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.
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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'emmet pas de bruits radioelectriques depassant les limites applicables auq appareils numeriques de classe a prescrites dans le reglement sur le brouillage radioelectrique edite par le ministre des communications du Canada.
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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-sync 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:

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

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

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Chapter One

Getting Started
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ASCII Keyboard Description 1-19

1-2  Getting Started
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.
1-4  Getting Started
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.

Getting Started 1-5
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

<table>
<thead>
<tr>
<th>Character Displayed</th>
<th>Fault-Detected Items</th>
<th>ROM</th>
<th>SRAM</th>
<th>VRAM</th>
<th>KBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>•</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>•</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>•</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>•</td>
<td>•</td>
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<td></td>
<td></td>
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<tr>
<td>L</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Getting Started 1-7
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
- Cursor control keys
- Terminal control keys
- Numeric keypad
- Function keys
- Light Emitting Diodes (LEDs)
- Edit keys

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.

1-8  Getting Started
The Back Space key generates the BS (backspace) character which moves the cursor one character position to the left, unless reprogrammed.

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.

Getting Started 1-9
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 parameters, 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, TV950, 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.

Getting Started 1-11
The Home key returns the cursor to home position (column 1, line 1). The Home command is transmitted to host.

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.

The Insert key turns the Insert submode on.

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.

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

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

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

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:

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold (F1)</td>
<td>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.</td>
</tr>
<tr>
<td>Print (F2)</td>
<td>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</td>
</tr>
</tbody>
</table>

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.
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.
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:
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.

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.
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 a handshake 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
- Edit keys
- Terminal control keys
- Cursor control keys
- Function 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

Break

Caps Lock

Breaks Lock

Back Space

Back Space

Return

Return

Setup

Setup

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:
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.

Generates the escape character.

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:

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
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.

**Scrnr 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.

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.
Section Two

Configure The Terminal
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  General (F2) Setup Menu 2-9
  Keyboard (F3) Setup Menu 2-11
Communications (F4) Setup Menu 2-13
  Ports (F5) Setup Menu 2-15
Miscellaneous (F6) Setup Menu 2-18
  ANSI1 (F7) Setup Menu 2-25
  ANSI2 (F8) Setup Menu 2-27
  Color (F9) Setup Menu 2-28
Answerback (F10) Setup Menu 2-33
Function Key (F11) Setup Menu 2-35
  Status Line 2-37
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.

---

2-4 *Configure The Terminal*
Redefinable Keys and Messages

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.
Main Menu

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.

2-6 Configure The Terminal
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.

| COLUMNS=80 | STATUS LINE=STANDARD | SCREEN=NORMAL |
| LINES=24 | SCRL SPEED=JUMP | WIDTH CHANGE CLEAR=OFF |
| PAGE LENGTH=1 X LINES | CURSOR=BLINK BLOCK | CHARACTER CELL=16X16 |
| ATTRIBUTE=CHARACTER | CURSOR DISPLAY=ON |

**Figure 2-2**

Display Menu

*Configure The Terminal 2-7*
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Columns=80</strong></td>
<td>This parameter sets screen Display for 80, 132, or Economy-80 columns (80 columns with more pages of memory).</td>
</tr>
<tr>
<td><strong>Status Line=Standard</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Screen=Normal</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Lines=24</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Scrl Speed=Jump</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Width Change Clear=OFF</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Page Length=1xLines</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Cursor=Blink Block</strong></td>
<td>This parameter sets the cursor display to BLINK or STEADY, BLOCK or UNDERLINE.</td>
</tr>
<tr>
<td><strong>Character Cell=16x16</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Attribute=Character</strong></td>
<td>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).</td>
</tr>
</tbody>
</table>

**2-8 Configure The Terminal**
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.

![General Menu](image)

<table>
<thead>
<tr>
<th>Parameter Block</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality=QVT 70</td>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

Configure The Terminal  2-9
NOTE: The terminal personality must match the system software.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhance=On</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Screen Saver=</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>15 Minutes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>End of Line Wrap=</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Init Tabs=</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Font Load=</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Received CR=</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

2-10 Configure The Terminal
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.

![Keyboard Menu](image)

**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.

*Configure The Terminal*  2-11
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Repeat=On</td>
<td>This parameter will cause the keys to repeat when they are held down for more than half a second.</td>
</tr>
<tr>
<td>Key click=Off</td>
<td>This parameter enables or disables the terminal to sound a muted beep each time a key is pressed or repeated.</td>
</tr>
<tr>
<td>Return=CR</td>
<td>Press the Return Key to send the ASCII Carriage Return (CR) character, Carriage Return and Line Feed (CRLF), or Horizontal Tab (TAB).</td>
</tr>
<tr>
<td>Enter=CR</td>
<td>Press the Enter Key to send the ASCII Carriage Return (CR) character, Carriage Return and Line Feed (CRLF) or Horizontal Tab (TAB).</td>
</tr>
<tr>
<td>FUNCT KEY=FUNCT</td>
<td>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 features above apply for all keyboards.</td>
</tr>
<tr>
<td>DEL Key=DEL/CAN</td>
<td>This parameter selects whether the DEL key generates BS/DEL code or DEL/CAN codes.</td>
</tr>
<tr>
<td>ANSI F1-F5=</td>
<td>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.</td>
</tr>
<tr>
<td>LOCAL KEYS</td>
<td></td>
</tr>
<tr>
<td>Key Code=ASCII</td>
<td>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</td>
</tr>
</tbody>
</table>
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, 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.

![Communications Menu](image)

**Figure 2-5**

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm Mode=Full Duplex</td>
<td>This parameter sets the terminal communication mode to full duplex (FDX), block (BLK), half-duplex (HDX), or half-duplex block (HBLK).</td>
</tr>
<tr>
<td>Session=Single</td>
<td>This parameter selects either a single or dual session.</td>
</tr>
<tr>
<td>Break=250ms</td>
<td>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.</td>
</tr>
<tr>
<td>Host Port=SER1</td>
<td>This parameter selects whether SER1 or SER2 will be the host port for the current active session.</td>
</tr>
<tr>
<td>Printer Port=Parallel</td>
<td>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.</td>
</tr>
<tr>
<td>Send ACK=On</td>
<td>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.</td>
</tr>
<tr>
<td>Host Xmt Limit=None</td>
<td>This parameter causes terminal to send host data as baud rate allows (NONE) or a maximum rate of 60, 35, or 150 cps.</td>
</tr>
<tr>
<td>Fkey Xmt Limit=NONE</td>
<td>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.</td>
</tr>
<tr>
<td>Block End=US/CR</td>
<td>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).</td>
</tr>
<tr>
<td>Copy=Off (No Printer)</td>
<td>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...</td>
</tr>
</tbody>
</table>

2-14 Configure The Terminal
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.

<table>
<thead>
<tr>
<th>F12 - MAIN MENU</th>
<th>ARROWS - NEXT FIELD</th>
<th>SPACE - NEXT CHOICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SER1 BAUD RATE=9600</td>
<td>SER1 DATA/STOP BITS=8/1</td>
<td>SER1 PARITY=NONE</td>
</tr>
<tr>
<td>S1 RCV HSHK=XON-XOFF/XPC</td>
<td>SER1 XMT HNDSHK=DSR</td>
<td>SER1 HNDSHK LIMIT=64</td>
</tr>
<tr>
<td>SER2 BAUD RATE=9600</td>
<td>SER2 DATA/STOP BITS=8/1</td>
<td>SER2 PARITY=NONE</td>
</tr>
<tr>
<td>S2 RCV HSHK=XON-XOFF/XPC</td>
<td>SER2 XMT HNDSHK=DSR</td>
<td>SER2 HNDSHK LIMIT=64</td>
</tr>
</tbody>
</table>

Figure 2-6
Ports Menu

Configure The Terminal 2-15
**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,
NOTE:  To prevent data loss, settings must match your system setup.

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.
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.

![Miscellaneous Menu](image)

**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.

---

2-18 Configure The Terminal
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display PE=Off</strong></td>
<td>This parameter selects whether to display the parity error symbol or not. The parity error symbol is 0.</td>
</tr>
<tr>
<td><strong>Clock/Alarm=Set</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>TAB=Set</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>FIELD ATTR=TAKE SPACE</strong></td>
<td>This parameter determines whether field attributes take up spaces. Your choices are no (TAKE SPACE) or yes (NO SPACE).</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Assigned Attribute</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse</td>
<td>Reverse</td>
<td>Characters will be displayed in the colors that are assigned in the color palette.</td>
</tr>
<tr>
<td></td>
<td>Blank</td>
<td>Characters will be visible in the colors assigned to the normal attribute.</td>
</tr>
<tr>
<td>Blank</td>
<td>Reverse</td>
<td>Characters will be displayed in the reverse of the colors that are assigned to the normal attribute.</td>
</tr>
<tr>
<td></td>
<td>Blank</td>
<td>Characters will be invisible. Background color will be the color assigned to the blank attribute in the color palette.</td>
</tr>
</tbody>
</table>

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 assignment 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

<table>
<thead>
<tr>
<th>Palette</th>
<th>Foreground</th>
<th>Background</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Green</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>Palette</td>
<td>Foreground</td>
<td>Background</td>
<td>Attribute</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1</td>
<td>Green</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>2</td>
<td>Cyan</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Magenta</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Blue</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>3</td>
<td>Cyan</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Magenta</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>4</td>
<td>Magenta</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Green</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>5</td>
<td>Magenta</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Green</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
</tbody>
</table>

Configure The Terminal 2-21
<table>
<thead>
<tr>
<th>Palette</th>
<th>Foreground</th>
<th>Background</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Yellow</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Red</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Cyan</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Magenta</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>7</td>
<td>Red</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Red</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Magenta</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Cyan</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Green</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>8</td>
<td>White</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Magenta</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Magenta</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>9</td>
<td>White</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Yellow</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>10</td>
<td>Green</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Yellow</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Cyan</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Cyan</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
</tbody>
</table>

2-22 Configure The Terminal
<table>
<thead>
<tr>
<th>Palette</th>
<th>Foreground</th>
<th>Background</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Amber</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red Orange</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red Orange</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Pale Yellow</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Pale Yellow</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Red Orange</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Red Orange</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>12</td>
<td>Purple</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Hot Pink</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Faded Rose</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Faded Rose</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Bright Blue</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Bright Blue</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Faded Rose</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Faded Rose</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>13</td>
<td>Gray</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue Purple</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Charcoal Gray</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Charcoal Gray</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Medium Blue</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Medium Blue</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Charcoal Gray</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Charcoal Gray</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>14</td>
<td>Sky Blue</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Blue Green</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Bright Green</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Bright Green</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Chartreuse</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Chartreuse</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Bright Green</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Bright Green</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td>15</td>
<td>Lime Green</td>
<td>Black</td>
<td>Normal</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Chartreuse</td>
<td>Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Khaki Green</td>
<td>Black</td>
<td>Dim</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Khaki Green</td>
<td>Dim, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Bright Green</td>
<td>Black</td>
<td>Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Bright Green</td>
<td>Underline, Reverse (or Blank)</td>
</tr>
<tr>
<td></td>
<td>Khaki Green</td>
<td>Black</td>
<td>Dim Underline</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>Khaki Green</td>
<td>Dim, Underline, Reverse (or Blank)</td>
</tr>
</tbody>
</table>
### Table 2-3 (Left Half)

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

### Table 2-3 (Right Half)

<table>
<thead>
<tr>
<th>Dim</th>
<th>Dim Reverse</th>
<th>Dim Underline</th>
<th>Dim Reverse Underline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Orange</td>
<td>Red Orange</td>
<td>Red Orange</td>
</tr>
<tr>
<td>2</td>
<td>Light Blue-green</td>
<td>Light Blue-green</td>
<td>Light Blue-green</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>4</td>
<td>Electric Blue</td>
<td>Electric Blue</td>
<td>Electric Blue</td>
</tr>
<tr>
<td>5</td>
<td>Faded Rose</td>
<td>Faded Rose</td>
<td>Faded Rose</td>
</tr>
<tr>
<td>6</td>
<td>Deep Red</td>
<td>Deep Red</td>
<td>Deep Red</td>
</tr>
<tr>
<td>7</td>
<td>Bright Green</td>
<td>Bright Green</td>
<td>Bright Green</td>
</tr>
<tr>
<td>8</td>
<td>Charcoal Gray</td>
<td>Charcoal Gray</td>
<td>Charcoal Gray</td>
</tr>
<tr>
<td>9</td>
<td>Khaki Green</td>
<td>Khaki Green</td>
<td>Khaki Green</td>
</tr>
<tr>
<td>10</td>
<td>Tan</td>
<td>Tan</td>
<td>Tan</td>
</tr>
</tbody>
</table>

---

2-24 **Configure The Terminal**
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
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character Set</td>
<td>This parameter selects the character set. Your options are IBM-437, IBM-850, DEC Supplemental, or ISO Latin.</td>
</tr>
<tr>
<td>National Mode</td>
<td>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).</td>
</tr>
<tr>
<td>Keys</td>
<td>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).</td>
</tr>
<tr>
<td>FKey Lock</td>
<td>Redefinable function key definitions can be redefined by the host application programs (OFF) or cannot be redefined by the host (ON).</td>
</tr>
<tr>
<td>Feature Lock</td>
<td>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).</td>
</tr>
<tr>
<td>Pound</td>
<td>When the terminal receives an ASCII # character (23H), the character displayed is a US pound symbol (#) or a British pound symbol (£).</td>
</tr>
<tr>
<td>Keypad</td>
<td>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.</td>
</tr>
<tr>
<td>Cursor Keys</td>
<td>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.</td>
</tr>
<tr>
<td>Recognize DEL</td>
<td>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.</td>
</tr>
</tbody>
</table>

When you have configured the ANSI11 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 ANSI11 Menu. The next menu to set is the ANSI2 Menu; press F8 to access it.

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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.

**Table 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

---

*Configure The Terminal* 2-27
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.

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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

2-28 Configure The Terminal
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.

![Color Menu](image)

**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.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Color Submenu</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td></td>
</tr>
<tr>
<td>BLANK+BINK</td>
<td></td>
</tr>
<tr>
<td>BLANK+UNDLN</td>
<td>SEL</td>
</tr>
<tr>
<td>BLANK+REVRS+UNDLN</td>
<td>SEL</td>
</tr>
</tbody>
</table>

**Figure 2-10A**
Attribute Color Submenu

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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 'Foreground=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>
<thead>
<tr>
<th>Normal</th>
<th>Dim</th>
<th>Bold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray</td>
<td>Charcoal Gray</td>
<td>White</td>
</tr>
<tr>
<td>Red</td>
<td>Pale Pink</td>
<td>Light Purple</td>
</tr>
<tr>
<td>Blue</td>
<td>Light Blue Purple</td>
<td>Electric Blue</td>
</tr>
<tr>
<td>Amber</td>
<td>Orange Brown</td>
<td>Red Orange</td>
</tr>
<tr>
<td>Green</td>
<td>Blue</td>
<td>White</td>
</tr>
<tr>
<td>Black</td>
<td>Gray</td>
<td>Charcoal Gray</td>
</tr>
<tr>
<td>Bright Green</td>
<td>Grass Green</td>
<td>Green</td>
</tr>
<tr>
<td>Pale Cyan</td>
<td>Turquoise</td>
<td>Cyan</td>
</tr>
<tr>
<td>Dull Chartreuse</td>
<td>Khaki Green</td>
<td>Yellow</td>
</tr>
<tr>
<td>Bright Green</td>
<td>Khaki Green</td>
<td>Light Green</td>
</tr>
<tr>
<td>Medium Purple</td>
<td>Violet</td>
<td>Light Purple</td>
</tr>
<tr>
<td>Medium Purple</td>
<td>Brick Red</td>
<td>Magenta</td>
</tr>
<tr>
<td>Medium Purple</td>
<td>Teal Blue</td>
<td>Purple Blue</td>
</tr>
<tr>
<td>Deep Red</td>
<td>Dark Blue</td>
<td>Rose</td>
</tr>
<tr>
<td>Gray</td>
<td>Khaki Green</td>
<td>Cream</td>
</tr>
<tr>
<td>Turquoise</td>
<td>Dark Blue</td>
<td>Sky Blue</td>
</tr>
</tbody>
</table>

**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, Intercoior, 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 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.

**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.

---

**Configure The Terminal 2-33**
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.

2-34 Configure The Terminal
Function Key (F11) Menu

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

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

2-36 Configure The Terminal
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.

### Figure 2-13
Standard Status Line

<table>
<thead>
<tr>
<th>FDX</th>
<th>11:30a</th>
<th>111-132</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS 1</td>
<td>* HDX</td>
<td>%PRN</td>
</tr>
<tr>
<td>LOCK 2</td>
<td>BLK</td>
<td>&gt;PRN</td>
</tr>
<tr>
<td>COMP 3</td>
<td>HBLK</td>
<td>&lt;PRN</td>
</tr>
<tr>
<td>NUM 4</td>
<td></td>
<td>=PRN</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 2-14
Extended Status Line

<table>
<thead>
<tr>
<th>FDX</th>
<th>11:30a</th>
<th>111-132</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS 1</td>
<td>* HDX</td>
<td>%PRN</td>
</tr>
<tr>
<td>LOCK 2</td>
<td>BLK</td>
<td>&gt;PRN</td>
</tr>
<tr>
<td>COMP 3</td>
<td>HBLK</td>
<td>&lt;PRN</td>
</tr>
<tr>
<td>NUM 4</td>
<td></td>
<td>=PRN</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
**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

2-38  Configure The Terminal
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).
Configure The Terminal
Section 3

Calculator Mode
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3-2 Calculator Mode
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.
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.
Appendix A

ASCII Commands
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A-2 ASCII Commands
## ASCII COMMANDS FOR QVT 70

<table>
<thead>
<tr>
<th>Monitor Mode</th>
<th>Additions</th>
<th>PC</th>
<th>Term</th>
<th>Esprit III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QVT70</strong></td>
<td><strong>ADDs</strong></td>
<td><strong>QVT62</strong></td>
<td><strong>VP A2</strong></td>
<td><strong>TVI910+</strong></td>
</tr>
<tr>
<td><strong>WY350</strong></td>
<td></td>
<td><strong>60/50+</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Monitor Mode

<table>
<thead>
<tr>
<th>Enable</th>
<th>Disable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC U</td>
<td>ESC U or ESC u or ESC X</td>
</tr>
</tbody>
</table>

### Selecting Emulations

<table>
<thead>
<tr>
<th>Enhance Mode On</th>
<th>Enhance Mode Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC - Sp, ESC - Sp</td>
<td>ENH, ENH</td>
</tr>
</tbody>
</table>

### Select Terminal Emulation

<table>
<thead>
<tr>
<th>Enable Transmission</th>
<th>Disable Transmission</th>
<th>Send ACK (if ACK Mode On)</th>
<th>ACK Mode Off</th>
<th>ACK Mode On</th>
<th>Full Duplex Mode On</th>
<th>Half Duplex Mode On</th>
<th>Block Mode On</th>
<th>Block Mode Off (Conversation)</th>
<th>Half Duplex Block Mode On</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
<td>ENH, ENH, ENH, ENH, ENH, ENH, ENH, ENH</td>
</tr>
</tbody>
</table>

**Ensemble**

**Enable Transmission**

<table>
<thead>
<tr>
<th>CTRL Q</th>
<th>CTRL Q</th>
<th>CTRL Q</th>
<th>CTRL Q</th>
<th>CTRL Q</th>
<th>CTRL Q</th>
<th>CTRL Q</th>
</tr>
</thead>
</table>

**Disable Transmission**

<table>
<thead>
<tr>
<th>CTRL S</th>
<th>CTRL S</th>
<th>CTRL S</th>
<th>CTRL S</th>
<th>CTRL S</th>
<th>CTRL S</th>
<th>CTRL S</th>
</tr>
</thead>
</table>

**Send ACK (if ACK Mode On)**

<table>
<thead>
<tr>
<th>CTRL E</th>
<th>CTRL E</th>
<th>CTRL E</th>
<th>CTRL E</th>
<th>CTRL E</th>
<th>CTRL E</th>
</tr>
</thead>
</table>

**ACK Mode Off**

<table>
<thead>
<tr>
<th>ESC 6</th>
<th>ESC 6</th>
<th>ENH</th>
<th>ENH</th>
<th>ENH</th>
<th>ENH</th>
</tr>
</thead>
</table>

**ACK Mode On**

<table>
<thead>
<tr>
<th>ESC 7</th>
<th>ESC 7</th>
<th>ENH</th>
<th>ENH</th>
<th>ENH</th>
<th>ENH</th>
</tr>
</thead>
</table>

**Full Duplex Mode On**

<table>
<thead>
<tr>
<th>ESC DF</th>
<th>ESC DF</th>
<th>ESC DF</th>
<th>ESC DF</th>
<th>ESC DF</th>
<th>ESC DF</th>
</tr>
</thead>
</table>

**Half Duplex Mode On**

<table>
<thead>
<tr>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
</tr>
</thead>
</table>

**Block Mode On**

<table>
<thead>
<tr>
<th>ESC B</th>
<th>ESC B</th>
<th>ESC B</th>
<th>ESC B</th>
<th>ESC B</th>
<th>ESC B</th>
</tr>
</thead>
</table>

**Block Mode Off (Conversation)**

<table>
<thead>
<tr>
<th>ESC C</th>
<th>ESC C</th>
<th>ESC C</th>
<th>ESC C</th>
<th>ESC C</th>
<th>ESC C</th>
</tr>
</thead>
</table>

**Half Duplex Block Mode On**

<table>
<thead>
<tr>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
<th>ESC DH</th>
</tr>
</thead>
</table>

**Functions**

<table>
<thead>
<tr>
<th>Select Modem Port for Data Communications</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC 8</td>
</tr>
</tbody>
</table>

**ASCII Commands**

A-3
### ASCII Commands for QVT 70

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>ESC e 9</code></td>
<td>Select AUX Port for Data Communications</td>
</tr>
<tr>
<td><code>ESC[=1h</code></td>
<td>Select 8 Data Bits</td>
</tr>
<tr>
<td><code>ESC[=1l</code></td>
<td>Select 7 Data Bits</td>
</tr>
<tr>
<td><code>ESC{</code></td>
<td>Set Modem Port Operating Parameters</td>
</tr>
<tr>
<td><code>ESC }</code></td>
<td>Set AUX Port Operating Parameters</td>
</tr>
<tr>
<td><code>ESC[1:n.v.</code></td>
<td>Set Modem Port Receive Handshaking</td>
</tr>
<tr>
<td><code>ESC[0h</code></td>
<td>Set AUX Port Receive Handshaking</td>
</tr>
<tr>
<td><code>ESC[0:n.v.</code></td>
<td>Set Modem Port Transmit Handshaking</td>
</tr>
<tr>
<td><code>ESC[01</code></td>
<td>Set AUX Port Transmit Handshaking</td>
</tr>
<tr>
<td><code>ESC Sp</code></td>
<td>Set Maximum Data Transmission Speed</td>
</tr>
<tr>
<td><code>ESC[=Ol</code></td>
<td>Reset Modem Port Transmit Handshaking</td>
</tr>
<tr>
<td><code>CTRL N</code></td>
<td>Enable DTR Modem Port Handshaking</td>
</tr>
<tr>
<td><code>CTRL N</code></td>
<td>Enable XON/XOFF Modem Port Handshaking</td>
</tr>
<tr>
<td><code>CTRL O</code></td>
<td>Send Terminal ID</td>
</tr>
<tr>
<td><code>ESC c;</code></td>
<td>Program Answerback Message</td>
</tr>
<tr>
<td><code>CTRL Y</code></td>
<td>Send Answerback Message</td>
</tr>
<tr>
<td><code>ESC c &lt;</code></td>
<td>Conceal Answerback Message</td>
</tr>
<tr>
<td><code>ESC e Sp</code></td>
<td>Answerback Mode Off</td>
</tr>
</tbody>
</table>

A-4 ASCII Commands
<table>
<thead>
<tr>
<th>ASCII Commands for QVT 70</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Answerback Mode On</strong></td>
</tr>
<tr>
<td>ESC ` 1</td>
</tr>
<tr>
<td><strong>Load Time of Day</strong></td>
</tr>
<tr>
<td>ESC c 8 ESC c 8 ENH</td>
</tr>
<tr>
<td>hh:mm</td>
</tr>
<tr>
<td><strong>Cursor Movement Commands</strong></td>
</tr>
<tr>
<td><strong>Cursor Home</strong></td>
</tr>
<tr>
<td>ESC { or ESC { or ENH or CTRL A</td>
</tr>
<tr>
<td>or CTRL * or CTRL *</td>
</tr>
<tr>
<td><strong>Cursor Right</strong></td>
</tr>
<tr>
<td>CTRL L CTRL L CTRL FCTRL L</td>
</tr>
<tr>
<td><strong>Cursor Left/Backspace</strong></td>
</tr>
<tr>
<td>CTRL H CTRL H CTRL H or</td>
</tr>
<tr>
<td>CTRL U</td>
</tr>
<tr>
<td><strong>Up/No Scroll</strong></td>
</tr>
<tr>
<td>CTRL K CTRL K CTRL ZCTRL K</td>
</tr>
<tr>
<td><strong>Up/Reverse Scroll</strong></td>
</tr>
<tr>
<td>ESC J ESC J ESC HESC JES C J</td>
</tr>
<tr>
<td><strong>Down Scroll</strong></td>
</tr>
<tr>
<td>CTRL J CTRL J CTRL JCTRL J</td>
</tr>
<tr>
<td><strong>Down/No Scroll</strong></td>
</tr>
<tr>
<td>CTRL V CTRL V CTRL VCTRL V</td>
</tr>
<tr>
<td><strong>Return</strong></td>
</tr>
<tr>
<td>CTRL M CTRL M CTRL MCTRL M</td>
</tr>
<tr>
<td><strong>New Line</strong></td>
</tr>
<tr>
<td>CTRL <code>CTRL</code> ENHCTRL `</td>
</tr>
<tr>
<td><strong>Cursor to Specified Column</strong></td>
</tr>
<tr>
<td>CTRL P col ESC [ c</td>
</tr>
<tr>
<td><strong>Cursor to Specified Line</strong></td>
</tr>
<tr>
<td>CTRL K in CTRL K inESC ] r</td>
</tr>
<tr>
<td><strong>End of Line Wrap Off</strong></td>
</tr>
<tr>
<td>ESC d . ESC d .</td>
</tr>
<tr>
<td><strong>End of Line Wrap On</strong></td>
</tr>
<tr>
<td>ESC d / ESC d /</td>
</tr>
<tr>
<td><strong>Received CR Mode Off</strong></td>
</tr>
<tr>
<td>ESC 4 ESC d 4</td>
</tr>
<tr>
<td><strong>Received CR Mode On</strong></td>
</tr>
<tr>
<td>ESC 5 ESC e 5</td>
</tr>
<tr>
<td><strong>Autopage Mode Off</strong></td>
</tr>
<tr>
<td>ESC d * ESC d *</td>
</tr>
</tbody>
</table>

**ASCII Commands A-5**
# ASCII Commands for QVT 70

<table>
<thead>
<tr>
<th>Autopage Mode On</th>
<th>ESC d+</th>
<th>ESC v</th>
<th>ESC v</th>
<th>ESC v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autopage Mode Off</td>
<td>ESC N</td>
<td>ESC N</td>
<td>ESC N</td>
<td>ESC N</td>
</tr>
<tr>
<td>Autoscrol Mode On</td>
<td>ESC O</td>
<td>ESC O</td>
<td>ESC O</td>
<td>ESC O</td>
</tr>
<tr>
<td>Autoscrol Mode Off</td>
<td>ESC H</td>
<td>ESC 1</td>
<td>ESC 12</td>
<td>ESC 12</td>
</tr>
</tbody>
</table>

**Address Cursor in Specific 80-Column Page**

<table>
<thead>
<tr>
<th>Address Cursor in Specific 80-Column Window/Page</th>
<th>ESC - w/p</th>
<th>ESC - w/p</th>
<th>ENH</th>
<th>In col</th>
<th>In col</th>
</tr>
</thead>
</table>

**Address Cursor in Current 80-Column Page**

|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|

**Read Cursor Address in Current 80-Column Mode**

<table>
<thead>
<tr>
<th>Read 80-Column Page Number and Cursor Address</th>
<th>ESC w</th>
<th>ESC w</th>
</tr>
</thead>
</table>

**Read 80-Column Window/Page Number and Cursor Address**

<table>
<thead>
<tr>
<th>Read Cursor Address in 80/132 Column Page</th>
<th>ESC b</th>
<th>ESC b</th>
</tr>
</thead>
</table>

**Tab Commands**

<table>
<thead>
<tr>
<th>Set Tabs</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
<th>ESC 1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Clear Current Tab Stop</th>
<th>ESC 2</th>
<th>ESC 2</th>
<th>ESC 2</th>
<th>ESC 2</th>
<th>ESC 2</th>
<th>ESC 2</th>
<th>ESC 2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Clear All Tabs</th>
<th>ESC D</th>
<th>ESC D</th>
<th>ESC D</th>
<th>ESC D</th>
<th>ESC D</th>
<th>ESC D</th>
<th>ESC D</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Column Tab</th>
<th>CTRL I</th>
<th>CTRL I</th>
<th>CTRL I</th>
<th>CTRL I</th>
<th>CTRL I</th>
<th>CTRL I</th>
<th>CTRL I</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Field Tab</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Back Tab</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
<th>ESC I</th>
</tr>
</thead>
</table>

A-6 ASCII Commands
### ASCII Commands for QVT 70

<table>
<thead>
<tr>
<th>QVT70</th>
<th>WY350</th>
<th>QVT62</th>
<th>ADDS</th>
<th>TV1910+</th>
<th>TV1925</th>
<th>TV1950</th>
<th>TV1955</th>
<th>PC</th>
<th>TERM</th>
<th>ESPRIT III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>60/50+</td>
<td>VP A2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Edit Commands

**Insert Mode On; Replace Mode Off**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC a</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC q</td>
<td>Replace</td>
</tr>
<tr>
<td>ENH</td>
<td></td>
</tr>
<tr>
<td>ENH</td>
<td></td>
</tr>
</tbody>
</table>

**Insert Mode Off; Replace Mode On**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC t</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC i</td>
<td>Replace</td>
</tr>
</tbody>
</table>

**Page Edit Mode Off**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC e</td>
<td></td>
</tr>
</tbody>
</table>

**Page Edit Mode On**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC e</td>
<td></td>
</tr>
</tbody>
</table>

**Space Character Insert**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC Q</td>
<td>Insert</td>
</tr>
</tbody>
</table>

**Character Delete**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC W</td>
<td>Delete</td>
</tr>
<tr>
<td>ESC E</td>
<td></td>
</tr>
</tbody>
</table>

**Line Insert**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC E</td>
<td>Insert</td>
</tr>
</tbody>
</table>

**Cursor Line Delete**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC R</td>
<td>Delete</td>
</tr>
</tbody>
</table>

**Insert n Characters**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC[r@</td>
<td></td>
</tr>
</tbody>
</table>

**Delete n Characters**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC[nP</td>
<td></td>
</tr>
</tbody>
</table>

**Insert n Lines**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC[nL</td>
<td></td>
</tr>
</tbody>
</table>

**Delete n Lines**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC[nM</td>
<td></td>
</tr>
</tbody>
</table>

**Insert Column of Nulls**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC c</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC M</td>
<td></td>
</tr>
</tbody>
</table>

**Delete Cursor Columns**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC c</td>
<td>Delete</td>
</tr>
<tr>
<td>ESC J</td>
<td></td>
</tr>
</tbody>
</table>

#### Clearing Data

**Clear From Cursor to End of Line With Spaces**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC T</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC T</td>
<td>Replace</td>
</tr>
<tr>
<td>ESC T</td>
<td></td>
</tr>
<tr>
<td>ESC T</td>
<td></td>
</tr>
</tbody>
</table>

**Clear From Cursor to End of Line With Nulls**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC T</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC T</td>
<td>Replace</td>
</tr>
<tr>
<td>ESC T</td>
<td></td>
</tr>
</tbody>
</table>

**Clear From Cursor to End of Page/Segment With Spaces**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC Y</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC Y</td>
<td>Replace</td>
</tr>
</tbody>
</table>

**Clear From Cursor to End of Page/Segment With Nulls**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC Y</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC Y</td>
<td>Replace</td>
</tr>
</tbody>
</table>

**Clear All Page/Segment To Nulls**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC *</td>
<td>Insert</td>
</tr>
<tr>
<td>ESC *</td>
<td>Replace</td>
</tr>
</tbody>
</table>

**Clear All Page/Segment To Spaces**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC +</td>
<td>Insert</td>
</tr>
<tr>
<td>CTRL L</td>
<td></td>
</tr>
<tr>
<td>ENH</td>
<td></td>
</tr>
</tbody>
</table>

**Clear Page To Write Protected Spaces**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC .</td>
<td>Insert</td>
</tr>
<tr>
<td>ENH</td>
<td></td>
</tr>
</tbody>
</table>

---

*ASCII Commands* A-7
### ASCII COMMANDS FOR QVT 70

<table>
<thead>
<tr>
<th>WY350</th>
<th>QVT70</th>
<th>WY325/</th>
<th>ADDS</th>
<th>60/50+</th>
<th>VP A2</th>
<th>TVI910+</th>
<th>TVI925</th>
<th>TVI950</th>
<th>TVI955</th>
<th>PC</th>
<th>TERM</th>
<th>ESPRIT III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear All Unprotected Page/Segment to Nulls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESC :</td>
<td>ESC :</td>
<td>ENH</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td>ESC :</td>
<td></td>
</tr>
<tr>
<td>Clear All Unprotected Page/Segment to Spaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC : or</td>
<td>ESC +</td>
<td>ESC +</td>
<td>ESC +</td>
<td>CTRL Z</td>
<td>CTRL Z</td>
<td></td>
</tr>
<tr>
<td>CTRL Z</td>
<td>CTRL Z</td>
<td>ESC +</td>
<td>ESC +</td>
<td>CTRL Z</td>
<td>CTRL Z</td>
<td>ESC +</td>
<td>ESC +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 | ESC c N
width, ht | width, ht

Box Rectangle in 80-Column Page

ESC c G | ESC c G
in col | in col

Box Rectangle in 132-Column Page

ESC c G | ESC c G
in col | in col

Clear Unprotected Rectangle in 80-Column Page

ESC c F | ESC c F
in col | in col
char | char

---

A-8 ASCII Commands
**ASCII COMMANDS FOR QVT 70**

<table>
<thead>
<tr>
<th>PC</th>
<th>WY350</th>
<th>QVT70</th>
<th>WY325/ ADDS</th>
<th>QVT62</th>
<th>60/50+</th>
<th>VP A2</th>
<th>TV1910+</th>
<th>TV1925</th>
<th>TV1950</th>
<th>TV1955</th>
<th>TER M</th>
<th>ESPRIT III</th>
</tr>
</thead>
</table>

**Clear Unprotected Rectangle in 132-Column Page**
ESC c F ESC c F

**Clear Entire Rectangle in 80-Column Mode**
ESC c H ESC c H

**Clear Entire Rectangle in 132-Column Mode**
ESC c H ESC c H

**Fill Page/Screen With H's**
ESC F

**Keyboard and Terminal Controls**

**Local Edit Mode On**
ESC k ESC k

**Duplex Edit Mode On**
ESC 1 ESC 1

**Initialize Tabs Off/On**
ESC c : ESC c :

**Application Key Mode Off**
ESC - 2 ESC - 2

**Application Key Mode On**
ESC - 3 ESC - 3

**Ring Bell**
CTRL G

**Key Selection**
CTRL N or ESC *

**Keyboard Controls**
ESC e %

**Cape Lock On**
ESC e & ESC e &

**Cape Lock Off**
ESC e ' ESC e '

**Num Lock On**
ESC e A 325/60: ESC e A

**Num Lock Off**
ESC e @ 325/60: ESC e @

**Margin Bell On**
ESC e M ESC e M

**ASCII Commands** A-9
ASCII COMMANDS FOR QVT 70

<table>
<thead>
<tr>
<th>Key Sequence</th>
<th>Control Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margin Bell Off</td>
<td>ESC e L ESC e L</td>
</tr>
<tr>
<td>Set Margin Bell at Current Position</td>
<td>ESC ' J ESC ' J</td>
</tr>
<tr>
<td>Turn Margin Bell On and Set Position</td>
<td>ESC o</td>
</tr>
<tr>
<td>Down Key Control</td>
<td>ESC[=0h/n</td>
</tr>
<tr>
<td>Key Repeat Off</td>
<td>ESC e ESC e ENH ENH ENH</td>
</tr>
<tr>
<td>Key Repeat On</td>
<td>ESC e ESC e ENH ENH ENH</td>
</tr>
<tr>
<td>Define Caps Lock Key as Caps Lock</td>
<td>ESC e T ESC e T ESCe T ESCe T ESCe T</td>
</tr>
<tr>
<td>Define Caps Lock as REV</td>
<td>ESC e U ESC e U</td>
</tr>
<tr>
<td>Read Status</td>
<td>ESC [</td>
</tr>
<tr>
<td>Default Unit</td>
<td>ESC m</td>
</tr>
<tr>
<td>Redefining The Keys</td>
<td></td>
</tr>
<tr>
<td>Program Function Key Label</td>
<td>ESC z ESC z ENH ESC z ESC z ESC z ESC z ESC z</td>
</tr>
<tr>
<td>Program Key Direction and Definition</td>
<td>ESC z dir ESC z dir ENH ESC z dir ESC z dir ESC z dir ESC z dir ESC z dir</td>
</tr>
<tr>
<td>Read Key Direction and Definition</td>
<td>ESC Z - key ESC Z - key</td>
</tr>
<tr>
<td>Clear Key Definition</td>
<td>ESC z fkey seq ESC z fkey seq ENH</td>
</tr>
<tr>
<td>Clear Key Direction and Definition</td>
<td>ESC z dir ESC z dir ENH</td>
</tr>
<tr>
<td>Set Maximum Function Key Transmission Speed</td>
<td>ESC c 7 ESC c 7</td>
</tr>
<tr>
<td>Invoke Function Key</td>
<td>ESC[n</td>
</tr>
<tr>
<td>Default All Programmable Keys</td>
<td>ESC c U ESC c U</td>
</tr>
<tr>
<td>Protecting Data</td>
<td></td>
</tr>
<tr>
<td>Write Protect Mode Off</td>
<td>ESC ( ESC ( CTRL O ESC ( ESC ( ESC ( ESC ( ESC ( ESC ( ESC ( ESC (</td>
</tr>
</tbody>
</table>

A-10 ASCII Commands
<table>
<thead>
<tr>
<th>ASCII COMMANDS FOR QVT 70</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QVT70</strong></td>
</tr>
<tr>
<td>WY350</td>
</tr>
<tr>
<td>Half-Intensity On; Write Protect Mode On</td>
</tr>
<tr>
<td>ESC (</td>
</tr>
<tr>
<td>Set Tag Bit</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Reset Tag Bit</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Protect Mode Enable</td>
</tr>
<tr>
<td>ESC '</td>
</tr>
<tr>
<td>Protect Mode Disable</td>
</tr>
<tr>
<td>ESC &amp;</td>
</tr>
<tr>
<td>Clear Cursor Column to Write Protected Spaces</td>
</tr>
<tr>
<td>ESC V</td>
</tr>
<tr>
<td>Screen and Cursor Attributes</td>
</tr>
<tr>
<td>Screen Display Off</td>
</tr>
<tr>
<td>ESC 'B</td>
</tr>
<tr>
<td>Screen Display On</td>
</tr>
<tr>
<td>ESC '9</td>
</tr>
<tr>
<td>Screen Saver Off</td>
</tr>
<tr>
<td>ESC vP</td>
</tr>
<tr>
<td>Screen Saver On</td>
</tr>
<tr>
<td>ESC vQ</td>
</tr>
<tr>
<td>Reverse Video</td>
</tr>
<tr>
<td>ESC '1</td>
</tr>
<tr>
<td>Restore Normal Video</td>
</tr>
<tr>
<td>ESC '0</td>
</tr>
<tr>
<td>Set Scroll Speed and Type</td>
</tr>
<tr>
<td>ESC 'scl</td>
</tr>
<tr>
<td>Smooth Scroll On</td>
</tr>
<tr>
<td>ESC 8</td>
</tr>
<tr>
<td>Smooth Scroll Off</td>
</tr>
<tr>
<td>ESC 9</td>
</tr>
<tr>
<td>Scroll Lock On</td>
</tr>
<tr>
<td>ESC eC</td>
</tr>
<tr>
<td>Scroll Lock Off</td>
</tr>
<tr>
<td>ESC eB</td>
</tr>
<tr>
<td>Set Cursor Display Features</td>
</tr>
<tr>
<td>ESC 'cur</td>
</tr>
<tr>
<td>Cursor Visible</td>
</tr>
<tr>
<td>CTRL X</td>
</tr>
<tr>
<td>Cursor Invisible</td>
</tr>
<tr>
<td>CTRL W</td>
</tr>
<tr>
<td>25th Line Display Off</td>
</tr>
<tr>
<td>Message Fields Display</td>
</tr>
<tr>
<td>Extended Status Line On</td>
</tr>
<tr>
<td>ESC 'a</td>
</tr>
<tr>
<td>ASCII COMMANDS FOR QVT 70</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>WY350</strong></td>
</tr>
<tr>
<td><strong>QVT70</strong> / <strong>WY325</strong> / <strong>ADDS</strong></td>
</tr>
<tr>
<td><strong>QVT62</strong></td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>Standard Status Line On</strong></td>
</tr>
<tr>
<td>ESC ` b</td>
</tr>
<tr>
<td><strong>Status Line Off</strong></td>
</tr>
<tr>
<td>ESC ` c</td>
</tr>
<tr>
<td><strong>Program/Display Computer Message on Status Line</strong></td>
</tr>
<tr>
<td>ESC f msg</td>
</tr>
<tr>
<td>CR</td>
</tr>
<tr>
<td><strong>Program Computer Message on Bottom Unshifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z (</td>
</tr>
<tr>
<td>text CR</td>
</tr>
<tr>
<td><strong>Program Computer Message on Shifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z )</td>
</tr>
<tr>
<td>text CR</td>
</tr>
<tr>
<td><strong>Turn On Unshifted Label Line</strong></td>
</tr>
<tr>
<td>ESC g</td>
</tr>
<tr>
<td><strong>Turn Off Unshifted Label Line</strong></td>
</tr>
<tr>
<td>ESC A 11</td>
</tr>
<tr>
<td><strong>Turn On Shifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z P CR</td>
</tr>
<tr>
<td><strong>Turn Off Shifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z DEL</td>
</tr>
<tr>
<td><strong>Clear Unshifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z ( CR</td>
</tr>
<tr>
<td><strong>Clear Shifted Label Line</strong></td>
</tr>
<tr>
<td>ESC z ) CR</td>
</tr>
<tr>
<td><strong>Select Top/Bottom Line</strong></td>
</tr>
<tr>
<td>SETUUP DEFLT</td>
</tr>
<tr>
<td><strong>Program/Display Function Key Label</strong></td>
</tr>
<tr>
<td>ESC z field</td>
</tr>
<tr>
<td>label CR</td>
</tr>
<tr>
<td><strong>Clear Function Key Label</strong></td>
</tr>
<tr>
<td>ESC z field</td>
</tr>
<tr>
<td>CR</td>
</tr>
<tr>
<td><strong>Don't Save Function Key Labels</strong></td>
</tr>
<tr>
<td>ESC e J</td>
</tr>
<tr>
<td><strong>Save Function Key Labels</strong></td>
</tr>
<tr>
<td>ESC e K</td>
</tr>
<tr>
<td><strong>Data Area</strong></td>
</tr>
<tr>
<td><strong>80-Column Mode</strong></td>
</tr>
<tr>
<td>ESC ` :</td>
</tr>
<tr>
<td><strong>132-Column Mode</strong></td>
</tr>
<tr>
<td>ESC 1 :</td>
</tr>
<tr>
<td><strong>Economy 80-Column Mode Off</strong></td>
</tr>
<tr>
<td>ESC e F</td>
</tr>
<tr>
<td><strong>Economy 80-Column Mode On</strong></td>
</tr>
<tr>
<td>ESC e G</td>
</tr>
</tbody>
</table>

A-12 ASCII Commands
## ASCII Commands for QVT 70

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width Change Clear Mode Off</td>
<td>ESC e, ESC e /</td>
</tr>
<tr>
<td>Width Change Clear Mode On</td>
<td>ESC e / ESC e /</td>
</tr>
</tbody>
</table>

### Display Memory/Split Screen

- **Display 24 Data Lines**: ESC e / ESC e / ESC e /
- **Display 25 Data Lines**: ESC e / ESC e / ESC e /
- **Display 42 Data Lines**: ESC e / ESC e / ESC e /
- **Display 43 Data Lines**: ESC e / ESC e /

### Divide Memory Into Pages

- **Display Next Page/Segment**: ESC w B or ESC w B or ESC J ESC J ESC J ESC J
- **Display Previous Page/Segment**: ESC w C or ESC w C or ESC K ESC K ESC K ESC K

### Display Page X

- **Display Page 0**: ESC w 0 ESC w 0
- **Display Page 1**: ESC w 1 ESC w 1
- **Display Page 2**: ESC w 2 ESC w 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)

- **Split Screen Horizontally and Clear Pages (2 Pages Only)**

### Define Scrolling Region

- **Define Scrolling Region**: ESC [line; bline r

---

**ASCII Commands A-13**
ASCII COMMANDS FOR QVT 70

<table>
<thead>
<tr>
<th></th>
<th>PC</th>
<th>PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QVT70</td>
<td>WY325/</td>
<td>ADDS</td>
</tr>
<tr>
<td>QVT62</td>
<td>60/50+</td>
<td>VP A2</td>
</tr>
<tr>
<td></td>
<td>TVI910+</td>
<td>TVI925</td>
</tr>
<tr>
<td></td>
<td>TVI950</td>
<td>TVI955</td>
</tr>
<tr>
<td></td>
<td>TERM</td>
<td>ESPRIT III</td>
</tr>
</tbody>
</table>

**Split Screen Horizontally (Multiple Pages)**
ESC x C  ESC x C
line    line

**Split Screen Horizontally and Clear Pages (Multiple Pages)**
ESC x 3  ESC x 3
line    line

**Activate Upper Window**
ESC }  ESC }

**Activate Lower Window**
ESC }  ESC }

**Activate Other Window or Page**
ESC J or ESC J or
ESC K  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 \  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 att

**Clear Unprotected Page to Display Attribute**
ESC I  ENH  ESC I  ESC I

A-14 ASCII Commands
<table>
<thead>
<tr>
<th>ASCII COMMANDS FOR QVT 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY350</td>
</tr>
<tr>
<td>Assign Line Attribute</td>
</tr>
<tr>
<td>Non Hidden Attribute (SP)</td>
</tr>
<tr>
<td>Hidden Attribute (No SP)</td>
</tr>
<tr>
<td>Set/Reset Normal Intensity Mode</td>
</tr>
</tbody>
</table>

**Graphics Characters**

<table>
<thead>
<tr>
<th>Graphics Mode Enable</th>
<th>ESC H</th>
<th>ESC H</th>
<th>ESC $</th>
<th>ESC $</th>
<th>ESC $</th>
<th>ESC $</th>
<th>ESC $</th>
<th>ESC $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics Mode Disable</td>
<td>ESC H</td>
<td>ESC H</td>
<td>ESC %</td>
<td>ESC %</td>
<td>ESC %</td>
<td>ESC %</td>
<td>ESC %</td>
<td>ESC %</td>
</tr>
<tr>
<td>Display Graphics Characters</td>
<td>ESC C key</td>
<td>ESC H key</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Display Attributes/Color (see Appendix I for additional color commands)**

<table>
<thead>
<tr>
<th>Select Color Palette</th>
<th>ESC % fcolor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redefine Color Association</td>
<td>ENH</td>
</tr>
<tr>
<td>Assign Write Protected Character Attribute</td>
<td>ESC ( \text{w pca} ) ESC 0</td>
</tr>
</tbody>
</table>

**Send Commands**

| Begin Print/Send at Top of Page | ESC d & |
| Send Cursor Character | ESC M |
| Send Entire Cursor Line | ESC 6 |
| Send Unprotected Line | ESC 4 |
| Send Entire Page | ESC 7 |
| Mark Block Beginning | ESC 8 or | ENH |
| Mark Block End | ESC 9 or | ENH |
| Send Entire Block | ESC s |
| Send Unprotected Character In Block | ESC S | ENH |

*ASCII Commands A-15*
ASCII COMMANDS FOR QVT 70

WY350   QVT70  WY325/ ADDS
QVT62  60/50+  VP A2  TV1910+  TV1925  TV1950  TV1955  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  ESC P  ESC P  ESC P  ESC P

Print Unformatted Page
ESC p or  ESC p or  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

Auxiliary Print Mode On
CTRL R  CTRL R  CTRL R
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

Transparent Print Mode On
ESC d #  ESC d #  ESC 3
ESC '  ESC '  ESC '  ESC '  ESC '

Secondary Receive Mode Off
ESC d $p  ESC d $p  ENH

Secondary Receive Mode On
ESC d 1  ESC d 1  ENH

Bi-Directional Mode Off
ESC d S  ESC d S  ENH
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

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  ESC c B
bank  bank

A-16 ASCII Commands
ASCII COMMANDS FOR QVT 70

<table>
<thead>
<tr>
<th>WY350</th>
<th>QVT70</th>
<th>WY325/ ADDS</th>
<th>PC</th>
<th>QVT62</th>
<th>60/50+</th>
<th>VP A2</th>
<th>TV1910+</th>
<th>TV1925</th>
<th>TV1950</th>
<th>TV1955</th>
<th>TERM</th>
<th>ESPRIT III</th>
</tr>
</thead>
</table>

Define Secondary Character Set
ESC c C    ESC c C
bank       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 @    ESC c @
bank set   bank set

Clear Font Bank
ESC c ?    ESC c ?
bank       bank

Define and Load Character
ESC c A    ESC c A
bank pp    bank pp
bb...bb    bb...bb
CTRL Y     CTRL Y

ASCII Commands A-17
A-18 ASCII Commands
<table>
<thead>
<tr>
<th>Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI Commands</td>
</tr>
</tbody>
</table>
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Controlling Color Attributes B-3
Defining Color Associations B-4
Controlling Terminal Modes B-9
Controlling Screen Display B-11
Selecting Terminal Personalities B-13
Labelling Character Sets B-14
Assigning Character Sets B-15
Controlling Attributes B-15
Loading Softfonts B-15
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Terminal Reports B-22
VT52 Escape Sequences B-24
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

<table>
<thead>
<tr>
<th>8-bit Control Character</th>
<th>7_bit Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND</td>
<td>ESC D</td>
</tr>
<tr>
<td>NEL</td>
<td>ESC E</td>
</tr>
<tr>
<td>HTS</td>
<td>ESC H</td>
</tr>
<tr>
<td>Rl</td>
<td>ESC M</td>
</tr>
<tr>
<td>SS2</td>
<td>ESC O</td>
</tr>
<tr>
<td>SS3</td>
<td>ESC P</td>
</tr>
<tr>
<td>DCS</td>
<td>ESC P</td>
</tr>
<tr>
<td>CSI</td>
<td>ESC \</td>
</tr>
</tbody>
</table>

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

### Control Code Summary

<table>
<thead>
<tr>
<th>WY370</th>
<th>Intecolor</th>
<th>VT220</th>
<th>VT100</th>
<th>Mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CONTROLLING COLOR ATTRIBUTES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Define Character Attributes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSI Ps;...; Ps m</td>
<td>CSI Ps;...; Ps m</td>
<td>CSI Ps;...; Ps m</td>
<td>SOR</td>
</tr>
<tr>
<td>Ps</td>
<td>Character Attribute</td>
<td>Ps</td>
<td>Character Attribute</td>
<td>Ps</td>
</tr>
<tr>
<td>0</td>
<td>Normal (All attr off)</td>
<td>24</td>
<td>Underline off</td>
<td>35</td>
</tr>
<tr>
<td>1</td>
<td>Bold (dim, blank off)</td>
<td>25</td>
<td>Blink off</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>Dim (bold, blank off)</td>
<td>27</td>
<td>Reverse off</td>
<td>37</td>
</tr>
<tr>
<td>4</td>
<td>Underline</td>
<td>28</td>
<td>Blank off</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Blink</td>
<td>29</td>
<td>Overstrike off</td>
<td>41</td>
</tr>
<tr>
<td>7</td>
<td>Reverse</td>
<td>30</td>
<td>Black character</td>
<td>42</td>
</tr>
<tr>
<td>8</td>
<td>Blank (bold, dim off)</td>
<td>31</td>
<td>Red character</td>
<td>43</td>
</tr>
<tr>
<td>9</td>
<td>Overstrike</td>
<td>32</td>
<td>Green character</td>
<td>44</td>
</tr>
<tr>
<td>22</td>
<td>Normal Intensity (bold, dim, blank off)</td>
<td>33</td>
<td>Yellow character</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Yellow character</td>
<td>34</td>
<td>Blue character</td>
<td>46</td>
</tr>
</tbody>
</table>

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

ANSI Commands B-3
### Control Code Summary

<table>
<thead>
<tr>
<th>Intecolor</th>
<th>VT220</th>
<th>VT100</th>
<th>Mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY370</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### WY370

**Select overstrike position**

\[ \text{CSI} \quad 53; \text{Pn w} \]

Ps: Number of line in character cell where overstrike is positioned (0-19)

**Define erasable character**

\[ \text{CSI} \quad 0^* \text{q} \quad \text{or CSI} \quad 2^* \text{q} \]

Mnemonic: \text{DECSCA}

**Define nonerasable character**

\[ \text{CSI} \quad 1^* \text{q} \]

Mnemonic: \text{DECSCA}

**Enable separate assignment of attributes (SOR) to erasable and nonerasable characters**

\[ \text{CSI} \quad ? \quad 84 \text{h} \]

Mnemonic: \text{WYENAT}

**Enable attribute assignment (SGR) to extend to both erasable and nonerasable characters**

\[ \text{CSI} \quad ? \quad 84 \quad 1 \]

Mnemonic: \text{WYENAT}

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

\[ \text{ESC} \quad # \quad 3 \]

Mnemonic: \text{DECDHl}

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

\[ \text{ESC} \quad # \quad 4 \]

Mnemonic: \text{DECDHl}

#### Define single-high, single-wide line

\[ \text{ESC} \quad # \quad 5 \]

Mnemonic: \text{DECSWl}

#### Define single-high, double-wide line

\[ \text{ESC} \quad # \quad 6 \]

Mnemonic: \text{DECSWl}

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

\[ \text{ESC} \quad # \quad : \]

Mnemonic: \text{WYDHl}

#### Define bottom half of double-high, single-wide line

\[ \text{ESC} \quad # \quad ; \]

Mnemonic: \text{WYDHl}

### DEFINING COLOR ASSOCIATIONS

#### Redefine character display attribute association

\[ \text{CSI} \quad \text{Ps}; \text{Ps}1; \text{Ps}2; \text{Ps}3 \quad \text{w} \]

**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)

<table>
<thead>
<tr>
<th>Attribute Association</th>
<th>Base Character Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
</tr>
<tr>
<td>Normal (no attributes)</td>
<td>0</td>
</tr>
<tr>
<td>Blank</td>
<td>1</td>
</tr>
<tr>
<td>Blink</td>
<td>2</td>
</tr>
<tr>
<td>Blink and blank</td>
<td>3</td>
</tr>
<tr>
<td>Reverse</td>
<td>4</td>
</tr>
<tr>
<td>Reverse and blank</td>
<td>5</td>
</tr>
<tr>
<td>Reverse and blink</td>
<td>6</td>
</tr>
<tr>
<td>Reverse, blink, blank</td>
<td>7</td>
</tr>
<tr>
<td>Underline</td>
<td>8</td>
</tr>
<tr>
<td>Underline and blank</td>
<td>9</td>
</tr>
<tr>
<td>Underline and blink</td>
<td>10</td>
</tr>
<tr>
<td>Underline, blank, blink</td>
<td>11</td>
</tr>
<tr>
<td>Underline and reverse</td>
<td>12</td>
</tr>
<tr>
<td>Underline, blank, reverse</td>
<td>13</td>
</tr>
<tr>
<td>Underline, blink, reverse</td>
<td>14</td>
</tr>
<tr>
<td>Underline, blank, blink, reverse</td>
<td>15</td>
</tr>
</tbody>
</table>

B-4 **ANSI Commands**
Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>WY370</th>
<th>VT220</th>
<th>VT100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ps1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ps2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Value</th>
<th>Attribute</th>
<th>Value</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>6</td>
<td>Underline</td>
</tr>
<tr>
<td>1</td>
<td>Blank</td>
<td>9</td>
<td>Blank, underline</td>
</tr>
<tr>
<td>2</td>
<td>Blink</td>
<td>10</td>
<td>Blink, underline</td>
</tr>
<tr>
<td>3</td>
<td>Blank and blink</td>
<td>11</td>
<td>Blank, blink, and underline</td>
</tr>
<tr>
<td>4</td>
<td>Reverse</td>
<td>12</td>
<td>Reverse and underline</td>
</tr>
<tr>
<td>5</td>
<td>Blank and reverse</td>
<td>13</td>
<td>Blank, reverse, and underline</td>
</tr>
<tr>
<td>6</td>
<td>Blink and reverse</td>
<td>14</td>
<td>Blink, reverse, and underline</td>
</tr>
<tr>
<td>7</td>
<td>Blank, blink, and reverse</td>
<td>15</td>
<td>Blank, blink, reverse, and underline</td>
</tr>
</tbody>
</table>

ANSI Commands B-5
Control Code Summary

<table>
<thead>
<tr>
<th>WY370</th>
<th>Intecolor</th>
<th>VT220</th>
<th>VT100</th>
<th>Mnemonic</th>
</tr>
</thead>
</table>

Select foreground color
CSI\(\text{<}48; \text{Ps} \text{<}W\text{YCOLOR}\)

<table>
<thead>
<tr>
<th>Ps</th>
<th>Foreground Color</th>
<th>Ps</th>
<th>Foreground Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal (white)</td>
<td>8</td>
<td>Yellow</td>
</tr>
<tr>
<td>1</td>
<td>Red</td>
<td>9</td>
<td>Light Green</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>10</td>
<td>Light Purple</td>
</tr>
<tr>
<td>3</td>
<td>Amber</td>
<td>11</td>
<td>Magenta</td>
</tr>
<tr>
<td>4</td>
<td>Intecolor</td>
<td>12</td>
<td>Purple Blue</td>
</tr>
<tr>
<td>5</td>
<td>Black</td>
<td>13</td>
<td>Rose</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
<td>14</td>
<td>Green</td>
</tr>
<tr>
<td>7</td>
<td>Cyan</td>
<td>15</td>
<td>Sky Blue</td>
</tr>
</tbody>
</table>

Select background color
CSI\(\text{<}49; \text{Ps} \text{<}W\text{YCOLOR}\)

| 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\(\text{<}50 \text{<}W\text{YCOLOR}\)

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\(\text{<}51; \text{Ps} \text{<}W\text{YCOLOR}\)

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

Select user status line attributes/color
CSI\(\text{<}54; \text{Ps}; \text{Ps1}; \text{Ps2} \text{<}W\text{YCOLOR}\)

Select system status line attributes/color
CSI\(\text{<}55; \text{Ps}; \text{Ps1}; \text{Ps2} \text{<}W\text{YCOLOR}\)

Select replacement character attributes/color
CSI\(\text{<}56; \text{Ps}; \text{Ps1}; \text{Ps2} \text{<}W\text{YCOLOR}\)

Select nonerasable character attributes/color
CSI\(\text{<}57; \text{Ps}; \text{Ps1}; \text{Ps2} \text{<}W\text{YCOLOR}\)

Select current character attributes/color
CSI\(\text{<}58; \text{Ps}; \text{Ps1}; \text{Ps2} \text{<}W\text{YCOLOR}\)

<table>
<thead>
<tr>
<th>Ps</th>
<th>Foreground color, a value (0-64) from the color chart (page B-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ps1</td>
<td>Background color, a value (0-64) from the color chart (page B-5)</td>
</tr>
<tr>
<td>Ps2</td>
<td>Attribute value (0-15) from the attribute table above</td>
</tr>
</tbody>
</table>

Turn color index mode on/off
CSI\(\text{<}63; \text{Ps} \text{<}W\text{YIND}\)

| 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\(\text{<}60 \text{<}W\text{YIND}\)

B-6 ANSI Commands
### Control Code Summary

#### Intecolor

<table>
<thead>
<tr>
<th>Change current foreground color</th>
<th>WY370</th>
<th>VT220</th>
<th>VT100</th>
<th>Mnemonic</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 61; Ps w</td>
<td>WY370</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ps A value from the color table below that assigns new foreground color. Also turns on color index mode.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

#### Change current character background background

<table>
<thead>
<tr>
<th>CSI 62; Ps w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ps A value from the Index Mode Color table (page B-7) that assigns new background color. Also turns on color index mode.</td>
</tr>
</tbody>
</table>

#### Change current nonerasable character foreground color

<table>
<thead>
<tr>
<th>CSI 64; Ps w</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 assigns a separate color to nonerasable characters.</td>
</tr>
</tbody>
</table>

#### Change current nonerasable character background color

<table>
<thead>
<tr>
<th>CSI 65; Ps w</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 assigns a separate color to nonerasable characters.</td>
</tr>
</tbody>
</table>

---

**ANSI Commands** B-7
## Control Code Summary

### Intecolor

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

**Redefine color index value**

CSI66; Ps; Ps1; w

**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)

---

**ANSI Commands**
## Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>VT220</th>
<th>VT100</th>
<th>VT52</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT220</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VT100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VT52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Keybd Code Summary

<table>
<thead>
<tr>
<th>Keybd Code</th>
<th>Mnem</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl U</td>
<td>NAK</td>
<td>Negative Acknowledge</td>
<td>Abort the execution of Ctrl, ESC, or device control sequences. No error character is displayed.</td>
</tr>
<tr>
<td>Ctrl V</td>
<td>SYN</td>
<td>Synchronous idle</td>
<td></td>
</tr>
<tr>
<td>Ctrl W</td>
<td>ETB</td>
<td>End of transmission block</td>
<td></td>
</tr>
<tr>
<td>Ctrl X</td>
<td>CAN</td>
<td>Cancel</td>
<td></td>
</tr>
<tr>
<td>Ctrl Y</td>
<td>EM</td>
<td>End of medium</td>
<td></td>
</tr>
<tr>
<td>Ctrl Z</td>
<td>SUB</td>
<td>Substitute</td>
<td>Processed as CAN except reverse question mark is displayed.</td>
</tr>
<tr>
<td>Ctrl [</td>
<td>ESC</td>
<td>Escape</td>
<td>Processed as escape sequence introduce. Terminates any escape, control, or device control sequence in progress.</td>
</tr>
<tr>
<td>Ctrl \</td>
<td>FS</td>
<td>File separator</td>
<td></td>
</tr>
<tr>
<td>Ctrl ]</td>
<td>GS</td>
<td>Group separator</td>
<td></td>
</tr>
<tr>
<td>Ctrl *</td>
<td>RS</td>
<td>Record separator</td>
<td></td>
</tr>
<tr>
<td>Ctrl US</td>
<td>US</td>
<td>Unit separator</td>
<td></td>
</tr>
</tbody>
</table>

### Controlling the Terminal Modes

**Terminal Modes On (Set)**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mnemonic</th>
<th>Default(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM (1)</td>
<td>(1)CSI Ps;...; Ps h</td>
<td>NVR</td>
</tr>
<tr>
<td>SM (2)</td>
<td>(2)CSI ? Ps;...; Ps h</td>
<td>NVR</td>
</tr>
</tbody>
</table>

**Terminal Modes Off (Reset)**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mnemonic</th>
<th>Default(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM (1)</td>
<td>(1)CSI Ps;...; Ps l</td>
<td>NVR</td>
</tr>
<tr>
<td>RM (2)</td>
<td>(2)CSI ? Ps;...; Ps l</td>
<td>NVR</td>
</tr>
</tbody>
</table>

### ANSI Commands

- **NONERASABLE AREA TRANSMIT**
  - **WYGATM**
  - **NVR**
- **KEYBOARD LOCK**
  - **KAM**
  - **Off**
- **INSERT**
  - **IRM**
  - **Off**
- **LOCAL ECHO DISABLE**
  - **SRM**
  - **NVR**
- **CONTROL EXECUTION DISABLE**
  - **FEAM**
  - **NVR**
- **TRANSFER TERMINATION**
  - **TTM**
  - **NVR**
- **NEWLINE**
  - **LNM**
  - **NVR**
- **DISPLAY DISABLE**
  - **LNM**
  - **NVR**
- **STATUS LINE DISPLAY**
  - **WYSTLNM**
  - **NVR**
- **SCREEN SAVER**
  - **WYCRTSAV**
  - **NVR**
- **STEADY CURSOR**
  - **WYULCUR**
  - **NVR**
- **UNDERLINE CURSOR**
  - **SYULCUR**
  - **NVR**
- **WIDTH CHANGE CLEAR DISABLE**
  - **WYCLRM**
  - **NVR**

(1) Final character in sequence a lowercase I.
# Control Code Summary

## Mnemonic

<table>
<thead>
<tr>
<th>Mode</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) 36</td>
<td>Denote key redefinition</td>
<td>WYDELM</td>
<td>Default</td>
</tr>
<tr>
<td>37</td>
<td>Nonerasable area transmit (4)</td>
<td>WYGATM</td>
<td>NVR</td>
</tr>
<tr>
<td>40</td>
<td>Last data line (6)</td>
<td>WYEXTDM</td>
<td>NVR</td>
</tr>
<tr>
<td>41</td>
<td>Maximum data lines (7)</td>
<td>WYMAXDM</td>
<td>NVR</td>
</tr>
<tr>
<td>42</td>
<td>Select QVT 70 personality (6)</td>
<td>WYASCII</td>
<td>Off</td>
</tr>
<tr>
<td>45</td>
<td>Host port (9)</td>
<td>WYHP</td>
<td>NVR</td>
</tr>
<tr>
<td>49</td>
<td>Recognize DEL (10)</td>
<td>WYDEL</td>
<td>NVR</td>
</tr>
<tr>
<td>53</td>
<td>Cell size 2 (10x16) (11)</td>
<td>WYCELL</td>
<td>NVR</td>
</tr>
</tbody>
</table>

## (2) Mnemonic

<table>
<thead>
<tr>
<th>Mode</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) 1</td>
<td>Cursor key application</td>
<td>DECKCM</td>
<td>Off</td>
</tr>
<tr>
<td>2</td>
<td>ANSI/VT52 (12)</td>
<td>DECANM</td>
<td>NVR</td>
</tr>
<tr>
<td>3</td>
<td>132-column</td>
<td>DECCOLM</td>
<td>NVR</td>
</tr>
<tr>
<td>4</td>
<td>Scrolling</td>
<td>DECSCLM</td>
<td>NVR</td>
</tr>
<tr>
<td>5</td>
<td>Reverse screen</td>
<td>DECSSCNM</td>
<td>NVR</td>
</tr>
<tr>
<td>6</td>
<td>Origin</td>
<td>DECOM</td>
<td>Off</td>
</tr>
<tr>
<td>7</td>
<td>Autowrap</td>
<td>DECAWM</td>
<td>NVR</td>
</tr>
<tr>
<td>8</td>
<td>Key autorepeat</td>
<td>DECARM</td>
<td>NVR</td>
</tr>
<tr>
<td>10</td>
<td>Block mode</td>
<td>DECEDM</td>
<td>NVR</td>
</tr>
<tr>
<td>16</td>
<td>Local key</td>
<td>DECEKEM</td>
<td>NVR</td>
</tr>
<tr>
<td>18</td>
<td>Print form feed</td>
<td>DECPPF</td>
<td>NVR</td>
</tr>
<tr>
<td>19</td>
<td>Print extent</td>
<td>DECPFX</td>
<td>NVR</td>
</tr>
<tr>
<td>24</td>
<td>Select parallel printer port (12A)</td>
<td>QVTSPP</td>
<td>NVR</td>
</tr>
<tr>
<td>25</td>
<td>Text cursor enable</td>
<td>DECTCEM</td>
<td>NVR</td>
</tr>
<tr>
<td>42</td>
<td>National Replacement Character Set</td>
<td>DECNRCM</td>
<td>NVR</td>
</tr>
<tr>
<td>54</td>
<td>ASCII key code mode</td>
<td>WYKCM</td>
<td>NVR</td>
</tr>
<tr>
<td>61</td>
<td>Select IBM 437 char set</td>
<td>QVT437</td>
<td>NVR</td>
</tr>
<tr>
<td>62</td>
<td>Select IBM 850 char set</td>
<td>QVT850</td>
<td>NVR</td>
</tr>
</tbody>
</table>

---

(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

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Save cursor position, attributes, character sets, wrap flag, origin mode</strong></td>
<td>DECSC ESC 7</td>
<td>ESC 7</td>
<td>ESC 7</td>
</tr>
<tr>
<td></td>
<td>or CSI s</td>
<td>or CSI s</td>
<td>or CSI s</td>
</tr>
<tr>
<td><strong>Restore last saved cursor position, attributes, character sets, wrap flag, origin mode</strong></td>
<td>DECRC ESC 8</td>
<td>ESC 8</td>
<td>esc 8</td>
</tr>
<tr>
<td></td>
<td>or CSI u</td>
<td>or CSI u</td>
<td>or CSI u</td>
</tr>
<tr>
<td><strong>Delay processing about 250 ms</strong></td>
<td>WYDELAY ESC,</td>
<td>ESC,</td>
<td>ESC,</td>
</tr>
<tr>
<td><strong>Sound bell, if enabled</strong></td>
<td>BEL CTRL G</td>
<td>CTRL G</td>
<td>CTRL G</td>
</tr>
<tr>
<td><strong>Abort escape sequence, display checkerboard character in VT100 personality</strong></td>
<td>CAN CTRL X</td>
<td>CTRL X</td>
<td>CTRL X</td>
</tr>
<tr>
<td><strong>Abort escape sequence display reverse question mark in VT200 personality; display checkerboard character in VT100 personality</strong></td>
<td>SUB CTRL Z</td>
<td>CTRL Z</td>
<td>CTRL Z</td>
</tr>
</tbody>
</table>

### CONTROLLING THE SCREEN DISPLAY

| Monitor Mode on | CRM | CSI 3 h |
| Monitor Mode off | CRM | CSI 1 |
| Control execution off | FEA M | CSI 13 h |
| Control execution on | FEA M | CSI 13 |
| Display off (blank screen) | WYDSCM | CSI 30 h |
| Display on | WYDSCM | CSI 30 |
| Status Line on | WYSLINM | CSI 31 h |
| Status Line off | WYSLINM | CSI 31 |
| Screen Saver on | WYCRSAVM | CSI 32 h |
| Screen Saver off | WYCRSAVM | CSI 32 |
| Width change clear off | WYCLRM | CSI 35 h |
| Width change clear on (4) | WYCLRM | CSI 35 |
| 25 or 43 data lines | WYEXTDM | CSI 40 h |
| 24 or 42 data lines | WYEXTDM | CSI 40 |

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

ANSI Commands B-11
<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 10x16 character cell (60 Hz)</td>
<td>WYCELL</td>
<td>CSI53h</td>
<td>CSI53h</td>
</tr>
<tr>
<td>Select 10x13 character cell (76 Hz)</td>
<td>WYCELL</td>
<td>CSI53I</td>
<td>CSI53I</td>
</tr>
<tr>
<td>Select 10x13 character cell (76 Hz)</td>
<td>WYCELL</td>
<td>CSI39I</td>
<td>CSI39I</td>
</tr>
<tr>
<td>132-column display</td>
<td>DECCOLM</td>
<td>CSI?3h</td>
<td>CSI?3h</td>
</tr>
<tr>
<td>80-column display</td>
<td>DECCOLM</td>
<td>CSI?3I</td>
<td>CSI?3I</td>
</tr>
<tr>
<td>Reverse Screen</td>
<td>DECSCNM</td>
<td>CSI?5h</td>
<td>CSI?5h</td>
</tr>
<tr>
<td>Normal Screen</td>
<td>DECSCNM</td>
<td>CSI?5I</td>
<td>CSI?5I</td>
</tr>
<tr>
<td>Line 1 is top line of scrolling region</td>
<td>DECOM</td>
<td>CSI?6h</td>
<td>CSI?6h</td>
</tr>
<tr>
<td>Line 1 is top line of page</td>
<td>DECOM</td>
<td>CSI?6I</td>
<td>CSI?6I</td>
</tr>
<tr>
<td>Autowrap on</td>
<td>DECAWM</td>
<td>CSI?7h</td>
<td>CSI?7h</td>
</tr>
<tr>
<td>Autowrap off</td>
<td>DECAWM</td>
<td>CSI?7I</td>
<td>CSI?7I</td>
</tr>
<tr>
<td>Cursor displayed</td>
<td>DECTCEM</td>
<td>CSI?25h</td>
<td>CSI?25h</td>
</tr>
<tr>
<td>Cursor steady (nonblinking)</td>
<td>WYSTCURM</td>
<td>CSI33h</td>
<td>CSI33h</td>
</tr>
<tr>
<td>Cursor blinking</td>
<td>WYSTCURM</td>
<td>CSI33I</td>
<td>CSI33I</td>
</tr>
<tr>
<td>Underline cursor on</td>
<td>WYULCURM</td>
<td>CSI34h</td>
<td>CSI34h</td>
</tr>
<tr>
<td>Block cursor</td>
<td>WYULCURM</td>
<td>CSI34I</td>
<td>CSI34I</td>
</tr>
<tr>
<td>Define scrolling region (5)</td>
<td>DECSMBM</td>
<td>CSI Pn;Pnlr</td>
<td>CSI Pn;Pnlr</td>
</tr>
<tr>
<td>Smooth scrolling on</td>
<td>DECSCLM</td>
<td>CSI?4h</td>
<td>CSI?4h</td>
</tr>
<tr>
<td>Jump scrolling on</td>
<td>DECSCLM</td>
<td>CSI?4I</td>
<td>CSI?4I</td>
</tr>
</tbody>
</table>

(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.

B-12 ANSI Commands
## Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set 1 1 ips smooth scrolling speed (7)</strong></td>
<td>WYSCRATE CSI 1 ( z )</td>
<td>CSI 1 ( z )</td>
<td>CSI 1 ( z )</td>
</tr>
<tr>
<td><strong>Set 2 2 ips smooth scrolling speed (7)</strong></td>
<td>WYSCRATE CSI 2 ( z )</td>
<td>CSI 2 ( z )</td>
<td>CSI 2 ( z )</td>
</tr>
<tr>
<td><strong>Set 4 4 ips smooth scrolling speed (7)</strong></td>
<td>WYSCRATE CSI 3 ( z ) or CSI 10 ( z )</td>
<td>CSI 3 ( z ) or CSI 10 ( z )</td>
<td>CSI 3 ( z ) or CSI 110 ( z )</td>
</tr>
<tr>
<td><strong>Set 8 8 ips smooth scrolling speed (7)</strong></td>
<td>WYSCRATE CSI 4 ( z )</td>
<td>CSI 4 ( z )</td>
<td>CSI 4 ( z )</td>
</tr>
</tbody>
</table>

**Control simulated keyboard LEDs in computer**

<table>
<thead>
<tr>
<th>( Ps )</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>L1 to L4 off</td>
</tr>
<tr>
<td>1</td>
<td>L1 on</td>
</tr>
<tr>
<td>2</td>
<td>L2 on</td>
</tr>
<tr>
<td>3</td>
<td>L3 on</td>
</tr>
<tr>
<td>4</td>
<td>L4 on</td>
</tr>
</tbody>
</table>

**SELECTING TERMINAL PERSONALITIES (8)**

- **VT220 8-bit (VT320 ID)**
  - DECSCIL CSI 63;2* \( p \) CSI 63;2* \( p \) CSI 63;2* \( p \)
  - DECSCIL CSI 63;1* \( p \) CSI 63;1* \( p \) CSI 63;1* \( p \)

- **VT220 7-bit (VT320 ID)**
  - DECSCIL CSI 62;2* \( p \) CSI 62;2* \( p \) CSI 62;2* \( p \)
  - DECSCIL CSI 62;1* \( p \) CSI 62;1* \( p \) CSI 62;1* \( p \)

- **VT100**
  - DECSCIL CSI 61;* \( p \) CSI 61;* \( p \) CSI 61;* \( p \)

- **VT 52**
  - DECANM CSI 2* \( t \) CSI 2* \( t \) CSI 2* \( t \)

- **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).
## Control Code Summary

### LABELLING CHARACTER SETS (9)

<table>
<thead>
<tr>
<th>Label Character Set</th>
<th>SCS fcode scode</th>
<th>SCS fcode scode</th>
</tr>
</thead>
<tbody>
<tr>
<td>fcode</td>
<td>Font Bank</td>
<td></td>
</tr>
<tr>
<td>(</td>
<td>G0 94 character</td>
<td></td>
</tr>
<tr>
<td>)</td>
<td>G1 94 character</td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>G2 94 character</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>G3 94 character</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>G1 96 character (VT220 only)</td>
<td></td>
</tr>
<tr>
<td>.</td>
<td>G2 96 character (VT220 only)</td>
<td></td>
</tr>
<tr>
<td>/</td>
<td>G3 96 character (VT220 only)</td>
<td></td>
</tr>
</tbody>
</table>

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

Assign Multinational Supplemental as user-preferred supplemental set (default)
DECAUPSS DCS 0 lu%5 ST DCS 0 lu%5 ST
Assign ISO Latin-1 as user-defined supplemental set
deCAUPSS DCS 1 lu A ST
National replacement character set mode on
DECNRCM CSI? 42h CSI? 42h
National replacement character set mode off
DECNRCM CSI? 42l CSI? 42l

B-14 ANSI Commands

(9) See Appendix G for character set illustrations.
## Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSIGNING CHARACTER SETS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign GO character set to GL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI or LS0</td>
<td>CTRL O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign GI character set to GL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SO or LS1</td>
<td>CTRL N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G1 character set to GR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS1R ESC -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G2 character set to GL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS2 ESC n</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G2 character set to GR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS2R ESC }</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G3 character set to GL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS3 ESC o</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G3 character set to GR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LS3R ESC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G2 character set to GL for the next character only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS2 ESC N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign G3 character set to GL for the next character only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS3 ESC O</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## CONTROLLING ATTRIBUTES

### LOADING SOFTFONTS (10)

<table>
<thead>
<tr>
<th>Load softfont character</th>
<th>DECDDLD</th>
<th>DCS Ps;Ps1;Ps2;</th>
<th>DCS Ps;Ps1;Ps2;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(name Sxbp;...;Sxbp ST)</td>
<td>(name Sxbp;...;Sxbp ST)</td>
<td></td>
</tr>
<tr>
<td>Ps</td>
<td>Character Set Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>9B-character softfont</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>32-character softfont</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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 9B-character set, or 63 df= 5FH through 94 = 7EH for a 32-character set.

<table>
<thead>
<tr>
<th>Ps1</th>
<th>Erase Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or 2</td>
<td>Erase all characters in the set before redefining (default)</td>
</tr>
<tr>
<td>1</td>
<td>Erase each character as it is defined</td>
</tr>
<tr>
<td>{</td>
<td>A separator</td>
</tr>
</tbody>
</table>

(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.

---

ANSI Commands B-15
Control Code Summary

### Intecolor

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ps1</td>
<td>Erase Control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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)

**Sdpi**

Six bit patterns (separated by /) defining the character. Multiple characters can be specified.

**ST**

String terminator

---

**Define character attributes**

SGR

<table>
<thead>
<tr>
<th>Ps</th>
<th>Character Attribute (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal (all attributes off)</td>
</tr>
<tr>
<td>1</td>
<td>Bold (dim, invisible, off)</td>
</tr>
<tr>
<td>2</td>
<td>Dim (bold, invisible, off)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ps</th>
<th>Character Attribute (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Underline</td>
</tr>
<tr>
<td>5</td>
<td>Blink</td>
</tr>
<tr>
<td>7</td>
<td>Reverse</td>
</tr>
<tr>
<td>8</td>
<td>Invisible (bold, dim, off)</td>
</tr>
<tr>
<td>22</td>
<td>Normal intensity (bold, dim, invisible, off)</td>
</tr>
<tr>
<td>24</td>
<td>Underline off</td>
</tr>
<tr>
<td>25</td>
<td>Blink off</td>
</tr>
<tr>
<td>27</td>
<td>Reverse off</td>
</tr>
</tbody>
</table>

**Define erasable character**

DECSCA

<table>
<thead>
<tr>
<th>CSI Ps;...; Ps m</th>
</tr>
</thead>
</table>

**Define nonerasable character**

DECSCA

<table>
<thead>
<tr>
<th>CSI Ps;...; Ps m</th>
</tr>
</thead>
</table>

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

DECDLH

| ESC # 3 |

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

DECDLH

| ESC # 4 |

**Define single-high, single-wide line**

DECSWL

| ESC # 5 |

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

---

B-16 **ANSI Commands**
### Control Code Summary

#### Intecolor

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

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

ANSI Commands B-17
### Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDITING FUNCTIONS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert mode on</td>
<td>CSI4 h</td>
<td>CSI4 h</td>
<td>CSI4 h</td>
</tr>
<tr>
<td>Insert mode off</td>
<td>CSI4 l</td>
<td>CSI4 l</td>
<td>CSI4 l</td>
</tr>
<tr>
<td>Erase from cursor to end of display</td>
<td>CSI0 J</td>
<td>CSI0 J</td>
<td>CSI0 J</td>
</tr>
<tr>
<td>Erase from start of display to cursor</td>
<td>CSI1 J</td>
<td>CSI1 J</td>
<td>CSI1 J</td>
</tr>
<tr>
<td>Erase entire display (13)</td>
<td>CSI2 J</td>
<td>CSI2 J</td>
<td>CSI2 J</td>
</tr>
<tr>
<td>Erase from cursor to end of line</td>
<td>ESC 0 K</td>
<td>ESC 0 K</td>
<td>ESC 0 K</td>
</tr>
<tr>
<td>Erase from start of line to cursor</td>
<td>ESC 1 K</td>
<td>ESC 1 K</td>
<td>ESC 1 K</td>
</tr>
<tr>
<td>Erase entire line</td>
<td>CSI 2 K</td>
<td>CSI 2 K</td>
<td>CSI 2 K</td>
</tr>
<tr>
<td>Erase erasable characters from cursor to end of display</td>
<td>DECSED CSI? 0 J</td>
<td>DECSED CSI? 1 J</td>
<td>DECSED CSI? 1 J</td>
</tr>
<tr>
<td>Erase erasable characters from start of display to cursor</td>
<td>DECSED CSI? 1 J</td>
<td>DECSED CSI? 2 J</td>
<td>DECSED CSI? 2 J</td>
</tr>
<tr>
<td>Erase erasable characters in entire display</td>
<td>DECSED CSI? 2 J</td>
<td>DECSED CSI? 0 K</td>
<td>DECSED CSI? 0 K</td>
</tr>
<tr>
<td>Erase erasable characters from cursor to end of line</td>
<td>DECSel CSI? 0 K</td>
<td>DECSel CSI? 0 K</td>
<td>DECSel CSI? 0 K</td>
</tr>
<tr>
<td>Erase erasable characters from start of line to cursor</td>
<td>DECSel CSI? 1 K</td>
<td>DECSel CSI? 1 K</td>
<td>DECSel CSI? 1 K</td>
</tr>
<tr>
<td>Erase erasable characters from entire line</td>
<td>DECSel CSI? 2 K</td>
<td>DECSel CSI? 2 K</td>
<td>DECSel CSI? 2 K</td>
</tr>
<tr>
<td>Erase n characters beginning at cursor</td>
<td>ESC Pn X</td>
<td>CSI Pn X</td>
<td>CSI Pn X</td>
</tr>
<tr>
<td>Insert n blank characters beginning at cursor</td>
<td>CSI Pn @</td>
<td>CSI Pn @</td>
<td>CSI Pn @</td>
</tr>
<tr>
<td>Insert n blank lines beginning at cursor</td>
<td>CSI kPn L</td>
<td>CSI kPn L</td>
<td>CSI kPn L</td>
</tr>
<tr>
<td>Delete n lines beginning at cursor line</td>
<td>CSI Pn M</td>
<td>CSI Pn M</td>
<td>CSI Pn M</td>
</tr>
<tr>
<td>Delete n characters beginning at cursor</td>
<td>CSI Pn P</td>
<td>CSI Pn P</td>
<td>CSI Pn P</td>
</tr>
<tr>
<td>Clear tab stop at cursor</td>
<td>CSI 0 g or</td>
<td>CSI 0 g or</td>
<td>CSI 0 g or</td>
</tr>
<tr>
<td>Clear all tab stops</td>
<td>CSI 3 g or</td>
<td>CSI 3 g or</td>
<td>CSI 3 g or</td>
</tr>
</tbody>
</table>

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

**B-18 ANSI Commands**
### Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set tab stop at cursor</td>
<td>CTC: CSI0 W</td>
<td>CTC: CSI0 W</td>
<td>CTC: CSI0 W</td>
</tr>
<tr>
<td></td>
<td>HTS: ESC H</td>
<td>or ESC H</td>
<td>or ESC H</td>
</tr>
<tr>
<td>Move forward n tab stops</td>
<td>CHF: CSI Pn I</td>
<td>CHF: CSI Pn I</td>
<td>CHF: CSI Pn I</td>
</tr>
<tr>
<td>Move backward n tab stops</td>
<td>CBT: CSI Pn Z</td>
<td>CBT: CSI Pn Z</td>
<td>CBT: CSI Pn Z</td>
</tr>
<tr>
<td>Move cursor to next tab stop</td>
<td>HT: CTRL I</td>
<td>CTRL I</td>
<td>CTRL I</td>
</tr>
</tbody>
</table>

**CONTROLLING THE KEYBOARD**

| Keyboard lock on | KAM: CSI2h CSI2h CSI2h | KAM: CSI2h CSI2h CSI2h | KAM: CSI2h CSI2h CSI2h |
| Unlock keyboard  | KAM: CSI2I CSI2I CSI2I | KAM: CSI2I CSI2I CSI2I |
| Set delete key to BS/DEL | WYDELKM: CSI36h CSI36h CSI36h | WYDELKM: CSI36h CSI36h CSI36h |
| Reset delete key to DEL/CAN | WYDELKM: CSI36I CSI36I CSI36I |
| Key autorepeat on | DECAR: CSI ? 8h CSI ? 8h CSI ? 8h |
| Key autorepeat off | DECAR: CSI ? 8I CSI ? 8I CSI ? 8I |
| Cursor keys send application-dependent codes | DECKCM: CSI ? 1h CSI ? 1h CSI ? 1h |
| Cursor keys send movement codes | DECKCM: CSI ? 1I CSI ? 1I CSI ? 1I |
| Numeric keypad numeric mode on | DECKPAM: ESC > ESC > ESC > |
| Numeric keypad application mode on | DECKPAM: ESC = ESC = ESC = |
| Unshifted function keys operate locally | DECEKEM: CSI ? 16h CSI ? 16h CSI ? 16h |
| Unshifted function keys operate remotely | DECEKEM: CSI ? 16I CSI ? 16I CSI ? 16I |
| Program function keys (14) | DECUDK: DCS P;Ps1 | DCS P;Ps1 | DCS P;Ps1 |
|              | I kc/hc ST | I kc/hc ST | I kc/hc ST |

<table>
<thead>
<tr>
<th>Ps</th>
<th>Clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Clear all key definitions (default)</td>
</tr>
<tr>
<td>1</td>
<td>Clear keys only as they are redefined</td>
</tr>
</tbody>
</table>

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

**ANSI Commands** B-19
### Control Code Summary

#### Mnemonic

<table>
<thead>
<tr>
<th>Ps1</th>
<th>Key Lock</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Look key definitions</td>
</tr>
<tr>
<td>1</td>
<td>Don't lock key definitions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>hc</th>
<th>KEYBOARD STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unshifted</td>
</tr>
<tr>
<td></td>
<td>105-key ANSI</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>37</td>
<td>17</td>
</tr>
<tr>
<td>38</td>
<td>18</td>
</tr>
<tr>
<td>39</td>
<td>19</td>
</tr>
<tr>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>41</td>
<td>21</td>
</tr>
<tr>
<td>43</td>
<td>23</td>
</tr>
<tr>
<td>44</td>
<td>24</td>
</tr>
<tr>
<td>45</td>
<td>25</td>
</tr>
<tr>
<td>46</td>
<td>26</td>
</tr>
<tr>
<td>48</td>
<td>28</td>
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<td>49</td>
<td>29</td>
</tr>
<tr>
<td>51</td>
<td>31</td>
</tr>
<tr>
<td>52</td>
<td>32</td>
</tr>
<tr>
<td>53</td>
<td>33</td>
</tr>
<tr>
<td>54</td>
<td>34</td>
</tr>
</tbody>
</table>

- Key definition (string of 8-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

<table>
<thead>
<tr>
<th>Ps</th>
<th>Ps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ps</th>
<th>Ps</th>
</tr>
</thead>
</table>

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

### B-20 ANSI Commands
Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unshifted</td>
<td>Shifted</td>
<td>105-key ANSI</td>
</tr>
<tr>
<td>L</td>
<td>i</td>
<td>F17</td>
<td>F1</td>
</tr>
<tr>
<td>M</td>
<td>m</td>
<td>F18</td>
<td>F2</td>
</tr>
<tr>
<td>N</td>
<td>n</td>
<td>F19</td>
<td>F3</td>
</tr>
<tr>
<td>O</td>
<td>o</td>
<td>F20</td>
<td>F4</td>
</tr>
<tr>
<td>P</td>
<td>p</td>
<td></td>
<td>F5</td>
</tr>
</tbody>
</table>

TRANSMISSION/PRINTER CONTROL

Local echo off
SRM
Local echo on
SRM
Print through cursor position
TTM
Print to end of line or end of screen
TTM
Don't send form feed character to host port after send page operation
DECTC
Send form feed character to host port after print page operation
DECTC
Send form feed after print page operation
DECPFF
Don't send form feed after print page operation
DECPFF
Print full screen
DECPFEX
Print scrolling region
DECPFEX
8-bit transmission mode on
SBCIT
7-bit transmission mode on
SBCIT
Send cursor character to host
SYXCH
Send page to host
MC
Send line to host
MC
Print page
MC
Print line
MC
Controller print mode off
MC
Controller print mode on
MC

ANSI Commands B-21
### Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUX receive mode off MC</td>
<td>CSI 61</td>
<td>CSI 61</td>
<td>CSI 61</td>
</tr>
<tr>
<td>AUX receive mode on MC</td>
<td>CSI 71</td>
<td>CSI 71</td>
<td>CSI 71</td>
</tr>
<tr>
<td>Autoprint mode off MC</td>
<td>CSI ? 41</td>
<td>CSI ? 41</td>
<td>CSI ? 41</td>
</tr>
<tr>
<td>Autoprint mode on MC</td>
<td>CSI ? 51</td>
<td>CSI ? 51</td>
<td>CSI ? 51</td>
</tr>
<tr>
<td>Send answerback message</td>
<td>ENQ CTRL E</td>
<td>CTRL E</td>
<td>CTRL E</td>
</tr>
<tr>
<td>Suspend transmission to host port (15)</td>
<td>DC3 CTRL S</td>
<td>CTRL S</td>
<td>CTRL S</td>
</tr>
<tr>
<td>Resume transmission to host port (15)</td>
<td>DC1 CTRL Q</td>
<td>CTRL Q</td>
<td></td>
</tr>
</tbody>
</table>

#### TERMINAL REPORTS

**Request Terminal ID** (Response: 160 CR)

<table>
<thead>
<tr>
<th>Request primary device attributes</th>
<th>WY1D</th>
<th>ESC SPACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA</td>
<td>CSI 0 c or</td>
<td>ESC [0 c or</td>
</tr>
<tr>
<td>DECID</td>
<td>ESC Z</td>
<td>ESC Z</td>
</tr>
<tr>
<td>Response: (16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VT320 (8-bit)</td>
<td>CSI ? 63; 1; 2; 6; 7; 8; 9 c</td>
<td>CSI ? 63; 1; 2; 6; 7; 8; 9 c</td>
</tr>
<tr>
<td>VT320 (7-bit)</td>
<td>ESC [ 63; 1; 2; 6; 7; 8; 9 c</td>
<td>ESC [ 63; 1; 2; 6; 7; 8; 9 c</td>
</tr>
<tr>
<td>VT220 (8-bit)</td>
<td>CSI ? 62; 1; 2; 6; 7; 8; 9 c</td>
<td>CSI ? 62; 1; 2; 6; 7; 8; 9 c</td>
</tr>
<tr>
<td>VT220 (7-bit)</td>
<td>ESC [ ? 62; 1; 2; 6; 7; 8; 9 c</td>
<td>ESC [ ? 62; 1; 2; 6; 7; 8; 9 c</td>
</tr>
<tr>
<td>VT100</td>
<td>ESC [ ? 1; 2 c</td>
<td>ESC [ ? 1; 2 c</td>
</tr>
<tr>
<td>VT101</td>
<td>ESC [ ? 1; 0 c</td>
<td>ESC [ ? 1; 0 c</td>
</tr>
<tr>
<td>VT102</td>
<td>ESC [ ? 6 c</td>
<td></td>
</tr>
</tbody>
</table>

**Request secondary device attributes**

<table>
<thead>
<tr>
<th>Response:</th>
<th>CSI &gt; 0 c</th>
<th>CSI &gt; 0 c</th>
</tr>
</thead>
</table>

**Request terminal status**

<table>
<thead>
<tr>
<th>DSR</th>
<th>CSI 5 n</th>
<th>CSI 5 n</th>
<th>CSI 5 n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response: Terminal functioning and ready</td>
<td>CSI 0 n</td>
<td>CSI 0 n</td>
<td></td>
</tr>
</tbody>
</table>

**Request cursor position**

<table>
<thead>
<tr>
<th>DSR</th>
<th>CSI 6 n</th>
<th>CSI 6 n</th>
<th>CSI 6 n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response: Cursor at line n, column n</td>
<td>CSI Pn; Pn R</td>
<td>CSI Pn; Pn R</td>
<td></td>
</tr>
</tbody>
</table>

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

(16) Response depends on personality selected in setup mode and on setting of ANSI 10 setup parameter.

---

**ANSI Commands**
### Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor VT220</th>
<th>VT100 CSI ? 15 n</th>
<th>WY370 CSI ? 15 n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Request printer status</strong></td>
<td>DSR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printer ready</td>
<td>CSI ? 10 n</td>
<td>CSI ? 10 n</td>
<td>CSI ? 10 n</td>
</tr>
<tr>
<td>Printer not ready</td>
<td>CSI ? 11 n</td>
<td>CSI ? 11 n</td>
<td>CSI ? 11 n</td>
</tr>
<tr>
<td>Printer not connected</td>
<td>CSI ? 13 n</td>
<td>CSI ? 13 n</td>
<td>CSI ? 13 n</td>
</tr>
<tr>
<td><strong>Request function key definition lock</strong></td>
<td>DSR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key definitions unlocked</td>
<td>CSI ? 20 n</td>
<td>CSI ? 20 n</td>
<td>CSI ? 20 n</td>
</tr>
<tr>
<td>Key definitions locked</td>
<td>CSI ? 21 n</td>
<td>CSI ? 21 n</td>
<td>CSI ? 21 n</td>
</tr>
<tr>
<td><strong>Request keyboard language</strong></td>
<td>DSR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ps (17) 105-key ANSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 US</td>
<td>US</td>
<td>US</td>
<td>US</td>
</tr>
<tr>
<td>2 UK</td>
<td>UK</td>
<td>UK</td>
<td>UK</td>
</tr>
<tr>
<td>3 Flemish</td>
<td>French Belgian</td>
<td>Belgian</td>
<td></td>
</tr>
<tr>
<td>4 French Canadian</td>
<td>French Canadian</td>
<td>French Canadian</td>
<td>French Canadian</td>
</tr>
<tr>
<td>5 Finnish</td>
<td></td>
<td>Finnish</td>
<td></td>
</tr>
<tr>
<td>6 German</td>
<td>German</td>
<td>German</td>
<td></td>
</tr>
<tr>
<td>7 Dutch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Italian</td>
<td>Italian</td>
<td>Italian</td>
<td></td>
</tr>
<tr>
<td>10 Swiss French</td>
<td>Swiss German/French</td>
<td>Swiss French</td>
<td></td>
</tr>
<tr>
<td>11 Swedish</td>
<td>Swedish</td>
<td>Swedish</td>
<td>Swedish</td>
</tr>
<tr>
<td>13 Norwegian</td>
<td>Norwegian</td>
<td>Norwegian</td>
<td>Norwegian</td>
</tr>
<tr>
<td>14 French/Belgian</td>
<td>French</td>
<td>French</td>
<td>French</td>
</tr>
<tr>
<td>15 Spanish</td>
<td>Spanish</td>
<td>Spanish</td>
<td>Spanish</td>
</tr>
<tr>
<td>16 Portuguese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display screen adjustment pattern</td>
<td>D E C A L N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft terminal reset (18)</td>
<td>E S C # 8</td>
<td>E S C # 8</td>
<td>E S C # 8</td>
</tr>
<tr>
<td>Hard terminal reset (19)</td>
<td>C S I l p</td>
<td>C S I l p</td>
<td>C S I l p</td>
</tr>
<tr>
<td>Terminal mode reset (20)</td>
<td>W Y S T R</td>
<td>E S C l p</td>
<td>E S C l p</td>
</tr>
</tbody>
</table>

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

**ANSI Commands** B-23
### Control Code Summary

<table>
<thead>
<tr>
<th>Mnemonic</th>
<th>Intecolor</th>
<th>VT100</th>
<th>WY370</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT220</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(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 VT52).
- Performs 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 communication line disconnect, reconnect.
- Restores all setup mode parameter settings to values 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 status 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; XOFF receive state on 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.

### VT52 ESCAPE SEQUENCES (21)

**Command**
- Move cursor up one line
- Move cursor down one line
- Move cursor right one column
- Move cursor left one column
- Move cursor to home position
- Move cursor up one line with scroll
- Position cursor
- Select special graphics character set
- Select US ANSI character set
- Erase from cursor to end of display
- Erase from cursor to end of line
- Print cursor line
- Print display
- Controller print mode on
- Controller print mode off
- Autoprint mode on
- Autoprint mode off
- Keypad application mode on
- Keypad application mode off
- Select VT100 personality
- Identify Terminal
- Respond VT52

**Sequence**
- ESC A
- ESC B
- ESC C
- ESC D
- ESC E
- ESC F
- ESC G
- ESC H
- ESC I
- ESC Y line col (22)
- ESC J
- ESC V
- ESC X
- ESC W
- ESC X
- ESC *
- ESC _
- ESC =
- ESC >
- ESC <
- ESC Z
- ESC / Z

(21) See table for supported control codes.

(22) See line/col under variable values.

### ANSI Commands

B-24
Appendix C

Port Pinouts
Table of Contents

Serial 1 Port Pinouts   C-3
Parallel Port Pinouts   C-3
Serial 2 Port Pinouts   C-4
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)

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

*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

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>To Terminal</th>
<th>From Terminal</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>X</td>
<td>- Strobe</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>X</td>
<td>+ Data Bit 0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>X</td>
<td>+ Data Bit 1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>X</td>
<td>+ Data Bit 2</td>
</tr>
<tr>
<td>Pin Number</td>
<td>To Terminal</td>
<td>From Terminal</td>
<td>Signal</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>5</td>
<td>X</td>
<td></td>
<td>+ Data Bit 3</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td></td>
<td>+ Data Bit 4</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td></td>
<td>+ Data Bit 5</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td></td>
<td>+ Data Bit 6</td>
</tr>
<tr>
<td>9</td>
<td>X</td>
<td></td>
<td>+ Data Bit 7</td>
</tr>
<tr>
<td>10</td>
<td>X</td>
<td></td>
<td>- Acknowledge</td>
</tr>
<tr>
<td>11</td>
<td>X</td>
<td></td>
<td>+ Busy</td>
</tr>
<tr>
<td>12</td>
<td>X</td>
<td></td>
<td>+ Paper End</td>
</tr>
<tr>
<td>15</td>
<td>X</td>
<td></td>
<td>- Error</td>
</tr>
<tr>
<td>18-25</td>
<td>X</td>
<td></td>
<td>Ground 16, 17, 19-30, 33</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>To Terminal</th>
<th>From Terminal</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td></td>
<td>Data Carrier Detect</td>
</tr>
<tr>
<td>2</td>
<td>X</td>
<td></td>
<td>Receive Data</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>X</td>
<td>Transmit Data</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>X</td>
<td>Data Terminal Ready</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td></td>
<td>Data Set Ready</td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td></td>
<td>Request to Send</td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td></td>
<td>Clear to Send</td>
</tr>
</tbody>
</table>

**Port Pinouts**
Appendix D

Keyboard Remapping
Table of Contents

ASCII Emulation:
Edit and Special Key Codes (ASCII) D-3
Edit and Special Key Codes (ANSI) D-4
Edit and Special Key Codes (EPC) D-4
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ANSI Emulation:
Edit and Special Key Codes (ASCII) D-6
Edit and Special Key Codes (ANSI) D-7
Edit and Special Key Codes (EPC) D-8
PF Key Codes D-8
Numeric Keypad Application Mode D-9
Cursor Key Application Mode D-9
Function Key Default Codes (ASCII) D-9
Function Key Default Codes (ANSI) D-10
Function Key Default Codes (EPC) D-11

D-2 Keyboard Remapping
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

<table>
<thead>
<tr>
<th>Key</th>
<th>Native Code</th>
<th>ADDS VP A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backspace</td>
<td>CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Clear Line</td>
<td>ESC T</td>
<td>ESC K</td>
</tr>
<tr>
<td>Clear Screen</td>
<td>ESC Y</td>
<td>ESC k</td>
</tr>
<tr>
<td>Up Arrow</td>
<td>CTRL K</td>
<td>CTRL Z</td>
</tr>
<tr>
<td>Down Arrow</td>
<td>CTRL J</td>
<td>CTRL J</td>
</tr>
<tr>
<td>Right Arrow</td>
<td>CTRL L</td>
<td>CTRL F</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>CTRL H</td>
<td>CTRL U</td>
</tr>
<tr>
<td>Del</td>
<td>DEL</td>
<td>DEL</td>
</tr>
<tr>
<td>Del Char</td>
<td>ESC W</td>
<td>ESC W</td>
</tr>
<tr>
<td>Del Line</td>
<td>ESC R</td>
<td>ESC I</td>
</tr>
<tr>
<td>ESC</td>
<td>CTRL [</td>
<td>CTRL [</td>
</tr>
<tr>
<td>Enter</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Home</td>
<td>CTRL ^</td>
<td>CTRL A</td>
</tr>
<tr>
<td>Shift Home</td>
<td>ESC {</td>
<td>CTRL A</td>
</tr>
<tr>
<td>Ins</td>
<td>ESC q</td>
<td>ESC q</td>
</tr>
<tr>
<td>Ins Char</td>
<td>ESC Q</td>
<td>ESC Q</td>
</tr>
<tr>
<td>Ins Line</td>
<td>ESC E</td>
<td>ESC M</td>
</tr>
<tr>
<td>Next Page</td>
<td>ESC K</td>
<td>ESC J</td>
</tr>
<tr>
<td>Prev Page</td>
<td>ESC J</td>
<td>ESC J</td>
</tr>
<tr>
<td>Print</td>
<td>ESC P</td>
<td>ESC P</td>
</tr>
<tr>
<td>Repl</td>
<td>ESC r</td>
<td>ESC r</td>
</tr>
<tr>
<td>Return</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Send</td>
<td>ESC 7</td>
<td>ESC 7</td>
</tr>
<tr>
<td>Tab</td>
<td>CTRL I</td>
<td>CTRL I</td>
</tr>
<tr>
<td>Shift Tab</td>
<td>ESC I</td>
<td>ESC O</td>
</tr>
</tbody>
</table>
### Table D-2
**Edit and Special Key Codes, ANSI Keyboard**

<table>
<thead>
<tr>
<th>Key</th>
<th>Native Code</th>
<th>ADDS</th>
<th>VP</th>
<th>A2</th>
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<td>CTRL K</td>
<td>CTRL Z</td>
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<tr>
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<td>CTRL J</td>
<td>CTRL J</td>
<td></td>
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<tr>
<td>Right Arrow</td>
<td>CTRL L</td>
<td>CTRL F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Arrow</td>
<td>CTRL H</td>
<td>CTRL U</td>
<td></td>
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</tr>
<tr>
<td>Backspace</td>
<td>CTRL H</td>
<td>CTRL H</td>
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</tr>
<tr>
<td>Enter</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert Here</td>
<td>ESC Q</td>
<td>ESC Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift Insert Here</td>
<td>ESC E</td>
<td>ESC M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next Scrn</td>
<td>ESC K</td>
<td>ESC J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF1</td>
<td>ESC Q</td>
<td>ESC Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift PF1</td>
<td>ESC E</td>
<td>ESC M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF2</td>
<td>ESC w</td>
<td>ESC W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift PF2</td>
<td>ESC R</td>
<td>ESC I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PF3</td>
<td>ESC T</td>
<td>ESC K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift PF3</td>
<td>ESC Y</td>
<td>ESC k</td>
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<tr>
<td>PF4</td>
<td>ESC r</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Shift PF4</td>
<td>ESC q</td>
<td>ESC q</td>
<td></td>
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<tr>
<td>Prev Scrn</td>
<td>ESC J</td>
<td>ESC J</td>
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<tr>
<td>Remove</td>
<td>DEL</td>
<td>DEL</td>
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<td></td>
</tr>
<tr>
<td>Return</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tab</td>
<td>CTRL I</td>
<td>CTRL I</td>
<td></td>
<td></td>
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<tr>
<td>Shift Tab</td>
<td>ESC I</td>
<td>ESC O</td>
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### Table D-3
**Edit and Special Key Codes, EPC Keyboard**

<table>
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<tr>
<th>Key</th>
<th>Native Code</th>
<th>ADDS</th>
<th>VP</th>
<th>A2</th>
</tr>
</thead>
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<tr>
<td>Backspace</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Arrow</td>
<td>CTRL K</td>
<td>CTRL Z</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down Arrow</td>
<td>CTRL J</td>
<td>CTRL J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right Arrow</td>
<td>CTRL L</td>
<td>CTRL F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left Arrow</td>
<td>CTRL H</td>
<td>CTRL U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Del (Keypad)</td>
<td>DEL</td>
<td>DEL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete</td>
<td>ESC W</td>
<td>ESC W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift Delete</td>
<td>ESC R</td>
<td>ESC I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End</td>
<td>ESC T</td>
<td>ESC K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift End</td>
<td>ESC Y</td>
<td>ESC k</td>
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D-4  **Keyboard Remapping**
<table>
<thead>
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<th>Key</th>
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<th>ADDS VP A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter (Keypad)</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Enter</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Esc</td>
<td>CTRL [</td>
<td>CTRL [</td>
</tr>
<tr>
<td>Home</td>
<td>CTRL ^</td>
<td>CTRL A</td>
</tr>
<tr>
<td>Shift Home</td>
<td>ESC {</td>
<td>CTRL A</td>
</tr>
<tr>
<td>Insert</td>
<td>ESC q</td>
<td>ESC q</td>
</tr>
<tr>
<td>Shift Insert</td>
<td>ESC z</td>
<td>ESC z</td>
</tr>
<tr>
<td>Ins (Keypad)</td>
<td>ESC r</td>
<td>ESC r</td>
</tr>
<tr>
<td>Shift Ins (Keypad)</td>
<td>ESC q</td>
<td>ESC q</td>
</tr>
<tr>
<td>Page Down</td>
<td>ESC K</td>
<td>ESC J</td>
</tr>
<tr>
<td>Page Up</td>
<td>ESC J</td>
<td>ESC J</td>
</tr>
<tr>
<td>Print Screen</td>
<td>ESC P</td>
<td>ESC P</td>
</tr>
<tr>
<td>Tab</td>
<td>CTRL I</td>
<td>CTRL I</td>
</tr>
<tr>
<td>Shift Tab</td>
<td>ESC I</td>
<td>ESC O</td>
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</table>

**Table D-4**
Function Key Codes for ASCII Emulations

<table>
<thead>
<tr>
<th>Key</th>
<th>Native</th>
<th>ADDS VP A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>CTRL A @ CR</td>
<td>CTRL B 1 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A ' CR</td>
<td>CTRL B ! CR</td>
</tr>
<tr>
<td>F2</td>
<td>CTRL A A CR</td>
<td>CTRL B 2 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A a CR</td>
<td>CTRL B * CR</td>
</tr>
<tr>
<td>F3</td>
<td>CTRL A B CR</td>
<td>CTRL B 3 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A b CR</td>
<td>CTRL B # CR</td>
</tr>
<tr>
<td>F4</td>
<td>CTRL A C CR</td>
<td>CTRL B 4 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A c CR</td>
<td>CTRL B $ CR</td>
</tr>
<tr>
<td>F5</td>
<td>CTRL A D CR</td>
<td>CTRL B 5 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A d CR</td>
<td>CTRL B % CR</td>
</tr>
<tr>
<td>F6</td>
<td>CTRL A E CR</td>
<td>CTRL B 6 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A e CR</td>
<td>CTRL B &amp; CR</td>
</tr>
<tr>
<td>F7</td>
<td>CTRL A F CR</td>
<td>CTRL B 7 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A f CR</td>
<td>CTRL B ' CR</td>
</tr>
<tr>
<td>F8</td>
<td>CTRL A G CR</td>
<td>CTRL B 8 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A g CR</td>
<td>CTRL B ( CR</td>
</tr>
<tr>
<td>F9</td>
<td>CTRL A H CR</td>
<td>CTRL B 9 CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A h CR</td>
<td>CTRL B ) CR</td>
</tr>
<tr>
<td>F10</td>
<td>CTRL A I CR</td>
<td>CTRL B : CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A i CR</td>
<td>CTRL B * CR</td>
</tr>
<tr>
<td>F11</td>
<td>CTRL A J CR</td>
<td>CTRL B ; CR</td>
</tr>
<tr>
<td></td>
<td>CTRL A j CR</td>
<td>CTRL B + CR</td>
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*Keyboard Remapping*  D-5
<table>
<thead>
<tr>
<th>Key</th>
<th>Native</th>
<th>ADDS VP A2</th>
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<tbody>
<tr>
<td>F12</td>
<td>CTRL A K CR</td>
<td>CTRL B &lt; CR</td>
</tr>
<tr>
<td>Shift F12</td>
<td>CTRL A k CR</td>
<td>CTRL B , CR</td>
</tr>
<tr>
<td>F13</td>
<td>CTRL A L CR</td>
<td>CTRL B = CR</td>
</tr>
<tr>
<td>Shift F13</td>
<td>CTRL A I CR</td>
<td>CTRL B - CR</td>
</tr>
<tr>
<td>F14</td>
<td>CTRL A M CR</td>
<td>CTRL B &gt; CR</td>
</tr>
<tr>
<td>Shift F14</td>
<td>CTRL A m CR</td>
<td>CTRL B . CR</td>
</tr>
<tr>
<td>F15 or Help</td>
<td>CTRL A N CR</td>
<td>CTRL B ? CR</td>
</tr>
<tr>
<td>Shift F15</td>
<td>CTRL A n CR</td>
<td>CTRL B / CR</td>
</tr>
<tr>
<td>F16 or Do</td>
<td>CTRL A O CR</td>
<td>CTRL B @ CR</td>
</tr>
<tr>
<td>Shift F16</td>
<td>CTRL A o CR</td>
<td>CTRL B 0 CR</td>
</tr>
<tr>
<td>F17</td>
<td>CTRL A P CR</td>
<td>CTRL B A CR</td>
</tr>
<tr>
<td>Shift F17</td>
<td>CTRL A p CR</td>
<td>CTRL B 1 CR</td>
</tr>
<tr>
<td>F18</td>
<td>CTRL A Q CR</td>
<td>CTRL B B CR</td>
</tr>
<tr>
<td>Shift F18</td>
<td>CTRL A q CR</td>
<td>CTRL B 2 CR</td>
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<tr>
<td>F19</td>
<td>CTRL A R CR</td>
<td>CTRL B C CR</td>
</tr>
<tr>
<td>Shift F19</td>
<td>CTRL A r CR</td>
<td>CTRL B 3 CR</td>
</tr>
<tr>
<td>F20</td>
<td>CTRL A S CR</td>
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</tr>
<tr>
<td>Shift F20</td>
<td>CTRL A s CR</td>
<td>CTRL B 4 CR</td>
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Table D-5
Edit and Special Key Codes, ASCII Keyboard

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<tr>
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<th>VT220 8-Bit</th>
<th>VT100</th>
<th>VT52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backspace</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Clr Line</td>
<td>ESC O R</td>
<td>SS3 R</td>
<td>ESC O R</td>
<td>ESC R</td>
</tr>
<tr>
<td>Clr Scrn</td>
<td>ESC O R</td>
<td>SS3 R</td>
<td>ESC O R</td>
<td>ESC R</td>
</tr>
<tr>
<td>Up Arrow</td>
<td>ESC [ A</td>
<td>CSI A</td>
<td>ESC [ A</td>
<td>ESC A</td>
</tr>
<tr>
<td>Down Arrow</td>
<td>ESC [ B</td>
<td>CSI B</td>
<td>ESC [ B</td>
<td>ESC B</td>
</tr>
<tr>
<td>Right Arrow</td>
<td>ESC [ C</td>
<td>CSI C</td>
<td>ESC [ C</td>
<td>ESC C</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>ESC [ D</td>
<td>CSI D</td>
<td>ESC [ D</td>
<td>ESC D</td>
</tr>
<tr>
<td>Del</td>
<td>DEL or CTRL H</td>
<td>DEL or CTRL H</td>
<td>DEL or CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Shift Del</td>
<td>CTRL X or DEL</td>
<td>CTRL X or DEL</td>
<td>CTRL X or DEL</td>
<td>CTRL X or DEL</td>
</tr>
<tr>
<td>Del Char</td>
<td>ESC O Q</td>
<td>SS3 Q</td>
<td>ESC O Q</td>
<td>ESC Q</td>
</tr>
<tr>
<td>Del Line</td>
<td>ESC O Q</td>
<td>SS3 Q</td>
<td>ESC O Q</td>
<td>ESC Q</td>
</tr>
<tr>
<td>Enter</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Esc</td>
<td>CTRL [</td>
<td>CTRL [</td>
<td>CTRL [</td>
<td>CTRL [</td>
</tr>
<tr>
<td>Home</td>
<td>ESC [ H</td>
<td>CSI H</td>
<td>ESC [ H</td>
<td>ESC H</td>
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D-6 Keyboard Remapping
<table>
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<th>VT100</th>
<th>VT52</th>
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<tbody>
<tr>
<td>Ins</td>
<td>ESC O S</td>
<td>SS3 S</td>
<td>ESC O S</td>
<td>ESC S</td>
</tr>
<tr>
<td>Ins Char</td>
<td>ESC O P</td>
<td>SS3 P</td>
<td>ESC O P</td>
<td>ESC P</td>
</tr>
<tr>
<td>Ins Line</td>
<td>ESC O P</td>
<td>SS3 P</td>
<td>ESC O P</td>
<td>ESC P</td>
</tr>
<tr>
<td>Next Page</td>
<td>ESC [U</td>
<td>CSI U</td>
<td>ESC [U</td>
<td>ESC P</td>
</tr>
<tr>
<td>Prev Page</td>
<td>ESC [H</td>
<td>CSI V</td>
<td>ESC [V</td>
<td>ESC S</td>
</tr>
<tr>
<td>Repl</td>
<td>ESC O S</td>
<td>SS3 S</td>
<td>ESC O S</td>
<td>ESC S</td>
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<tr>
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<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
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<td>CTRL I</td>
<td>CTRL I</td>
<td>CTRL I</td>
</tr>
<tr>
<td>Shift Tab</td>
<td>ESC [Z</td>
<td>CSI Z</td>
<td>ESC [Z</td>
<td>CTRL I</td>
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**Table D-6**

*Edit and Special Key Codes, ANSI Keyboard*

<table>
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<th>VT220 8-Bit</th>
<th>VT100</th>
<th>VT52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up Arrow</td>
<td>ESC [A</td>
<td>CSI A</td>
<td>ESC [</td>
<td>ESC A</td>
</tr>
<tr>
<td>Down Arrow</td>
<td>ESC [B</td>
<td>CSI B</td>
<td>ESC [B</td>
<td>ESC B</td>
</tr>
<tr>
<td>Right Arrow</td>
<td>ESC [C</td>
<td>CSI C</td>
<td>ESC [C</td>
<td>ESC C</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>ESC [D</td>
<td>CSI D</td>
<td>ESC [D</td>
<td>ESC D</td>
</tr>
<tr>
<td>Backspace</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
</tr>
<tr>
<td></td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Shift Backspace</td>
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<td>CTRL X or</td>
<td>CTRL X or</td>
<td>CTRL X or</td>
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<td>Enter</td>
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<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
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<td>Find</td>
<td>ESC [1 ~</td>
<td>CSI 1 ~</td>
<td>CSI 1 ~</td>
<td>CSI 1 ~</td>
</tr>
<tr>
<td>Insert Here</td>
<td>ESC [2 ~</td>
<td>CSI 2 ~</td>
<td>CSI 2 ~</td>
<td>CSI 2 ~</td>
</tr>
<tr>
<td>Shift Insert Here</td>
<td>ESC [2 ~</td>
<td>CSI 2 ~</td>
<td>CSI 2 ~</td>
<td>CSI 2 ~</td>
</tr>
<tr>
<td>Next Scm</td>
<td>ESC [6 ~</td>
<td>CSI 6 ~</td>
<td>CSI 6 ~</td>
<td>CSI 6 ~</td>
</tr>
<tr>
<td>Prev Scm</td>
<td>ESC [5 ~</td>
<td>CSI 5 ~</td>
<td>CSI 5 ~</td>
<td>CSI 5 ~</td>
</tr>
<tr>
<td>Remove</td>
<td>ESC [3 ~</td>
<td>CSI 3 ~</td>
<td>CSI 3 ~</td>
<td>CSI 3 ~</td>
</tr>
<tr>
<td>Return</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
<td>CTRL M</td>
</tr>
<tr>
<td>Select</td>
<td>ESC [4 ~</td>
<td>CSI 4 ~</td>
<td>CSI 4 ~</td>
<td>CSI 4 ~</td>
</tr>
<tr>
<td>Tab</td>
<td>CTRL I</td>
<td>CTRL I</td>
<td>CTRL I</td>
<td>CTRL I</td>
</tr>
<tr>
<td>Shift Tab</td>
<td>ESC [Z</td>
<td>CSI Z</td>
<td>ESC [Z</td>
<td>CTRL I</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Key</th>
<th>VT220 7-Bit</th>
<th>VT220 8-Bit</th>
<th>VT100</th>
<th>VT52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backspace</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Up Arrow</td>
<td>ESC [A]</td>
<td>CSI A</td>
<td>ESC [A]</td>
<td>ESC A</td>
</tr>
<tr>
<td>Down Arrow</td>
<td>ESC [B]</td>
<td>CSI B</td>
<td>ESC [B]</td>
<td>ESC B</td>
</tr>
<tr>
<td>Right Arrow</td>
<td>ESC [C]</td>
<td>CSI C</td>
<td>ESC [C]</td>
<td>ESC C</td>
</tr>
<tr>
<td>Left Arrow</td>
<td>ESC [D]</td>
<td>CSI D</td>
<td>ESC [D]</td>
<td>ESC D</td>
</tr>
<tr>
<td>Del (Keypad)</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
</tr>
<tr>
<td></td>
<td>CTRL H</td>
<td>CTRL X or</td>
<td>CTRL H</td>
<td>CTRL H</td>
</tr>
<tr>
<td>Shift Del (Keypad)</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
<td>DEL or</td>
</tr>
<tr>
<td></td>
<td>CTRL H</td>
<td>CTRL X or</td>
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<tr>
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<td>DEL or</td>
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<td>SS3 S</td>
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<td>SS3 S</td>
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<td>ESC S</td>
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<td>CSI 2 ~</td>
<td>CSI 2 ~</td>
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</tr>
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<td>Shift Insert</td>
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<td>CSI 2 ~</td>
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<td>CSI U</td>
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<td>CTRL I</td>
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### Table D-8
PF Key Codes

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<td>PF1</td>
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<td>ESC O P</td>
<td>SS3 P</td>
<td>ESC P</td>
</tr>
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<td>PF2</td>
<td>Del Char</td>
<td>F2</td>
<td>ESC O Q</td>
<td>SS3 Q</td>
<td>ESC Q</td>
</tr>
<tr>
<td>PF3</td>
<td>Clr Line</td>
<td>F3</td>
<td>ESC O R</td>
<td>SS3 R</td>
<td>ESC R</td>
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<td>Repl</td>
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<td>ESC O S</td>
<td>SS3 S</td>
<td>ESC S</td>
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D-8 Keyboard Remapping
### Table D-9
**Numeric Keypad Application Mode**

<table>
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<th>VT52</th>
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<tbody>
<tr>
<td>-</td>
<td>ESC O m</td>
<td>SS3 m</td>
<td>ESC O m</td>
<td>ESC ? m</td>
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<tr>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>/</td>
<td>/</td>
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<tr>
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<td>*</td>
<td>*</td>
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<tr>
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<td>SS3 l</td>
<td>ESC O l</td>
<td>ESC ? l</td>
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<td>SS3 n</td>
<td>ESC O n</td>
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<td>ESC O r</td>
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<td>SS3 s</td>
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<td>ESC O x</td>
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<td>ESC ? y</td>
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<td>SS3 M</td>
<td>ESC O M</td>
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### Table D-10
**Cursor Key Application Mode Codes**

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<tr>
<td>Up Arrow</td>
<td>ESC O A</td>
<td>SS3 A</td>
<td>ESC O A</td>
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<td>Down Arrow</td>
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<td>SS3 B</td>
<td>ESC O B</td>
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<tr>
<td>Right Arrow</td>
<td>ESC O C</td>
<td>SS3 C</td>
<td>ESC O C</td>
<td></td>
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<tr>
<td>Left Arrow</td>
<td>ESC O D</td>
<td>SS3 D</td>
<td>ESC O D</td>
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### Table D-11
**Function Key Default Codes - ASCII Keyboard**

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<th>VT52</th>
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<tbody>
<tr>
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<td>CSI ? 5 i</td>
<td>ESC [ ? 5 i</td>
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</tr>
<tr>
<td>Shift F1</td>
<td>ESC [ 5 i</td>
<td>CSI 5 i</td>
<td>ESC [ 5 i</td>
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</tr>
<tr>
<td>F2</td>
<td>ESC [ ? 3 i</td>
<td>CSI ? 3 i</td>
<td>ESC [ ? 3 i</td>
<td></td>
</tr>
<tr>
<td>Shift F2</td>
<td>ESC [ 3 i</td>
<td>CSI 3 i</td>
<td>ESC [ 3 i</td>
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</tr>
<tr>
<td></td>
<td>ESC [ ? 1 i</td>
<td>CSI ? 1 i</td>
<td>ESC [ ? 1 i</td>
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*Keyboard Remapping* D-9
<table>
<thead>
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<td>ESC [2 i</td>
<td>CSI 2 i</td>
<td>ESC [2 i</td>
<td>ESC [2 i</td>
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<td>CSI 0 i</td>
<td>ESC [0 i</td>
<td>ESC [0 i</td>
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<td>CSI @</td>
<td>ESC [@</td>
<td>ESC [@</td>
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<td>ESC [L</td>
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<td>ESC [17~</td>
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<td>ESC [18~</td>
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<td>ESC [32~</td>
<td>ESC [32~</td>
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<td>ESC [19~</td>
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<td>ESC [33~</td>
<td>ESC [33~</td>
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<td>CSI 20~</td>
<td>ESC [20~</td>
<td>ESC [20~</td>
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<td>ESC [34~</td>
<td>ESC [34~</td>
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<td>ESC [21~</td>
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<td>ESC [35~</td>
<td>ESC [35~</td>
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<td>CSI 25~</td>
<td>ESC [25~</td>
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<td>CSI 3~</td>
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Table D-12
Function Key Default Codes - ANSI Keyboard

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<td>ESC [31~</td>
<td>CSI 31~</td>
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<tr>
<td>F7</td>
<td>ESC [18~</td>
<td>CSI 18~</td>
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<tr>
<td>Shift F7</td>
<td>ESC [32~</td>
<td>CSI 32~</td>
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<td>CSI 19~</td>
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<td>CSI 33~</td>
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<tr>
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<td>CSI 20~</td>
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<td>CSI 34~</td>
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D-10 Keyboard Remapping
### Table D-13
Function Key Default Codes - EPC Keyboard

<table>
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<th>VT220 8-Bit</th>
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<td>CTRL [</td>
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<tr>
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<td>CTRL ]</td>
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</tr>
<tr>
<td>F12</td>
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<td>CSI 24 ~</td>
<td>CTRL H</td>
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<tr>
<td>Shift F12</td>
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<td>CTRL J</td>
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*Keyboard Remapping* D-11
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<th>VT100</th>
<th>VT52</th>
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<tbody>
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<td>CSI 33 ~</td>
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<td>CSI 20 ~</td>
<td>ESC [20 ~</td>
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<td>CSI 21 ~</td>
<td>ESC [21 ~</td>
<td>ESC [21 ~</td>
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<td>CSI 35 ~</td>
<td>ESC [35 ~</td>
<td>ESC [35 ~</td>
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<td>CSI 23 ~</td>
<td>ESC [23 ~</td>
<td>ESC [23 ~</td>
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<td>CSI 1 ~</td>
<td>ESC [1 ~</td>
<td>ESC [1 ~</td>
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<td>ESC [24 ~</td>
<td>CSI 24 ~</td>
<td>ESC [24 ~</td>
<td>ESC [24 ~</td>
</tr>
<tr>
<td>Shift F12</td>
<td>ESC [2 ~</td>
<td>CSI 2 ~</td>
<td>ESC [2 ~</td>
<td>ESC [2 ~</td>
</tr>
</tbody>
</table>

D-12 Keyboard Remapping
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

<table>
<thead>
<tr>
<th>ASCII Code</th>
<th>Hex</th>
<th>Description</th>
<th>Ctrl Key Depressed with Addtl Key(s)</th>
<th>Display*</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUL</td>
<td>00</td>
<td>NULL</td>
<td>CONTROL-@</td>
<td>N_L</td>
</tr>
<tr>
<td>SOH</td>
<td>01</td>
<td>START OF HEADER</td>
<td>CONTROL-A</td>
<td>S_H</td>
</tr>
<tr>
<td>STX</td>
<td>02</td>
<td>START OF TEXT</td>
<td>CONTROL-B</td>
<td>S_X</td>
</tr>
<tr>
<td>ETX</td>
<td>03</td>
<td>END OF TEXT</td>
<td>CONTROL-C</td>
<td>E_X</td>
</tr>
<tr>
<td>EOT</td>
<td>04</td>
<td>END OF TRANSMISSION</td>
<td>CONTROL-D</td>
<td>E_T</td>
</tr>
<tr>
<td>ENQ</td>
<td>05</td>
<td>ENQUIRY</td>
<td>CONTROL-E</td>
<td>E_Q</td>
</tr>
<tr>
<td>ACK</td>
<td>06</td>
<td>ACKNOWLEDGE</td>
<td>CONTROL-F</td>
<td>A_K</td>
</tr>
<tr>
<td>BEL</td>
<td>07</td>
<td>BELL</td>
<td>CONTROL-G</td>
<td>B_L</td>
</tr>
<tr>
<td>BS</td>
<td>08</td>
<td>BACKSPACE</td>
<td>CONTROL-H</td>
<td>B_S</td>
</tr>
<tr>
<td>HT</td>
<td>09</td>
<td>HORIZONTAL TAB</td>
<td>CONTROL-I</td>
<td>H_T</td>
</tr>
<tr>
<td>LF</td>
<td>0A</td>
<td>LINE FEED</td>
<td>CONTROL-J</td>
<td>L_F</td>
</tr>
<tr>
<td>VT</td>
<td>0B</td>
<td>VERTICAL TAB</td>
<td>CONTROL-K</td>
<td>V_T</td>
</tr>
<tr>
<td>FF</td>
<td>0C</td>
<td>FORM FEED</td>
<td>CONTROL-L</td>
<td>F_F</td>
</tr>
<tr>
<td>CR</td>
<td>0D</td>
<td>CARRIAGE RETURN</td>
<td>CONTROL-M</td>
<td>C_R</td>
</tr>
<tr>
<td>SO</td>
<td>0E</td>
<td>SHIFT OUT</td>
<td>CONTROL-N</td>
<td>S_O</td>
</tr>
<tr>
<td>SI</td>
<td>0F</td>
<td>SHIFT IN</td>
<td>CONTROL-0</td>
<td>S_I</td>
</tr>
<tr>
<td>DLE</td>
<td>10</td>
<td>DATA LINE ESCAPE</td>
<td>CONTROL-P</td>
<td>D_L</td>
</tr>
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<td>11</td>
<td>DEVICE CONTROL 1</td>
<td>CONTROL-Q</td>
<td>D_1</td>
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<td>DEVICE CONTROL 2</td>
<td>CONTROL-R</td>
<td>D_2</td>
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<td>13</td>
<td>DEVICE CONTROL 3</td>
<td>CONTROL-S</td>
<td>D_3</td>
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<td>14</td>
<td>DEVICE CONTROL 4</td>
<td>CONTROL-T</td>
<td>D_4</td>
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<td>Hex</td>
<td>Description</td>
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<td>Display*</td>
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<td>------------</td>
<td>-----</td>
<td>----------------------------------</td>
<td>-------------------------------------</td>
<td>----------</td>
</tr>
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</tr>
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<td>CONTROL-W</td>
<td>E_B</td>
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<td>CANCEL</td>
<td>CONTROL-X</td>
<td>C_N</td>
</tr>
<tr>
<td>EM</td>
<td>19</td>
<td>END OF MEDIUM</td>
<td>CONTROL-Y</td>
<td>E_M</td>
</tr>
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<td>SUB</td>
<td>1A</td>
<td>SUBSTITUTE</td>
<td>CONTROL-Z</td>
<td>S_B</td>
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<td>CONTROL-[</td>
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<td>CONTROL-\</td>
<td>F_S</td>
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<tr>
<td>GS</td>
<td>1D</td>
<td>GROUP SEPARATOR</td>
<td>CONTROL-]</td>
<td>G_S</td>
</tr>
<tr>
<td>RS</td>
<td>1E</td>
<td>RECORD SEPARATOR</td>
<td>CONTROL-^</td>
<td>R_S</td>
</tr>
<tr>
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<td>1F</td>
<td>UNIT SEPARATOR</td>
<td>CONTROL-_</td>
<td>U_S</td>
</tr>
</tbody>
</table>

*If Monitor Mode is enabled, control codes will display as shown.
<table>
<thead>
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<th>Appendix F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Attributes</td>
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Character Display Attribute Values  F-3

Line Attribute Values  F-4

F-2  Display Attributes
Table F-1
Character Display Attribute Values (WYSE 50, 60)

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<th>attr</th>
<th>Display Attribute</th>
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<td>Space character</td>
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<tr>
<td>0</td>
<td>Normal</td>
</tr>
<tr>
<td>1</td>
<td>Invisible (no display)</td>
</tr>
<tr>
<td>2</td>
<td>Blink</td>
</tr>
<tr>
<td>3</td>
<td>Blink and blank</td>
</tr>
<tr>
<td>4</td>
<td>Reverse</td>
</tr>
<tr>
<td>5</td>
<td>Reverse and invisible</td>
</tr>
<tr>
<td>6</td>
<td>Reverse and blink</td>
</tr>
<tr>
<td>7</td>
<td>Reverse, blink, and invisible</td>
</tr>
<tr>
<td>8</td>
<td>Underline</td>
</tr>
<tr>
<td>9</td>
<td>Underline and invisible</td>
</tr>
<tr>
<td>:</td>
<td>Underline and blink</td>
</tr>
<tr>
<td>;</td>
<td>Underline, blink, and invisible</td>
</tr>
<tr>
<td>&lt;</td>
<td>Underline and reverse</td>
</tr>
<tr>
<td>=</td>
<td>Underline, reverse, and invisible</td>
</tr>
<tr>
<td>&gt;</td>
<td>Underline, reverse, and blink</td>
</tr>
<tr>
<td>?</td>
<td>Underline, reverse, blink, and invisible</td>
</tr>
<tr>
<td>p</td>
<td>Dim</td>
</tr>
<tr>
<td>q</td>
<td>Dim and invisible</td>
</tr>
<tr>
<td>r</td>
<td>Dim and blink</td>
</tr>
<tr>
<td>s</td>
<td>Dim, blink, and invisible</td>
</tr>
<tr>
<td>t</td>
<td>Dim and reverse</td>
</tr>
<tr>
<td>u</td>
<td>Dim, reverse, and invisible</td>
</tr>
<tr>
<td>v</td>
<td>Dim, reverse, and blink</td>
</tr>
<tr>
<td>w</td>
<td>Dim, reverse, blink, and invisible</td>
</tr>
<tr>
<td>x</td>
<td>Dim and underline</td>
</tr>
<tr>
<td>y</td>
<td>Dim, underline, and invisible</td>
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<td>z</td>
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</tr>
<tr>
<td>{</td>
<td>Dim, underline, blink, and invisible</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>}</td>
<td>Dim, underline, reverse, and invisible</td>
</tr>
<tr>
<td>~</td>
<td>Dim, underline, reverse, and blink</td>
</tr>
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<td>Dim, underline, reverse, blink, and invisible</td>
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<td>-----------------------------------------------------</td>
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<td>Single-high, single-wide characters (default)</td>
</tr>
<tr>
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<td>Single-high, double-wide characters</td>
</tr>
<tr>
<td>B</td>
<td>Top half of double-high, single-wide characters</td>
</tr>
<tr>
<td>C</td>
<td>Bottom half of double-high, single-wide characters</td>
</tr>
<tr>
<td>D</td>
<td>Top half of double-high, double-wide characters</td>
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<tr>
<td>E</td>
<td>Bottom half of double-high, double-wide characters</td>
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<tr>
<td>G</td>
<td>Normal background</td>
</tr>
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<td>Bold background</td>
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<tr>
<td>I</td>
<td>Invisible background (default)</td>
</tr>
<tr>
<td>J</td>
<td>Dim background</td>
</tr>
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</table>
Table of Contents

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G-2  Character Sets
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<td>«</td>
<td>D</td>
<td>Ö</td>
<td>«</td>
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</tr>
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<td>±</td>
<td>∞</td>
<td>•</td>
<td>†</td>
<td>§</td>
<td>«</td>
<td>«</td>
</tr>
<tr>
<td>2</td>
<td>b</td>
<td>±</td>
<td>õ</td>
<td>2</td>
<td>Õ</td>
<td>É</td>
<td>i</td>
<td>i</td>
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<td>ú</td>
<td>≥</td>
<td>i</td>
<td>Ć</td>
<td>«</td>
<td>«</td>
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<td>i</td>
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<td>ïæ</td>
<td>Ù</td>
<td>«</td>
<td>«</td>
<td>«</td>
</tr>
<tr>
<td>6</td>
<td>S</td>
<td>1</td>
<td>+</td>
<td>1æ</td>
<td>é</td>
<td>«</td>
<td>«</td>
<td>«</td>
</tr>
<tr>
<td>7</td>
<td>s</td>
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<td>Å</td>
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<td>Ñ</td>
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<td>l</td>
<td>Ç</td>
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<td>ö</td>
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<tr>
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<td>q</td>
<td>∞</td>
<td>£</td>
<td>ß</td>
<td>ø</td>
<td>å</td>
<td>ë</td>
<td>ë</td>
</tr>
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<td>W</td>
<td>Σ</td>
<td>ÅE</td>
<td>Ø</td>
<td>μ</td>
<td>å</td>
<td>ñ</td>
<td>ñ</td>
</tr>
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<td>d</td>
<td>ŋ</td>
<td>1/4</td>
<td>ʃ</td>
<td>õ</td>
<td>ç</td>
<td>Å</td>
<td>Å</td>
</tr>
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<td>13</td>
<td>D</td>
<td>+</td>
<td>-</td>
<td>1/2</td>
<td>Σ</td>
<td>Y</td>
<td>°</td>
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<td>14</td>
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<td>Δ</td>
<td>n</td>
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<td>Π</td>
<td>þ</td>
<td>å</td>
<td>þ</td>
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<tr>
<td>15</td>
<td>F</td>
<td>CE</td>
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<td>π</td>
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Character Sets  G-3
## Table G-2

**ASCII Code Chart**

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<td>7</td>
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<td>q</td>
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<td>V</td>
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<td>v</td>
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<td>X</td>
<td>h</td>
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**G-4 Character Sets**
### Table G-3

**Standard ANSI Character Set**

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<th>80</th>
<th>94</th>
<th>112</th>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>p</td>
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<td>₁</td>
<td>₁</td>
<td>₁</td>
<td>₁</td>
<td>₁</td>
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<td>₂</td>
<td>₂</td>
<td>₂</td>
<td>₂</td>
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Character Sets G-11
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**G-12 Character Sets**
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<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>NEL</td>
<td>MW</td>
<td>¥</td>
<td>m</td>
<td>Å</td>
<td>ø</td>
<td>å</td>
<td>«</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>SSA</td>
<td>SPA</td>
<td>+</td>
<td>Å</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>ESA</td>
<td>EPA</td>
<td>À</td>
<td>*</td>
<td>Ç</td>
<td>OE</td>
<td>c</td>
<td>oe</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>HTS</td>
<td>À</td>
<td>ù</td>
<td>ò</td>
<td>ê</td>
<td>ò</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>HTJ</td>
<td>Ï</td>
<td>1</td>
<td>É</td>
<td>È</td>
<td>ë</td>
<td>ù</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>A</td>
<td>VTS</td>
<td>À</td>
<td>ø</td>
<td>ø</td>
<td>¥</td>
<td>¬</td>
<td>ê</td>
<td>ù</td>
</tr>
<tr>
<td>11</td>
<td>B</td>
<td>PLD</td>
<td>CSI</td>
<td>«</td>
<td>»</td>
<td>µ</td>
<td>¿</td>
<td>ê</td>
<td>ù</td>
</tr>
<tr>
<td>12</td>
<td>C</td>
<td>PLU</td>
<td>ST</td>
<td>1/4</td>
<td>Ť</td>
<td>ü</td>
<td>ü</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>D</td>
<td>RI</td>
<td>OSC</td>
<td>1/2</td>
<td>Σ</td>
<td>ñ</td>
<td>í</td>
<td>ý</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>E</td>
<td>SS2</td>
<td>PM</td>
<td></td>
<td></td>
<td>Π</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>F</td>
<td>SS3</td>
<td>APC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**G-16 Character Sets**
## Appendix H

**UNIX Commands**
Table of Contents

ANSI Screen Attribute Sequences  H-4
Additional Screen Attribute Sequences  H-6
Control Code Functions  H-7
VT 320 Compatible Printer Commands  H-8
Default Function Key Values  H-8

H-2  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[%,:\n   :help,Alt-F6,\E[&,:\n   :stop,Alt-F7,\E[,:\n   :quit,Alt-F8,\E(,:\n   ;ALT-F1,\ESC[1,\ESC[0z
   ;ALT-F2,\ESC[]\ESC[1z
   ;ALT-F3,\ESC[-,\ESC[2z
```

To support screens 4 through 8, make these entries:

```
;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 tty0, enable tty1, 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 ]' (0x1b-0x5b-n-0x4a, 7 bit characters) sequence or the 'CSI n ]' (0x9b-n-0x4n, 8 bit characters).

Table H-1
ANSI Screen Attribute Sequences

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

H-4 UNIX Command Set
<table>
<thead>
<tr>
<th>ISO</th>
<th>Sequence</th>
<th>Termcap</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGR</td>
<td>CSI ( n ) ( m )</td>
<td>n/a</td>
<td>Character attributes, as summarized below. Multiple attributes can be specified in the form: CSI ( n1; n2; n3 ) ( m ).</td>
</tr>
</tbody>
</table>

Select Graphic Rendition Chart

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

**SM**  
**CSI 2** \( h \)  
n/a  
Lock keyboard. Ignores keyboard input until unlocked. Characters are not saved.

**MC**  
**CSI 2** \( l \)  
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Sequence</th>
<th>Termcap</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>CSI=p;dB</td>
<td>n/a</td>
<td>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.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=s;eC</td>
<td>n/a</td>
<td>Set the cursor to start on scanline s and end on scanline e.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=n g</td>
<td>n/a</td>
<td>Accesses alternate graphics set. Not the same as 'graphics mode.' Refer to your manual for decimal/character codes (Pn) and possible output characters.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cA</td>
<td>n/a</td>
<td>Set overscan color to color c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cF</td>
<td>n/a</td>
<td>Set normal foreground color to c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cG</td>
<td>n/a</td>
<td>Set normal background color to c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cH</td>
<td>n/a</td>
<td>Set reverse foreground color to c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cI</td>
<td>n/a</td>
<td>Set reverse background color to c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cJ</td>
<td>n/a</td>
<td>Set graphic foreground to color c. c is a decimal value taken from Color Table below.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=cK</td>
<td>n/a</td>
<td>Set graphic background to color c. c is a decimal value taken from Color Table below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Black</td>
</tr>
<tr>
<td>1</td>
<td>Blue</td>
</tr>
<tr>
<td>2</td>
<td>Green</td>
</tr>
<tr>
<td>3</td>
<td>Cyan</td>
</tr>
<tr>
<td>4</td>
<td>Red</td>
</tr>
<tr>
<td>5</td>
<td>Magenta</td>
</tr>
<tr>
<td>6</td>
<td>Brown</td>
</tr>
<tr>
<td>7</td>
<td>White</td>
</tr>
<tr>
<td>8</td>
<td>Grey</td>
</tr>
<tr>
<td>9</td>
<td>Light Blue</td>
</tr>
<tr>
<td>10</td>
<td>Light Green</td>
</tr>
<tr>
<td>11</td>
<td>Light Cyan</td>
</tr>
<tr>
<td>12</td>
<td>Light Red</td>
</tr>
<tr>
<td>13</td>
<td>Light Magenta</td>
</tr>
<tr>
<td>14</td>
<td>Yellow</td>
</tr>
<tr>
<td>15</td>
<td>Light White</td>
</tr>
</tbody>
</table>

H-6 UNIX Command Set
<table>
<thead>
<tr>
<th>Name</th>
<th>Sequence</th>
<th>Termcap</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>n/a</td>
<td>ESC Q Fn *&quot;string&quot;</td>
<td>n/a</td>
<td>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.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI n z</td>
<td>n/a</td>
<td>n should be equal to the number of the screen to switch to. If screen does not exist, no action will take place.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=nL</td>
<td>n/a</td>
<td>Fills new regions with current (n=0) or normal (n=1) attributes. Default is 0.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSI=nM</td>
<td>n/a</td>
<td>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 separated by a space and terminated with a new line. For example, if the current foreground color is red on black, &quot;12 0/n&quot; is returned.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSIs</td>
<td>n/a</td>
<td>Saves current cursor position.</td>
</tr>
<tr>
<td>n/a</td>
<td>CSIu</td>
<td>n/a</td>
<td>Restores saved cursor position.</td>
</tr>
<tr>
<td>n/a</td>
<td>ESC 7</td>
<td>n/a</td>
<td>Saves current cursor position.</td>
</tr>
<tr>
<td>n/a</td>
<td>ESC8</td>
<td>n/a</td>
<td>Restores saved cursor position.</td>
</tr>
</tbody>
</table>

**Table H-3**

Control Code Functions

<table>
<thead>
<tr>
<th>Control Code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENQ</td>
<td>Control E</td>
</tr>
<tr>
<td>BEL</td>
<td>Ctrl G</td>
</tr>
<tr>
<td>BS</td>
<td>Ctrl H</td>
</tr>
<tr>
<td>HT</td>
<td>Ctrl I</td>
</tr>
<tr>
<td>LF</td>
<td>Ctrl J</td>
</tr>
<tr>
<td>VT</td>
<td>Ctrl K</td>
</tr>
<tr>
<td>FF</td>
<td>Ctrl L</td>
</tr>
<tr>
<td>CR</td>
<td>Ctrl M</td>
</tr>
</tbody>
</table>

*UNIX Command Set H-7*
<table>
<thead>
<tr>
<th>Control Code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC1 CTRL Q</td>
<td>XON -&gt; Enable Tx Device Control 1</td>
</tr>
<tr>
<td>DC3 CTRL S</td>
<td>XOFF -&gt; Stop Tx Device Control 3</td>
</tr>
<tr>
<td>SYN CTRL V</td>
<td>Cursor down, no scroll</td>
</tr>
<tr>
<td>SUB CTRL Z</td>
<td>Clear screen to space</td>
</tr>
<tr>
<td>ESC CTRL [,]</td>
<td>Introduces an escape sequence</td>
</tr>
<tr>
<td>RS CTRL &quot;</td>
<td>Home cursor</td>
</tr>
<tr>
<td>US CTRL</td>
<td>Cursor to start of next line</td>
</tr>
</tbody>
</table>

### Table H-4
VT320 Compatible Printer Commands

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Command Format</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC</td>
<td>ESC [ ? 5 i</td>
<td>Auto Print Mode On</td>
</tr>
<tr>
<td>MC</td>
<td>ESC [ ? 4 i</td>
<td>Auto Print Mode Off</td>
</tr>
<tr>
<td>MC</td>
<td>ESC [ 5 i</td>
<td>Printer Controller Mode On</td>
</tr>
<tr>
<td>MC</td>
<td>ESC [ 4 i</td>
<td>Printer Controller Mode Off</td>
</tr>
<tr>
<td>MC</td>
<td>ESC [ ]</td>
<td>Print Screen</td>
</tr>
<tr>
<td>MC</td>
<td>ESC [ ? 1 i</td>
<td>Print Cursor Line</td>
</tr>
</tbody>
</table>

### Table H-5
Default Function Key Values

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

**H-8 UNIX Command Set**
<table>
<thead>
<tr>
<th>Key Number</th>
<th>Function Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Shift-F4</td>
<td>ESC [b</td>
</tr>
<tr>
<td>17</td>
<td>Shift-F5</td>
<td>ESC [c</td>
</tr>
<tr>
<td>18</td>
<td>Shift-F6</td>
<td>ESC [d</td>
</tr>
<tr>
<td>19</td>
<td>Shift-F7</td>
<td>ESC [e</td>
</tr>
<tr>
<td>20</td>
<td>Shift-F8</td>
<td>ESC [f</td>
</tr>
<tr>
<td>21</td>
<td>Shift-F9</td>
<td>ESC [g</td>
</tr>
<tr>
<td>22</td>
<td>Shift-F10</td>
<td>ESC [h</td>
</tr>
<tr>
<td>23</td>
<td>Shift-F11</td>
<td>ESC [i</td>
</tr>
<tr>
<td>24</td>
<td>Shift-F12</td>
<td>ESC [j</td>
</tr>
<tr>
<td>25</td>
<td>Ctrl-F1</td>
<td>ESC [k</td>
</tr>
<tr>
<td>26</td>
<td>Ctrl-F2</td>
<td>ESC [l</td>
</tr>
<tr>
<td>27</td>
<td>Ctrl-F3</td>
<td>ESC [m</td>
</tr>
<tr>
<td>28</td>
<td>Ctrl-F4</td>
<td>ESC [n</td>
</tr>
<tr>
<td>29</td>
<td>Ctrl-F5</td>
<td>ESC [o</td>
</tr>
<tr>
<td>30</td>
<td>Ctrl-F6</td>
<td>ESC [p</td>
</tr>
<tr>
<td>31</td>
<td>Ctrl-F7</td>
<td>ESC [q</td>
</tr>
<tr>
<td>32</td>
<td>Ctrl-F8</td>
<td>ESC [r</td>
</tr>
<tr>
<td>33</td>
<td>Ctrl-F9</td>
<td>ESC [s</td>
</tr>
<tr>
<td>34</td>
<td>Ctrl-F10</td>
<td>ESC [t</td>
</tr>
<tr>
<td>35</td>
<td>Ctrl-F11</td>
<td>ESC [u</td>
</tr>
<tr>
<td>36</td>
<td>Ctrl-F12</td>
<td>ESC [v</td>
</tr>
<tr>
<td>37</td>
<td>Ctrl-Shift-F1</td>
<td>ESC [w</td>
</tr>
<tr>
<td>38</td>
<td>Ctrl-Shift-F2</td>
<td>ESC [x</td>
</tr>
<tr>
<td>39</td>
<td>Ctrl-Shift-F3</td>
<td>ESC [y</td>
</tr>
<tr>
<td>40</td>
<td>Ctrl-Shift-F4</td>
<td>ESC [z</td>
</tr>
<tr>
<td>41</td>
<td>Ctrl-Shift-F5</td>
<td>ESC [@</td>
</tr>
<tr>
<td>42</td>
<td>Ctrl-Shift-F6</td>
<td>ESC [</td>
</tr>
<tr>
<td>43</td>
<td>Ctrl-Shift-F7</td>
<td>ESC \</td>
</tr>
<tr>
<td>44</td>
<td>Ctrl-Shift-F8</td>
<td>ESC ]</td>
</tr>
<tr>
<td>45</td>
<td>Ctrl-Shift-F9</td>
<td>ESC ^</td>
</tr>
<tr>
<td>46</td>
<td>Ctrl-Shift-F10</td>
<td>ESC _</td>
</tr>
<tr>
<td>47</td>
<td>Ctrl-Shift-F11</td>
<td>ESC `</td>
</tr>
<tr>
<td>48</td>
<td>Ctrl-Shift-F12</td>
<td>ESC {</td>
</tr>
<tr>
<td>49</td>
<td>Home</td>
<td>ESC [H</td>
</tr>
<tr>
<td>50</td>
<td>Up Arrow</td>
<td>ESC [A</td>
</tr>
<tr>
<td>Key Number</td>
<td>Function Key</td>
<td>Function</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>51</td>
<td>Page Up</td>
<td>ESC [I</td>
</tr>
<tr>
<td>52</td>
<td>Minus Sign</td>
<td>-</td>
</tr>
<tr>
<td>53</td>
<td>Left Arrow</td>
<td>ESC [D</td>
</tr>
<tr>
<td>54</td>
<td>5</td>
<td>ESC [E</td>
</tr>
<tr>
<td>55</td>
<td>Right Arrow</td>
<td>ESC [C</td>
</tr>
<tr>
<td>56</td>
<td>Plus Sign</td>
<td>+</td>
</tr>
<tr>
<td>57</td>
<td>End</td>
<td>ESC [F</td>
</tr>
<tr>
<td>58</td>
<td>Down Arrow</td>
<td>ESC [B</td>
</tr>
<tr>
<td>59</td>
<td>Page Down</td>
<td>ESC [G</td>
</tr>
<tr>
<td>60</td>
<td>Insert</td>
<td>ESC [L</td>
</tr>
</tbody>
</table>

H-10 UNIX Command Set
Appendix I

ASCII Color Commands
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, TV1910+, TV1925, TV1955, 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, QVT62, WY325, WY60, WY50+, ADDS A2, TV1910+, TV1925, TV1955, 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, TV1950, 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 | ESC d y fcolor | ESC SP $ fcolor | ESC m attr-c

fcolor, bcolor, and map values for QVT70, QVT62, WY325, WY60, WY50+, ADDS A2, TV1910+, TV1925, TV1955, PC Term emulations:

<table>
<thead>
<tr>
<th>fcolor</th>
<th>bcolor</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Black</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Blue</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Green</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Cyan</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Red</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Magenta</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Yellow</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>White</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>Dark Blue</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>Sea Green</td>
</tr>
<tr>
<td>;</td>
<td>;</td>
<td>Violet</td>
</tr>
<tr>
<td>&lt;</td>
<td>&lt;</td>
<td>Purple Pink</td>
</tr>
<tr>
<td>=</td>
<td>=</td>
<td>Cream</td>
</tr>
<tr>
<td>&gt;</td>
<td>&gt;</td>
<td>Rose</td>
</tr>
<tr>
<td>?</td>
<td>?</td>
<td>Purple</td>
</tr>
<tr>
<td>@</td>
<td>@</td>
<td>Amber</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>map</th>
<th>Associated Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
</tr>
<tr>
<td>2</td>
<td>Reverse/blank</td>
</tr>
<tr>
<td>3</td>
<td>Dim intensity</td>
</tr>
<tr>
<td>4</td>
<td>Dim intensity, reverse/blank</td>
</tr>
<tr>
<td>5</td>
<td>Underline</td>
</tr>
<tr>
<td>6</td>
<td>Underline, reverse/blank</td>
</tr>
<tr>
<td>7</td>
<td>Underline, dim intensity</td>
</tr>
<tr>
<td>8</td>
<td>Underline, dim intensity, reverse/blank</td>
</tr>
</tbody>
</table>

I-2 ASCII Color Commands
attr-c and attr-n values in WY350 emulation:

<table>
<thead>
<tr>
<th>attr-c</th>
<th>Color Association</th>
<th>attr-c</th>
<th>Color Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>5</td>
<td>Underline, reverse</td>
</tr>
<tr>
<td>1</td>
<td>Reverse</td>
<td>6</td>
<td>Dim, underline</td>
</tr>
<tr>
<td>2</td>
<td>Dim</td>
<td>7</td>
<td>Dim, reverse, underline</td>
</tr>
<tr>
<td>3</td>
<td>Underline</td>
<td>8</td>
<td>Write-protect*</td>
</tr>
<tr>
<td>4</td>
<td>Dim, reverse</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

Color value for WY350 emulation:

<table>
<thead>
<tr>
<th>color</th>
<th>Foreground Color</th>
<th>color</th>
<th>Foreground Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black (normal)</td>
<td>5</td>
<td>Medium green</td>
</tr>
<tr>
<td>)</td>
<td>Black</td>
<td>6</td>
<td>Khaki green</td>
</tr>
<tr>
<td>!</td>
<td>Black</td>
<td>7</td>
<td>Sage green</td>
</tr>
<tr>
<td>?</td>
<td>Indigo</td>
<td>8</td>
<td>Pale green</td>
</tr>
<tr>
<td>$</td>
<td>Violet</td>
<td></td>
<td>Chartreuse</td>
</tr>
<tr>
<td>.</td>
<td>Light violet</td>
<td>!</td>
<td>Dull chartreuse</td>
</tr>
<tr>
<td>:</td>
<td>Dark blue</td>
<td>7</td>
<td>Yellow</td>
</tr>
<tr>
<td></td>
<td>Deep blue</td>
<td></td>
<td>Pale yellow</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>8</td>
<td>Amber</td>
</tr>
<tr>
<td>]</td>
<td>Powder blue</td>
<td></td>
<td>Cream</td>
</tr>
<tr>
<td>*</td>
<td>Medium blue</td>
<td>9</td>
<td>White</td>
</tr>
<tr>
<td>a</td>
<td>Blue grey</td>
<td></td>
<td>Tan</td>
</tr>
<tr>
<td>b</td>
<td>Light blue</td>
<td>i</td>
<td>Orange brown</td>
</tr>
<tr>
<td>9</td>
<td>Electric blue</td>
<td>u</td>
<td>Red orange</td>
</tr>
<tr>
<td>;</td>
<td>Bright blue</td>
<td>5</td>
<td>Red</td>
</tr>
<tr>
<td>&lt;</td>
<td>Sky blue</td>
<td></td>
<td>Deep red</td>
</tr>
<tr>
<td>\</td>
<td>Blue purple</td>
<td>%</td>
<td>Brick red</td>
</tr>
<tr>
<td>$</td>
<td>Teal blue</td>
<td>s</td>
<td>Hot pink</td>
</tr>
<tr>
<td></td>
<td>Turquoise</td>
<td>t</td>
<td>Magenta</td>
</tr>
<tr>
<td>&gt;</td>
<td>Blue green</td>
<td>v</td>
<td>Pale pink</td>
</tr>
<tr>
<td>;</td>
<td>Light blue green</td>
<td>w</td>
<td>Purple</td>
</tr>
<tr>
<td>e</td>
<td>Pale blue green</td>
<td>h</td>
<td>Purple</td>
</tr>
<tr>
<td>q</td>
<td>Faded blue green</td>
<td>.</td>
<td>Medium purple</td>
</tr>
<tr>
<td>4</td>
<td>Cyan</td>
<td>6</td>
<td>Light purple</td>
</tr>
<tr>
<td>f</td>
<td>Light cyan</td>
<td>l</td>
<td>Pale purple</td>
</tr>
<tr>
<td>r</td>
<td>Pale cyan</td>
<td>f</td>
<td>Faded purple</td>
</tr>
<tr>
<td>*</td>
<td>Sea green</td>
<td>g</td>
<td>Rose</td>
</tr>
</tbody>
</table>

ASCII Color Commands   I-3
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:

<table>
<thead>
<tr>
<th>b_color</th>
<th>Color</th>
<th>b_color</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>5</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>6</td>
<td>Magenta</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>7</td>
<td>Yellow</td>
</tr>
<tr>
<td>4</td>
<td>Cyan</td>
<td>8</td>
<td>White</td>
</tr>
</tbody>
</table>

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):

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

Assigning the display attribute

<table>
<thead>
<tr>
<th>attr</th>
<th>Display Attribute</th>
<th>attr</th>
<th>Display Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Normal</td>
<td>p</td>
<td>Dim</td>
</tr>
<tr>
<td>1</td>
<td>Blank (no display)</td>
<td>q</td>
<td>Dim, blank</td>
</tr>
<tr>
<td>2</td>
<td>Blink</td>
<td>r</td>
<td>Dim, blink</td>
</tr>
<tr>
<td>3</td>
<td>Blink, blank</td>
<td>s</td>
<td>Dim, blink, blank</td>
</tr>
<tr>
<td>4</td>
<td>Reverse</td>
<td>t</td>
<td>Dim, reverse</td>
</tr>
<tr>
<td>5</td>
<td>Reverse, blank</td>
<td>u</td>
<td>Dim, reverse, blank</td>
</tr>
<tr>
<td>6</td>
<td>Reverse, blink</td>
<td>v</td>
<td>Dim, reverse, blink</td>
</tr>
<tr>
<td>7</td>
<td>Reverse, blink, blank</td>
<td>w</td>
<td>Dim, reverse, blink, blank</td>
</tr>
<tr>
<td>8</td>
<td>Underline</td>
<td>x</td>
<td>Dim, underline</td>
</tr>
<tr>
<td>9</td>
<td>Underline, blank</td>
<td>y</td>
<td>Dim, underline, blank</td>
</tr>
<tr>
<td></td>
<td>Underline, blink</td>
<td>z</td>
<td>Dim, underline, blink</td>
</tr>
<tr>
<td></td>
<td>Underline, blink, blank</td>
<td></td>
<td>Dim, underline, blink, blank</td>
</tr>
<tr>
<td>&lt;</td>
<td>Underline, reverse, blink</td>
<td>i</td>
<td>Dim, reverse, underline</td>
</tr>
<tr>
<td>=</td>
<td>Underline, reverse, blank</td>
<td></td>
<td>Dim, reverse, underline</td>
</tr>
<tr>
<td>&gt;</td>
<td>Underline, reverse, blink</td>
<td>DEL</td>
<td>Dim, reverse, underline, blank</td>
</tr>
<tr>
<td>?</td>
<td>Underline, reverse, blink, blank</td>
<td></td>
<td>Dim, reverse, underline, blink, blank</td>
</tr>
</tbody>
</table>

ASCII Color Commands  I-5
For Esprit III emulation, attr values are as follows:

<table>
<thead>
<tr>
<th>attr</th>
<th>Display Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Green</td>
</tr>
<tr>
<td>1</td>
<td>Cyan</td>
</tr>
<tr>
<td>2</td>
<td>Yellow</td>
</tr>
<tr>
<td>3</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Green, reverse</td>
</tr>
<tr>
<td>5</td>
<td>Cyan, reverse</td>
</tr>
<tr>
<td>6</td>
<td>Yellow, reverse</td>
</tr>
<tr>
<td>7</td>
<td>White, reverse</td>
</tr>
</tbody>
</table>

**Turn on color direct mode**
ESC dC 1

**Turn on color palette mode**
ESC dC 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.

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

I-6 ASCII Color Commands
Assign foreground, background color to write-protected characters

\[
\text{ESC d} \text{ } \text{I} \text{ } \text{CGA color} \quad \text{ESC SP I} \text{ } \text{CGA color}
\]

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

\[
\text{ESC d} \text{ } \text{j} \text{ } \text{color} \quad \text{ESC SP j} \text{ } \text{color}
\]

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

\[
\text{ESC d} \text{ } \text{k} \text{ } \text{color} \quad \text{ESC SP k} \text{ } \text{color}
\]

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

\[
\text{ESC d} \text{ } \text{o} \text{ } \text{fcolor} \quad \text{ESC SP o} \text{ } \text{fcolor}
\]

\[
\text{bcolor} \quad \text{bcolor}
\]

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

\[
\text{ESC d} \text{ } \text{w} \text{ } \text{fcolor} \quad \text{ESC SP w} \text{ } \text{fcolor}
\]

\[
\text{bcolor} \quad \text{bcolor}
\]

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

ASCII Color Commands 1-7