~
F10	ESC [21 ~	CSI 21 ~	ESC [21 ~	ESC [21 ~
Shift F10	ESC [35 ~	CSI 35 ~	ESC [35 ~	ESC [35 ~
F11	ESC [23 ~	CSI 23 ~	ESC [23 ~	ESC [23 ~
Shift F11	ESC [1 ~	CSI 1 ~	ESC [1 ~	ESC [1 ~
F12	ESC [24 ~	CSI 24 ~	ESC [24 ~	ESC [24 ~
Shift F12	ESC [2 ~	CSI 2 ~	ESC [2 ~	ESC [2 ~

E

Appendix E

Control Key Visualization



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Control Key Visualization

This appendix presents the control key visualization for the QVT 70 terminal. The table below lists the keystrokes necessary to generate the 32 possible ASCII Control Codes. Control Codes are issued when the Control Key is depressed simultaneously with another key as follows:

Table E-1
Control Key Visualizations

ASCII		KEYSTROKE		
Control Code	**Hex**	**Description**	**Ctrl Key Depressed with Addtl Key(s)**	**Display***
NUL	00	NULL	CONTROL-@	N_L
SOH	01	START OF HEADER	CONTROL-A	S_H
STX	02	START OF TEXT	CONTROL-B	S_X
ETX	03	END OF TEXT	CONTROL-C	E_X
EOT	04	END OF TRANSMISSION	CONTROL-D	E_T
ENQ	05	ENQUIRY	CONTROL-E	E_Q
ACK	06	ACKNOWLEDGE	CONTROL-F	A_K
BEL	07	BELL	CONTROL-G	B_L
BS	08	BACKSPACE	CONTROL-H	B_S
HT	09	HORIZONTAL TAB	CONTROL-I	H_T
LF	0A	LINE FEED	CONTROL-J	L_F
VT	0B	VERTICAL TAB	CONTROL-K	V_T
FF	0C	FORM FEED	CONTROL-L	F_F
CR	0D	CARRIAGE RETURN	CONTROL-M	C_R
SO	0E	SHIFT OUT	CONTROL-N	S_O
SI	0F	SHIFT IN	CONTROL-0	S_I
DLE	10	DATA LINE ESCAPE	CONTROL-P	D_L
DC1	11	DEVICE CONTROL 1	CONTROL-Q	D_1
DC2	12	DEVICE CONTROL 2	CONTROL-R	D_2
DC3	13	DEVICE CONTROL 3	CONTROL-S	D_3
DC4	14	DEVICE CONTROL 4	CONTROL-T	D_4

ASCII		KEYSTROKE		
Control Code	Hex	Description	Ctrl Key Depressed with Addtl Key(s)	Display*
NAK	15	NEGTVE ACKNWLDGE	CONTROL-U	N_K
SYN	16	SYNCHRONOUS IDLE	CONTROL-V	S_Y
ETB	17	END OF TRNSMISSION BLK	CONTROL-W	E_B
CAN	18	CANCEL	CONTROL-X	C_N
EM	19	END OF MEDIUM	CONTROL-Y	E_M
SUB	1A	SUBSTITUTE	CONTROL-Z	S_B
ESC	1B	ESCAPE	CONTROL-[	E_C
FS	1C	FILE SEPARATOR	CONTROL-\	F_S
GS	1D	GROUP SEPARATOR	CONTROL-]	G_S
RS	1E	RECORD SEPARATOR	CONTROL-^	R_S
US	1F	UNIT SEPARATOR	CONTROL-_	U_S

**If Monitor Mode is enabled, control codes will display as shown.*

F

Appendix F

Display Attributes

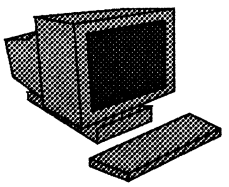

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Table F-1
Character Display Attribute Values (WYSE 50, 60)

attr	Display Attribute
SPACE	Space character
0	Normal
1	Invisible (no display)
2	Blink
3	Blink and blank
4	Reverse
5	Reverse and invisible
6	Reverse and blink
7	Reverse, blink, and invisible
8	Underline
9	Underline and invisible
:	Underline and blink
;	Underline, blink, and invisible
<	Underline and reverse
=	Underline, reverse, and invisible
>	Underline, reverse, and blink
?	Underline, reverse, blink, and invisible
p	Dim
q	Dim and invisible
r	Dim and blink
s	Dim, blink, and invisible
t	Dim and reverse
u	Dim, reverse, and invisible
v	Dim, reverse, and blink
w	Dim, reverse, blink, and invisible
x	Dim and underline
y	Dim, underline, and invisible
z	Dim, underline, and blink
{	Dim, underline, blink, and invisible
|	Dim, underline, and reverse
}	Dim, underline, reverse, and invisible
~	Dim, underline, reverse, and blink
DEL	Dim, underline, reverse, blink, and invisible

Table F-2
Line Attribute Values (WYSE 50, 60)

lattr	Line Attribute
@	Single-high, singlf-wide characters (default)
A	Single-high, doublf-wide characters
B	Top half of doublf-high, singlf-wide characters
C	Bottom half of doublf-high, singlf-wide characters
D	Top half of doublf-high, doublf-wide characters
E	Bottom half of doublf-high, doublf-wide characters
G	Normal background
H	Bold background
I	Invisible background (default)
J	Dim background

G

Appendix G

Character Sets

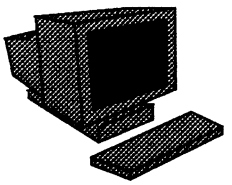

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Table G-1
ISO Latin 1 Character Set

DEC	HEX	0	0 1	16 2	32 3	48 4	64 5	80 6	94 7	112
0	0		«	NBSP	¯	≤	D	Ö	«	
1	1	a		≠	±	∞	•	†	§	
2	2	b	±	õ	2	±	Ω	É	ï	
3	3	G	≥	ú	3	≥	ª	ı	Ç	
4	4	a	£	Ã	'	é	º	Ñ	ì	
5	5	p	Û	ù	s	ï	œ	Ü	«	
6	6	S	ı	|	+	í	œ	ë	î	
7	7	s	£	À	˘	Ä	x	á	∏	
8	8	t	∏	‰	Â	∂	Ï	ä	Ô	
9	9	F	ª	„	1	ê	¡	Ç	ó	
10	A	q	∞	¶	ß	¥	ø	à	£	
11	B	W	∑	Æ	Ø	µ	¿	â	ñ	
12	C	d	˘	ÿ	1/4	∫	ö	ç	Å	
13	D	•	+	-	1/2	∑	Y	°	y	
14	E	Δ	n	,	3/4	∏	þ	å	þ	
15	F	Œ	[	-	®	π	·	ã	ò	

Table G-2
ASCII Code Chart

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0		D0		0	@	P	`	p
1	1	SH	D1	!	1	A	Q	a	q
2	2	SX	D2	"	2	B	R	b	r
3	3	EX	D3	#	3	C	S	c	s
4	4	ET	D4	$	4	D	T	d	t
5	5	EQ	NK	%	5	E	U	e	u
6	6	AK	SY	&	6	F	V	f	v
7	7	BL	EB	'	7	G	W	g	w
8	8	BS	CN	(	8	H	X	h	x
9	9	HT	EM	)	9	I	Y	i	y
10	A	LF	SB	*	:	J	Z	j	z
11	B	VT	EC	+	;	K	[	k	{
12	C	FF	FS	,	<	L	\	l	|
13	D	CR	GS	-	=	M	]	m	}
14	E	SO	RS	.	>	N	^	n	~
15	F	ST	US	/	?	O	_	o	

Table G-3
Standard ANSI Character Set

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0				0	@	P	`	p
1	1	◆	¯	!	1	A	Q	a	q
2	2	▒	–	"	2	B	R	b	r
3	3	HT	_	#	3	C	S	c	s
4	4	FF	_	$	4	D	T	d	t
5	5	CR	├	%	5	E	U	e	u
6	6	LF	┤	&	6	F	V	f	v
7	7	°	┴	'	7	G	W	g	w
8	8	±	┬	(	8	H	X	h	x
9	9	NL	|	)	9	I	Y	i	y
10	A	VT	£	*	:	J	Z	j	z
11	B	┘	≥	+	;	K	[	k	{
12	C	┐	p	,	<	L	\	l	|
13	D	┌	π	-	=	M	]	m	}
14	E	└	£	.	>	N	^	n	~
15	F	┼	·	/	?	O	_	o	

Table G-4
UK ANSI Character Set

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0				0	@	P	`	p
1	1	◆	¯	!	1	A	Q	a	q
2	2	▒	‾	"	2	B	R	b	r
3	3	HT	_	£	3	C	S	c	s
4	4	FF	_	$	4	D	T	d	t
5	5	CR	├	%	5	E	U	e	u
6	6	LF	┤	&	6	F	V	f	v
7	7	°	┴	'	7	G	W	g	w
8	8	±	┬	(	8	H	X	h	x
9	9	NL	│	)	9	I	Y	i	y
10	A	VT	£	*	:	J	Z	j	z
11	B	┘	≥	+	;	K	[	k	{
12	C	┐	p	,	<	L	\	l	|
13	D	┌	π	-	=	M	]	m	}
14	E	└	£	.	>	N	^	n	~
15	F	┼	·	/	?	O	_	o	

Table G-5
ANSI Graphics Character Set

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0				0	@	P	◆	⎺
1	1	◆	⎺	!	1	A	Q	▒	⎺
2	2	▒	⎺	"	2	B	R	HT	⎯
3	3	HT	⎯	#	3	C	S	FF	⎯
4	4	FF	⎯	$	4	D	T	CR	├
5	5	CR	├	%	5	E	U	LF	┤
6	6	LF	┤	&	6	F	V	°	┴
7	7	°	┴	'	7	G	W	±	┬
8	8	±	┬	(	8	H	X	NL	|
9	9	NL	|	)	9	I	Y	VT	£
10	A	VT	£	*	:	J	Z	┘	≥
11	B	┘	≥	+	;	K	[	┐	p
12	C	┐	p	,	<	L	\	┌	π
13	D	┌	π	-	=	M	]	└	£
14	E	└	£	.	>	N	^	┼	·
15	F	┼	·	/	?	O			

Table G-6
Graphics 1 Character Set

DEC	HEX	0 0	16 1	32 2	48 3	64 4	80 5	94 6	112 7
0	0				0			0	▮
1	1				1			1	⎯
2	2				2			2	▬
3	3				3			3	▬
4	4				4			4	├
5	5				5			5	┤
6	6				6			6	┴
7	7				7			7	┬
8	8				8			8	│
9	9				9			9	
10	A							┘	┐
11	B							┐	└
12	C				►			┌	┘
13	D				◄			└	┌
14	E				▲			┼	▮
15	F				▼			▮	

Table G-7
Graphics 2 Character Set

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0					┌	┬	─	
1	1								
2	2								
3	3								
4	4					┐	┤	│	
5	5								
6	6								
7	7								
8	8					└	├	┼	
9	9								
10	A								
11	B								
12	C					└	┴		
13	D								
14	E								
15	F								

Table G-8
Graphics 3 Character Set

DEC / HEX	0 0	16 1	32 2	48 3	64 4	80 5	94 6	112 7
0 0								
1 1								
2 2								
3 3								
4 4								
5 5								
6 6								
7 7								
8 8								
9 9								
10 A								
11 B								
12 C								
13 D								
14 E								
15 F								

Table G-9
Native Mode

DEC	HEX	0 0	16 1	32 2	48 3	64 4	80 5	94 6	112 7
0	0		┬		0	@	P	`	p
1	1	SH	└	!	1	A	Q	a	q
2	2	SX	┌	"	2	B	R	b	r
3	3	EX	┐	#	3	C	S	c	s
4	4	ET	├	$	4	D	T	d	t
5	5	EQ	┘	%	5	E	U	e	u
6	6	AK	│	&	6	F	V	f	v
7	7	BL	▉	'	7	G	W	g	w
8	8	BS	┼	(	8	H	X	h	x
9	9	HT	┤	)	9	I	Y	i	y
10	A	LF	─	*	:	J	Z	j	z
11	B	VT	▒	+	;	K	[	k	{
12	C	FF	═	,	<	L	\	l	|
13	D	CR	┴	-	=	M	]	m	}
14	E	SO	‖	.	>	N	^	n	~
15	F	ST	▒	/	?	O	_	o	

Table G-10
Multinational

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0	Ç	É	á	▒	└	╨	α	≡
1	1	ü	œ	í	▒	┴	╤	ß	±
2	2	é	Æ	ó	▓	┬	╥	Γ	≥
3	3	â	ô	ú	│	├	╙	π	≤
4	4	ä	ö	ñ	┤	─	╘	Σ	⌠
5	5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	6	å	û	ª	╢	╞	╓	µ	÷
7	7	ç	ù	º	╖	╟	╫	τ	≈
8	8	ê	ÿ	¿	╕	╚	╪	Φ	°
9	9	ë	Ö	⌐	╣	╔	┘	Θ	∙
10	A	è	Ü	¬	║	╩	┌	Ω	•
11	B	ï	¢	1/2	╗	╦	■	δ	√
12	C	î	£	1/4	╝	╠	▬	∞	n
13	D	ì	¥	¡	╜	═	▮	ε	2
14	E	Ä	Pt	«	╛	╬	▮	ø	■
15	F	Å	ƒ	»	┐	╧	▬	∩	

Table G-11
PC Equivalent

DEC	HEX	0 0	16 1	32 2	48 3	64 4	80 5	94 6	112 7
0	0		►		0	@	P	`	p
1	1	☺	◄	!	1	A	Q	a	q
2	2	☻	↕	"	2	B	R	b	r
3	3	♥	‼	#	3	C	S	c	s
4	4	♦	¶	$	4	D	T	d	t
5	5	♣	§	%	5	E	U	e	u
6	6	♠	—	&	6	F	V	f	v
7	7	•	↨	'	7	G	W	g	w
8	8	◘	↑	(	8	H	X	h	x
9	9	○	↓	)	9	I	Y	i	y
10	A	◙	→	*	:	J	Z	j	z
11	B	♂	←	+	;	K	[	k	{
12	C	♀	∟	,	<	L	\	l	|
13	D	♪	↔	-	=	M	]	m	}
14	E	♫	▲	.	>	N	^	n	~
15	F	☼	▼	/	?	O	_	o	⌂

Table G-12
IBM 850 (Right Half)

DEC	HEX	0	16	32	48	64	80	94	112
		0	1	2	3	4	5	6	7
0	0		►		0	@	P	`	p
1	1	☺	◄	!	1	A	Q	a	q
2	2	☻	↕	"	2	B	R	b	r
3	3	♥	‼	#	3	C	S	c	s
4	4	♦	¶	$	4	D	T	d	t
5	5	♣	§	%	5	E	U	e	u
6	6	♠	—	&	6	F	V	f	v
7	7	•	↨	'	7	G	W	g	w
8	8	◘	↑	(	8	H	X	h	x
9	9	○	↓	)	9	I	Y	i	y
10	A	◙	→	*	:	J	Z	j	z
11	B	♂	←	+	;	K	[	k	{
12	C	♀	∟	,	<	L	\	l	|
13	D	♪	↔	-	=	M	]	m	}
14	E	♫	▲	.	>	N	^	n	~
15	F	☼	▼	/	?	O	_	o	⌂

Table G-12
IBM 850 (Left Half)

DEC	HEX	128 8	144 9	160 A	176 B	192 C	208 D	224 E	240 F
0	0	Ç	É	á	▒	└	ð	Ó	
1	1	ü	æ	í	▓	┴	Ð	ß	±
2	2	é	Æ	ó	▓	┬	Ê	Ô	=
3	3	â	ô	ú	│	├	Ë	Ò	3/4
4	4	ä	ö	ñ	┤	─	È	õ	¶
5	5	à	ò	Ñ	Á	┼	ı	Õ	§
6	6	å	û	ª	Â	ã	Í	µ	÷
7	7	ç	ù	º	À	Ã	Î	þ	¸
8	8	ê	ÿ	¿	©	╚	Ï	Þ	°
9	9	ë	Ö	®	╣	╔	┘	Ú	¨
10	A	è	Ü	¬	║	╩	┌	Û	•
11	B	ï	ø	1/2	╗	╦	■	Ù	1
12	C	î	£	1/4	╝	╠	▬	ý	3
13	D	ì	Ø	¡	¢	═	¦	Ý	2
14	E	Ä	x	«	¥	╬	Ì	~	■
15	F	Å	ƒ	»	¬	¤	▬	¯	

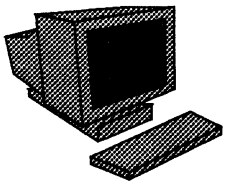
Table G-13
DEC Supplemental

DEC	HEX	128 8	144 9	160 A	176 B	192 C	208 D	224 E	240 F
0	0		DCS		°	≤		à	
1	1		PU1	¡	±		Ñ	á	ñ
2	2		PU2	¢	2	±	Ω	â	ò
3	3		STS	£	3	|	ª	∫	ó
4	4	IND	CCH			Ä	º	ä	ô
5	5	NEL	MW	¥	m	Å	œ	å	«
6	6	SSA	SPA		+	Æ	Ö	æ	ö
7	7	ESA	EPA	À	•	Ç	OE	ç	oe
8	8	HTS		Ã		∂	∞	è	Ô
9	9	HTJ		π	1	É	¡	é	ù
10	A	VTS		ª	º	¥	¬	ê	ú
11	B	PLD	CSI	«	»	µ	¿	ë	û
12	C	PLU	ST		1/4	∫	Ü	ì	ü
13	D	RI	OSC		1/2	∑	√	í	ÿ
14	E	SS2	PM			∏		î	
15	F	SS3	APC		¿	π	ß	ï	

H

Appendix H

UNIX Commands



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UNIX Command Set

This appendix describes the SCO UNIX console command set for the QVT 70 terminal. These consist of ANSI Screen Attribute Sequences and additional screen attribute sequences. The QVT 70 terminal can support three ECON 80 pages or sessions with an optional eight sessions when additional memory is added. The screen pages may be accessed through use of the mscreen utility. Modify the /etc/mscreencap file to define QVT 70 function to the operating system. Add these lines of code to create an ANSI entry for the QVT 70:

```
# ANSI
# ANSI Console Emulation support
ansi | ansic | ansinam:\
        :who,Alt-F5,\E[%,:\
        :help,Alt-F6,\E[&,:\
        :stop,Alt-F7,\E['',:\
        :quit,Alt-F8,\E[(,:\
        :,ALT-F1,\ESC[|,\ESC[0z
        :,ALT-F2,\ESC[},\ESC[1z
        :,ALT-F3,\ESC[~,\ESC[2z
```

To support screens 4 through 8, make these entries:

NOTE: To support 8 screens, your terminal must have an optional memory upgrade.

```
        :,ALT-F4,\ESC[sp,\ESC[3z
        :,ALT-F5,\ESC[!,\ESC[4z
        :,ALT-F6,\ESC["",\ESC[5z
        :,ALT-F7,\ESC[#,\ESC[6z
        :,ALT-F8,\ESC[$,\ESC[7z
```

After logging into the UNIX system, the pseudo port defined above must be enabled by entering "enable ttyp0, enable ttyp1, enable tty2". To enable screen 4 through 8, continue enabling pseudo ports up to port 8. Finally, invoke the mscreen function by entering as follows "mscreen -n 3 -s". Change '3' to '8' for eight pages.

These sequences are defined by ANSI X3.64-1979 and may be used to control and modify the screen display. Each variable 'n' is replaced by the appropriate ASCII number, or decimal, to create the desired effect. The last column is for *termcap* (M) codes, where 'n/a' means 'not applicable.'

The use of 7 or 8 bit characters in the escape sequence is a valid invocation for each action defined. For example, the ANSI ED command can be invoked with the 'ESC [*n* J' (0x1b-0x5b-n-0x4a, 7 bit characters) sequence or the 'CSI *n* J' (0x9b-n-0x4n, 8 bit characters).

Table H-1
ANSI Screen Attribute Sequences

ISO	Sequence	Termcap	Action
ED	CSI n J	cd	Erases all or part of a display. n=0: erases from active position to end of display. n-1: erases from start of display to active position. n=2: erases entire display.
EL	CSI n K	ce	Erases all or part of a line. n=0: erases from active position to end of line. n=1: erases from start of line to active position. n=2: erases entire line.
ECH	CSI n X	n/a	Erases n characters.
CBT	CSI n Z	bt	Moves active position back n tab stops.
SU	CSI n S	sf	Scroll screen up n lines; introduces new blank lines at bottom.
SD	CSI n T	sr	Scrolls screen down n lines; introduces new blank lines at top.
CUP	CSI m;n H	cm	Moves active position to location m (vertical) and n (horizontal).
HVP	CSI m; n f	n/a	Moves active position to location m (vertical) and n (horizontal).
CUU	CSI n A	up (ku)	Moves active position up n number of lines.
CUD	CSI n B	do (kd)	Moves active position down n number of lines.
CUF	CSI n C	nd (kr)	Moves active position n spaces to the right.
CUB	CSI n D	bs (kl)	Moves active position n spaces backward.
HPA	CSI n '	n/a	Moves active position to column given by n.
HPR	CSI n a	n/a	Moves active position n characters to the right.
VPA	CSI n d	n/a	Moves active position to line given by n.
VPR	CSI n e	n/w	Moves active position down n number of lines.
IL	CSI n L	al	Inserts n new blank lines.
ICH	CSI n @	ic	Inserts n blank places for n characters.
DL	CSI n M	dl	Deletes n lines.
DCH	CSI n P	dc	Deletes n number of characters.
CPL	CSI n F	n/a	Moves active position to start of line, n lines up.
CNL	CSI n E	n/a	Moves active position to start of line, n lines down.

ISO	Sequence	Termcap	Action
SGR	CSI n m	n/a	Character attributes, as summarized below. Multiple attributes can be specified in the form: CSI n1;n2;n3 m.

Select Graphic Rendition Chart

n	Meaning
0	all attributes off (normal display)
1	bold intensity (or light color)
4	underscore on (if hardware supports it)
5	blink on (if hardware supports it
7	reverse video
8	sets blank (non-display)
10	selects the primary font
11	selects the first alternate font; lets ASCII characters less than 32 be displayed as ROM characters
12	selects a second alternate font; toggles high bit of extended ASCII code before displaying as ROM characters.
30	Black foreground
31	Red foreground
32	Green foreground
33	Brown foreground
34	Blue foreground
35	Magenta foreground
36	Cyan foreground
37	White foreground
38	Enables underline option; white foreground with white underscore
39	Disables underline option
40	Black background
41	Red background
42	Green background
43	Brown background
44	Blue background
45	Magenta background
46	Cyan background
47	White background

SM	CSI 2 h	n/a	Lock keyboard. Ignores keyboard input until unlocked. Characters are not saved.
MC	CSI 2 i	n/a	Send screen to host. Current screen contents are sent to the application.
RM	CSI 2 l	n/a	Unlock keyboard. Re-enable keyboard input.

Table H-2
Additional Screen Attribute Sequences

Name	Sequence	Termcap	Action
n/a	CSI=p;dB	n/a	Set the bell parameter to the decimal values of p and d. p is the period of the bell tone in units of 840.3 nanoseconds. d is the duration of the tone in units of 100 milliseconds.
n/a	CSI=s;eC	n/a	Set the cursor to start on scanline s and end on scanline e.
n/a	CSI n g	n/a	Accesses alternate graphics set. Not the same as 'graphics mode.' Refer to your manual for decimal/character codes (Pn) and possible output characters.
n/a	CSI=cA	n/a	Set overscan color to color c. c is a decimal value taken from Color Table below.
n/a	CSI=cF	n/a	Set normal foreground color to c. c is a decimal value taken from Color Table below.
n/a	CSI=cG	n/a	Set normal background color to c. c is a decimal value taken from Color Table below.
n/a	CSI=cH	n/a	Set reverse foreground color to c. c is a decimal value taken from Color Table below.
n/a	CSI=c I	n/a	Set reverse background color to c. c is a decimal value taken from Color Table below.
n/a	CSI=cJ	n/a	Set graphic foreground to color c. c is a decimal value taken from Color Table below.
n/a	CSI=cK	n/a	Set graphic background to color c. c is a decimal value taken from Color Table below.

Color Table

c	Color	c	Color
0	Black	8	Grey
1	Blue	9	Light Blue
2	Green	10	Light Green
3	Cyan	11	Light Cyan
4	Red	12	Light Red
5	Magenta	13	Light Magenta
6	Brown	14	Yellow
7	White	15	Light White

Name	Sequence	Termcap	Action
n/a	ESC Q Fn "string"	n/a	Define function key Fn with string. String delimiters ` and ' may be any character not in string. Fn is defined as the key number starting at zero plus the ASCII value of zero; for example, F1=0...F16=?, and so on.
			In this escape sequence, the ^ character will cause the next character to have 32 subtracted from its ASCII value. Thus ^! results in a SOH (^A) characters.
n/a	CSI n z	n/a	n should be equal to the number of the screen to switch to. If screen does not exist, no action will take place.
n/a	CSI=nL	n/a	Fills new regions with current (n=0) or normal (n=1) attributes. Default is 0.
n/a	CSI=nM	n/a	Returns current foreground color attributes, with n=0 for normal, 1 for reverse, and 2 for graphic. The colors are sent back in the keyboard data stream as text decimal values seperated by a space and terminated with a new line. For example, if the current foreground color is red on black, "12 0/n" is returned.
n/a	CSIs	n/a	Saves current cursor position.
n/a	CSIu	n/a	Restores saved cursor position.
n/a	ESC 7	n/a	Saves current cursor position.
n/a	ESC8	n/a	Restores saved cursor position.

Table H-3
Control Code Functions

Control	Code	Function
ENQ	CTRL E	Send Ack
BEL	CTRLG	Sound bell with fixed tone
BS	CTRL H	Cursor Left
HT	CTRL I	Tabulate Cursor
LF	CTRL J	Cursor down, scroll
VT	CTRL K	Cursor up, no scroll
FF	CTRL L	Cursor right
CR	CTRL M	Cursor to start of line

Control Code		Function
DC1	CTRL Q	XON --> Enable Tx Device Control 1
DC3	CTRL S	XOFF --> Stop Tx Device Control 3
SYN	CTRL V	Cursor down, no scroll
SUB	CTRL Z	Clear screen to space
ESC	CTRL [	Introduces an escape sequence
RS	CTRL ^	Home cursor
US	CTRL _	Cursor to start of next line

Table H-4
VT320 Compatible Printer Commands

Abbreviation	Command Format	Function
MC	ESC [? 5 i	Auto Print Mode On
MC	ESC [? 4 i	Auto Print Mode Off
MC	ESC [5 i	Printer Controller Mode On
MC	ESC [4 i	Printer Controller Mode Off
MC	ESC [i	Print Screen
MC	ESC [? 1 i	Print Cursor Line

Table H-5
Default Function Key Values

Key Number	Function Key	Function
1	F1	ESC [M
2	F2	ESC [N
3	F3	ESC [O
4	F4	ESC [P
5	F5	ESC [Q
6	F6	ESC [R
7	F7	ESC [S
8	F8	ESC [T
9	F9	ESC [U
10	F10	ESC [V
11	F11	ESC [W
12	F12	ESC [X
13	Shift-F1	ESC [Y
14	Shift-F2	ESC [Z
15	Shift-F3	ESC [a

Key Number	Function Key	Function
16	Shift-F4	ESC [b
17	Shift-F5	ESC [c
18	Shift-F6	ESC [d
19	Shift-F7	ESC [e
20	Shift-F8	ESC [f
21	Shift-F9	ESC [g
22	Shift-F10	ESC [h
23	Shift-F11	ESC [i
24	Shift-F12	ESC [j
25	Ctrl-F1	ESC [k
26	Ctrl-F2	ESC [l
27	Ctrl-F3	ESC [m
28	Ctrl-F4	ESC [n
29	Ctrl-F5	ESC [o
30	Ctrl-F6	ESC [p
31	Ctrl-F7	ESC [q
32	Ctrl-F8	ESC [r
33	Ctrl-F9	ESC [s
34	Ctrl-F10	ESC [t
35	Ctrl-F11	ESC [u
36	Ctrl-F12	ESC [v
37	Ctrl-Shift-F1	ESC [w
38	Ctrl-Shift-F2	ESC [x
39	Ctrl-Shift-F3	ESC [y
40	Ctrl-Shift-F4	ESC [z
41	Ctrl-Shift-F5	ESC [@
42	Ctrl-Shift-F6	ESC [[
43	Ctrl-Shift-F7	ESC [\
44	Ctrl-Shift-F8	ESC [ ]
45	Ctrl-Shift-F9	ESC [^
46	Ctrl-Shift-F10	ESC [_
47	Ctrl-Shift-F11	ESC [`
48	Ctrl-Shift-F12	ESC [{
49	Home	ESC [H
50	Up Arrow	ESC [A

Key Number	Function Key	Function
51	Page Up	ESC [I
52	Minus Sign	-
53	Left Arrow	ESC [D
54	5	ESC [E
55	Right Arrow	ESC [C
56	Plus Sign	+
57	End	ESC [F
58	Down Arrow	ESC [B
59	Page Down	ESC [G
60	Insert	ESC [L

I

Appendix I

ASCII Color Commands

QVT70/62 WY325/60	WY50+ TVI910+ TVI925/955 ADDS A2	PC TERM	WY350	TVI950 ESPRIT III

Select predefined color palette

ESC d z palette	ESC d z palette	ESC SP # palette	ESC % palette	Setup Mode or Ctrl Keypad (0-9)

'palette' is 0,1,2,3,4,5,6,7,8,9,:,;,<,=,>,?. Refer to Table 2-2 (page 2-20) for color palette in QVT70, QVT62, WY325, WY60, WY50+, ADDS A2, TVI910+, TVI925, TVI955, and PC Term emulations; in these emulations, pressing Control and a Numeric Keypad Key (0-9) also selects color palettes. Palette 10 (:) is a soft palette in QVT70, QVT 62, WY325, WY60, WY50+, ADDS A2, TVI910+, TVI925, TVI955, and PC Term emulations; color redefinitions can be saved in nonvolatile memory by entering <SAVE> in Setup Mode. Refer to Table 2-3 (page 2-24) for color palettes in WY350, TVI950, and Esprit III emulations; in these emulations, pressing Control and a Numeric Keypad Key (0-9) also selects color palettes. In QVT70, QVT62, WY325, WY60 emulations, selecting any palette will turn off color direct mode automatically. Color palette can also be selected through the Setup Mode in the Miscellaneous (F6) Setup Menu.

Redefine the color map (association)

ESC d y fcolor color map	ESC d y fcolor bcolor map	ESC SP $ fcolor bcolor map	ESC m attr-c color attr-n

fcolor, bcolor, and map values for QVT70, QVT62, WY325, WY60, WY50+, ADDS A2, TVI910+, TVI925, TVI955, PC Term emulations:

fcolor	bcolor	Color
1	1	Black
2	2	Blue
3	3	Green
4	4	Cyan
5	5	Red
6	6	Magenta
7	7	Yellow
8	8	White
9	9	Dark Blue
:	:	Sea Green
;	;	Violet
<	<	Purple Pink

fcolor	bcolor	Color
=	=	Cream
>	>	Rose
?	?	Purple
@	@	Amber

map	Associated Attribute
1	Normal
2	Reverse/blank
3	Dim intensity
4	Dim intensity, reverse/blank
5	Underline
6	Underline, reverse/blank
7	Underline, dim intensity
8	Underline, dim intensity, reverse/blank

attr-c and attr-n values in WY350 emulation:

attr-c	Color Association	attr-c	Color Association
0	Normal	5	Underline, reverse
1	Reverse	6	Dim, underline
2	Dim	7	Dim, reverse, underline
3	Underline	8	Write-protect*
4	Dim, reverse		

*color association only: attr-n must be enterd but will be ignored.

attr-n	New Attribute
0	Normal
-	Reverse
.	Underline
/	Underline, reverse

color value for WY350 emulation:

color	Foreground Color	color	Foreground Color
1	Black (normal)	_	Medium green
)	Black	'	Khaki green
!	Black	m	Sage green
?	Indigo	p	Pale green
&	Violet	o	Chartreuse
x	Light violet	/	Dull chartreuse
"	Dark blue	7	Yellow
.	Deep blue	}	Pale yellow
2	Blue	y	Amber
]	Powder blue	~	Cream
^	Medium blue	8	White
a	Blue gray	z	Tan
b	Light blue	i	Orange brown
9	Electric blue	u	Red orange
:	Bright blue	5	Red
<	Sky blue	-	Deep red
\	Blue purple	%	Brick red
$	Teal blue	s	Hot pink

color	Foreground Color	color	Foreground Color
,	Turquoise	t	Magenta
>	Blue green	v	Pale pink
;	Light blue green	w	Purple pink
e	Pale blue green	h	Purple
q	Faded blue green	.	Medium purple
4	Cyan	6	Light purple
f	Light cyan	|	Pale purple
r	Pale cyan	{	Faded purple
=	Sea green	g	Rose

color	Foreground Color	color	Foreground Color
d	Sea foam green	j	Faded rose
`	Green blue	l	Purple blue
#	Grass green	k	Purple gray
3	Green	o	Light gray
+	Bright green	(	Charcoal gray
c	Lime green		

Disable the hardware intensity attribute

ESC e \| ESC e \| ESC SP "

This command should make all characters appear at normal brightness when the user programs the characters with the Dim intensity attribute.

Enable the hardware intensity attribute

ESC e } ESC e } ESC SP I

This command should make all characters appear dimmer than normal when user programs the characters with the Dim intensity attribute.

Map the blank attribute

ESC d { ESC d { ESC SP %

Refer to Table 2-1 (page 2-20) for more details.

Map the reverse attribute

ESC d \| ESC d \| ESC SP &

Refer to Table 2-1 (page 2-20) for more details.

Select the border color

ESC d } b_color ESC d } b_color ESC d } b_color

b_color values are as follows:

b_color	Color	b_color	Color
1	Black	B	Dim blue
2	Blue	C	Dim green
3	Green	D	Dim Cyan
4	Cyan	E	Dim red
5	Red	F	Dim magenta
6	Magenta	G	Dim yellow
7	Yellow	H	Dim white
8	White		

Select the border color

ESC d b color ESC SP b color

color values are as follows, as they appear from left to right in the F9 Setup menu (see Section 2):

color	Color	color	Color	color	Color
SP	Default (NVR)	#	Deep Blue	_	Cream
`	White	"	Dark Blue	^	Pale Yellow
K	Gray	&	Teal Blue	]	Yellow
6	Charcoal Gray	+	Turquoise	Y	Amber
!	Black	;	Blue-Gray	Z	Tan
2	Violet	/	Blue-Green	[	Faded Purple
C	Medium Purple	?	Pale Blue-Green	\	Pale Purple
G	Purple Gray	O	Faded Blue-Green	X	Light Violet
D	Purple	.	Sea Green	T	Light Purple
H	Purple Blue	>	Seafoam Green	W	Purple Pink
L	Light Blue-Purple	*	Light Blue-Green	S	Magenta
P	Pale Cyan	:	Green-Blue	V	Pale Pink
0	Cyan	%	Grass-Green	Q	Red
@	Light Cyan	5	Khaki-Green	R	Hot Pink
<	Light Blue	)	Bright-Green	U	Red Orange
,	Sky Blue	9	Medium Green	1	Brick Red
8	Medium Blue	-	Green	A	Deep Red
(	Bright Blue	=	Lime Green	B	Rose
4	Blue Purple	I	Dull Chartreuse	F	Faded Rose
$	Blue	J	Sage Green	E	Orange Brown
7	Powder Blue	M	Chartreuse		
'	Electric Blue	N	Pale Green		
3	Indigo				

Assigning the display attribute

ESC G attr ESC G attr ESC G attr ESC G attr ESC G attr

attr is a value that defines display attribute to be assigned to the character. The terminal will use tisplay attribute map to the associated foreground/ background color for the character iselecting palette. Refer to Table 2-1 (page 2-20) and 2-3 (page 2-24). attr values are as follows:

attr	Display Attribute	attr	Display Attribute
0	Normal	p	Dim
1	Blank (no display)	q	Dim, blank
2	Blink	r	Dim, blink
3	Blink, blank	s	Dim, blink, blank
4	Reverse	t	Dim, reverse
5	Reverse, blank	u	Dim, reverse, blank
6	Reverse, blink	v	Dim, reverse, blink
7	Reverse, blink, blank	w	Dim, reverse, blink, blank
8	Underline	x	Dim, underline
9	Underline, blank	y	Dim, underline, blank
:	Underline, blink	z	Dim, underline, blink
;	Underline, blink, blank	{	Dim, underline, blink, blank
<	Underline, reverse, blink	|	Dim, reverse, underline
=	Underline, reverse, blank	}	Dim, reverse, blank, underline
>	Underline, reverse, blink	DEL	Dim, reverse, underline, blink, blank
?	Underline, reverse, blink, blank		

For Esprit III emulation, attr values are as follows:

attr	Display Attribute	attr	Display Attribute
0	Green	8	Black
1	Cyan	9	Blue
2	Yellow	:	Red
3	White	;	Magenta
4	Green, reverse	<	Black, reverse
5	Cyan, reverse	=	Blue, reverse
6	Yellow, reverse	>	Red, reverse
7	White, reverse	?	Magenta, reverse

Turn on color direct mode
ESC d C 1 ESC SP C 1

Turn on color palette mode
ESC d C 0 ESC SP C 0

Select foreground color directly
ESC d d color ESC SP d color

color values are listed with 'Select the Border Color' command. Color direct mode is turned on automatically.

Select background color directly
ESC d e color ESC SP e color

color values are listed with 'Select the Border Color' command. Color direct mode is turned on automatically.

Assign foreground, background color directly
ESC d h CGA color ESC SP h CGA color

CGA color values are listed below in hexadecimal values. Values 80H through FFH are 8-bit values.

	Background Color (high nibble)								
	Black	**Blue**	**Green**	**Cyan**	**Red**	**Magenta**	**Orange Brown**	**Charcoal Gray**	**Gray**
Foreground Color (low nibble)									
Black	00	10	20	30	40	50	60	70	80
Blue	01	11	21	31	41	51	61	71	81
Green	02	12	22	32	42	52	62	72	82
Cyan	03	13	23	33	43	53	63	73	83
Red	04	14	24	34	44	54	64	74	84
Magenta	05	15	25	35	45	55	65	75	85
Orange Brown	06	16	26	36	46	56	66	76	86
Gray	07	17	27	37	47	57	67	77	87
Charcoal Gray	08	18	28	38	48	58	68	78	88
Light Blue	09	19	29	39	49	59	69	79	89
Light Green	0A	1A	2A	3A	4A	5A	6A	7A	8A
Light Cyan	0B	1B	2B	3B	4B	5B	6B	7B	8B
Orange Red	0C	1C	2C	3C	4C	5C	6C	7C	8C
Light Violet	0D	1D	2D	3D	4D	5D	6D	7D	8D
Yellow	0E	1E	2E	3E	4E	5E	6E	7E	8E
White	0F	1F	2F	3F	4F	5F	6F	7F	8F

QVT70/62 WY325/60	WY50+ TVI910+ TVI925/955 ADDS A2	PC TERM	WY350	TVI950 ESPRIT III

Assign foreground, background color to write-protected characters

ESC d I CGA color ESC SP I CGA color

64 color values are listed with the 'Select the Border Color' command above. Command has no effect if color mode is palette.

Assign foreground color to write-protected character

ESC d j color ESC SP j color

64 color values are listed with the 'Select the Border Color' command above. Command has no effect if color mode is palette.

Assign background color to write-protected character

ESC d k color ESC SP k color

64 color values are listed with the 'Select the Border Color' command above. Command has no effect if color mode is palette.

Assign foreground, background color to label line

ESC d o fcolor ESC SP o fcolor
bcolor bcolor

64 color values are listed with the 'Select the Border Color' command above. Command has no effect if color mode is palette.

Assign foreground, background color to status line

ESC d w fcolor ESC SP w fcolor
bcolor bcolor

64 color values are listed with the 'Select the Border Color' command above. Command has no effect if color mode is palette.

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