# i•Term
# 1U Rack Mount Terminal

*Model RFT2-15-232*

*CONTENTS*

# *1*
# INSTALLATION

## 1.1  UNPACK

In the shipping carton you will find the terminal, power cord, serial communications cable and adapter, and a quick start User Guide. If you have missing  or damaged items, contact your Sales Representative or our Customer Service department.

## 1.2  ADDITIONAL EQUIPMENT

If connecting a local printer, a serial or parallel cable will be required.

If connecting the terminal using an Ethernet network connection, a 10Base-T cat 5 network cable will be required.

If connecting using RS232 to a server with any port other than male 9 pin or female 25 pin D connectors, a suitable adapter will be required.

## 1.3  CONNECTING THE TERMINAL

1. Install the terminal in to the equipment rack using hardware that came with your rack or supplied hardware.
2. Connecting the cable from your host computer to the SERIAL 1 port on the rear of the terminal, or to the 10BaseT port at the rear of the terminal.
3. For local printer operation, connect either a serial printer to the SERIAL 2 port or a parallel printer to the PARALLEL port.
4. Connect the power cord to an appropriate supply.

## 1.4  TURNING ON THE TERMINAL

1. Switch on the terminal (and monitor) with the power switch located at the back of the terminal. Ensure the LCD panel is raised from the horizontal storage position. Power on using the power switch at the edge of the screen if required.
2. Adjust the screen's brightness and contrast with the controls located on LCD – if necessary.

### Figure 1.1 (A) Terminal tray back view



MONITOR      SERIAL 2      PARALLEL      SERIAL 1      10BASE T

# *2*
# SET-UP
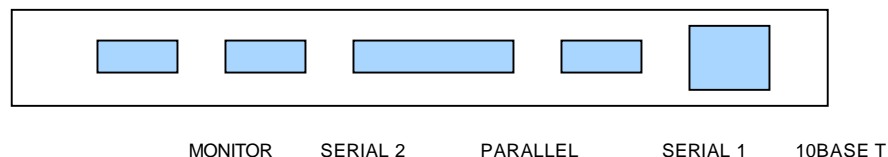
## 2.1　HOW TO SET-UP THE TERMINAL

The terminal is compatible with most host computers and application packages. A menu driven setup system is provided to select and save the settings required by your computer and application.  If you are not familiar with the requirements of your computer, obtain this information from the person responsible for administering your computer system.

### 2.1.1　ENTERING SETUP

Hold down the ALT key and then depress the Esc key to enter Setup mode.

When you enter Setup, any text on the screen temporarily disappears, and the main SETUP directory appears (See Figure 2.1).  When you leave the Setup mode, the main SETUP directory disappears, and any text that was on the screen reappears.

### 2.1.2　SAVING AND EXITING SETUP

The first menu seen when entering Setup serves as a directory to the other Setup menus.  When you depress F12 to exit Setup, you will return to this main directory and be given the option of saving your selections.

The highlighted field at the right of the screen gives you the choice of saving or not saving parameter changes in the nonvolatile memory before returning the terminal to the normal operating mode.  If you don't save your setting before you leave the Setup mode, any new selections will be lost when you power down the terminal.

To save your Setup selection, depress the Spacebar to change the save field at the right side of the screen from NO to YES before exiting Setup. (Table 2.1 describes your options on exiting Setup.)

Depress F12 to leave Setup and return to the normal display mode.

## Table 2-1 Top Menu Exit Functions

| Option | Function |
|---|---|
| No | Returns terminal to normal operating mode without saving parameter changes for power up. |
| Yes | Saves all changes (operating parameter, tabs, key definition, and answerback message); returns terminal to its normal operating mode. |
| Shift+ESC | Restores all setting (operating parameters, tabs, key definitions, and answerback message) to their default values. |

## 2.1.3  SETUP DIRECTORY

The fields at the bottom of the screen show the various setup menus, where you can change the terminal's operating parameters and the function key to press to immediately display any menu.
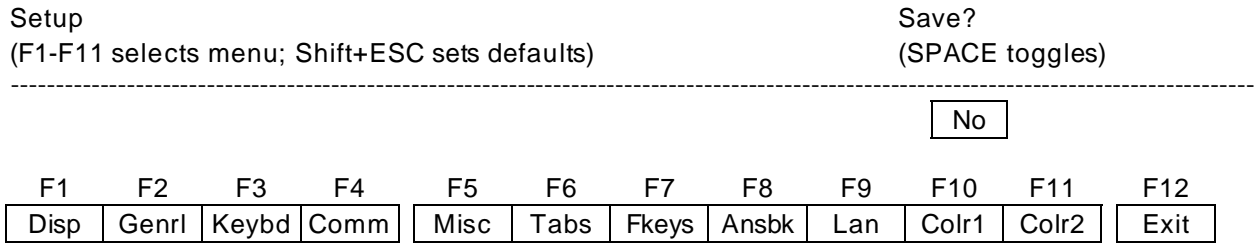
```
Setup                                                              Save?
(F1-F11 selects menu; Shift+ESC sets defaults)                     (SPACE toggles)
-----------------------------------------------------------------------------------------------------------------
                                                                        No


  F1      F2      F3      F4        F5      F6      F7      F8      F9     F10     F11       F12
 Disp  | Genrl |Keybd |Comm  |   Misc  | Tabs | Fkeys |Ansbk | Lan  |Colr1 |Colr2 |   Exit
```

**Figure 2.1**

# 2.2  CHANGING THE OPERATING PARAMETERS

To select one of the setup menus showed press the indicated function key.

- The screen for that menu appears with the name highlighted.
- The fields in the middle of the screen indicate the parameters that you can change in that menu.
- The top line identifies the keys you press to highlight the parameter fields and change the settings.

   The procedure is:   (1) Use arrow key to highlight the parameter field you want to change.

                        (2) Use the Spacebar to change the parameter.

F12 always returns you to the top menu.

The following tables list the parameters for each menu and explain their settings.  Default settings are listed first unless otherwise noted.

## F1  Disp SETUP Menu
-----------------------------------------------------------------------------------------------------------------
**Columns** sets the screen display for 80 columns, 132 columns, or Econ-80 (80 columns with more pages of memory).

**Lines** sets the screen display for 24, 25, 42, or 43 lines. (24 lines are normally required for VT emulation, 25 lines for PC Term.)

**Auto Page** on causes a new page of memory to move onto the screen when the cursor reaches the top or bottom of the page.

**Display** CRT/LCD selects which kind of monitor be used.  If LCD monitor is selected, the display columns only support 80 columns on Econ-80 columns. Must be set to LCD.

**Cursor** sets the cursor display to blink or steady, block or underline.

**Background** sets the screen display to Dark (light chars. on a dark background) or Light (dark chars. on a light background).

**Width Change Clear** causes the terminal to clear the screen when executing a command to change the number of columns.

**Screen Saver**  off, 1, 2, 3, 4, 5, 6. Sets the screen saver to activate after the specified number of minutes.

**Page Length** sets the length of a page of display memory to:
1 x Lines: Equal to the number of lines selected in the lines parameter (this value must be set when using multiple sessions)
2 x Lines: Two times the value of the lines parameter
4 x Lines: Four times the value of the lines parameter, or
*: Equal to the value of the lines parameter, with a second page containing the rest of the lines remaining in memory.

**ANSI Reverse** off/on. Control function ANSI, VT-100 and VT-220:

"off" means, when SGR command ESC [ 3? m and ESC [ 4? m select background and foreground color change respectively.

"on" means, when SGR command ESC [ 3? m and ESC [ 4? m select foreground and background color change respectively. (? can be 0,1,2,...,7)

## F2 General SETUP Menu
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**Personality** sets the terminal's operating mode to Wyse 325, Wyse 120/Wyse 60 (native mode), Wyse 50+ (WY-50, WY-50+, WY-100, ADM 31/5/3a), TeleVideo TVI 925, TVI910+ (includes 910), ADDS A2, Digital Equipment VT-100, VT-220 7 bits, VT-220 8 bits, VT-52, Console ANSI, PC TERM, PCG Alpha.

**Scroll Speed** 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.

**Rcvd CR** causes the cursor to move to the beginning of the current line (CR) or the beginning of the next line (CRLF) when the terminal receives an ASCII CR.

**Enhance** allows the terminal to recognize an enhanced set of codes when the terminal is not in the native personality.

**Auto Scroll** causes the data to scroll up a line when the cursor moves past the last line of the page.

**Monitor** causes the terminal to display symbols for escape sequences and control codes without acting on them (test feature).

**Status Line** sets the top line of the screen as the status line.

**End of Line Wrap** causes the cursor to move to the start of the next line when additional characters are entered at the end of a line.

**Attribute** sets display attributes to be assigned to each character as it is entered (Char), to be active to the end of the line (Line), or to be active to the end of the page (Page).
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## F3 Keybd SETUP Menu
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**Keyclick** sets the terminal to sound a muted beep each time a key is pressed or repeated.

**Margin Bell** sets the terminal's bell to ring when the cursor reaches the column where the bell is set (default is column 72 in 80-column mode or 124 in 132-column mode).

**NRC** on/off determines the communication and keyboard national character set.

**DEL Keypad** Dot/Del or Comma/Del. Determines whether numlock DEL generates dot or comma.

**Key Repeat** off, 1, .... ,8. Defines key repeat rate after a key has been depressed for about 1/2 second.

**Language** sets correct terminal operation for the language of the keyboard connected to it: US, UK, Danish, German, Spanish, Swedish, Norwegian, Italian, French, Belgian, Swiss/French, and Swiss/German. Should be set to US.

**Bell Volume** off, 1, 2, 3 (3 different volumes)

**Limit Xmt** causes the terminal to send data through the HOST port as fast as the baud rate allows (None), or at a maximum rate of 60 cps or 150 cps. In older systems limiting character rate is necessary to prevent loss of data.

**Key Code** sets the terminal to send normal ASCII characters (ASCII) or PC-type scan codes for every key up / down (Scan). Scan is only required for the PC Term personality.

**Num Start** on/off. When the terminal power on, this field determines whether the numeric pad starts as Numeric (NUM on) or Function (NUM off).

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## F4   Comm SETUP Menu

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**Baud Rate** sets the host port baud rate to 50, 110, 134.5, 200, 300, 600, 1200, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 76800, or 115200.

**Rcv Hndshake** allows the terminal to control the receipt of data from a device connected to the SERIAL1 port with no handshaking (None), Xon / Xoff handshaking, DTR handshaking, DTR / Xoff handshaking

**XPC Hndshake** on/off to set XPC code handshake, only possible when the personality parameter is set to PC Term.

**Ethernet Mode** on/off to set the communication routing by Ethernet Network / or Serial Port.

**Data / Stop Bits** through the SERIAL1 port, the terminal to send and receive 8-bits data with one stop bit or two stop bits, or 7-bits data with one stop or two stops bits.

**Xmt Handshake** causes the terminal, when sending data to a device connected to the SERIAL1 port, to ignore all incoming software handshaking signals (None) or to control data output in responds to Xon/Xoff handshaking.

**Printer**
Parallel : sends data to a parallel printer connected to the parallel port.
Serial     : sends data to a serial printer connected to the serial 2 port.
Off        : ignores the print command.

**Auto Connect** off/on selects whether a return character is required to establish an Ethernet connection.

**Parity** sets the terminal send data to the SERIAL1 (printer) port with none, odd, mark, even, or space parity.

**Comm Mode** sets the SERIAL1 port communication mode to full duplex (FDX), block (BLK), half duplex (HDX), or half-duplex block (HBLK).

**Multiple Sessions** defines whether an Ethernet connection supports multiple sessions function.
On : indicates the terminal supports multiple sessions. Each session only has one display page. In 80 or 132 column mode, 8 simultaneous sessions are supported. In Econ-80 column mode, 12 simultaneous sessions are supported.
Off: indicates the terminal only has single session. In this mode page length grater than one page can be defined.

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## F5   Misc SETUP Menu

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**Wprt Intensity** sets the write protect attribute: normal, blank, dim, blank/dim.

**Block End** 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).

**Ptr Parity** causes the terminal to send the data to the SERIAL 2 port with none, odd, mark, even, or space parity.

**Printer RCV** On/Off

**Wprt Reverse** sets the write-protected characters to appear in reverse (dark characters on a light background).

**Ptr Baud rate** sets the SERIAL 2 port baud rate to 75, 150, 300, 600, 1200, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 76800, 115200, 230400, 460800.

**Ptr Rcv Hndshake** sets the printer receive handshake through SERIAL 2 to be none, DTR, Xon / Xoff, DTR/Xoff .

**Wprt Underline** sets the write-protected characters to appear underlined.

**Ptr Data/Stop Bits** sets the data and stop bits through the SERIAL 2 (printer) port.

**Ptr Xmt Hndshake** sets the printer handshake to be none, DSR, Xon / Xoff, or Both .

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## F6 Tabs SET-UP Menu
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On the tabs setup menu screen, the terminal's current tab stops are indicated by uppercase T's displayed along a line of periods that mark each column position.

   (1) A tab stop in columns 2 through 78 is shown as a T in the upper line of periods

   (2) A tab stop in columns 79 through 132 is shown as a T in the lower line of periods

You can easily determine where tabs are set by moving the cursor across the line and reading the column number displayed on the right side of the screen.

Clear and set tabs anywhere on the line, as follows:

   (1) To move the cursor across the line, press [ → ] or [ ← ].

   (2) To either clear or set (toggle) an individual tab stop at the cursor position, press [ Spacebar ]

   (3) To clear all tabs, press [ Home ]

   (4) To set tabs to the default setting (every eighth column), press [ Backspace ]

**Note**: A tab stop cannot be set to column 1.
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## F7 FKeys SET-UP Definition Setup Menu
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You can redefine the function keys and many of the editing keys to send a unique character string of up to 64 characters. Keys that are not programmed will send a default sequence, which is determined by the personality selected. Table 2-2 lists the programmable keys.

To redefine a key:

   1. Select the key to be redefined by pressing that key together with [ Ctrl ]. This highlights the key's definition field.

   2. Press [ ↑ ] to select the shifted or unshifted key definition field.

   3. Enter the key definition (up to 62 characters) at the cursor position. Correct errors by pressing [ ← ] to delete characters or [ Home ] to clear the definition.

   4. If you want to change the key's direction, press [ Enter ] (on the numeric pad) until your choice appears.

Direction determines where the key data is transmitted:

- Remote:    Sends data to the computer only, regardless of the terminal's communication mode. (Until redefined, the direction of all the programmable keys is remote.)
- Local:      Sends data to the terminal only, regardless of the terminal's communication mode
- Normal:   Sends data to the computer and / or the terminal, depending on the terminal's communication mode

## Table 2-2 Programmable Keys

| Enhanced PC-Style Keyboard | Enhanced PC-Style Keyboard |
|---|---|
| F1 through F12 | ENTER* |
| ↑ | ESCAPE |
| ↓ | HOME |
| → | INSERT |
| ← | PAGE DOWN |
| BACKSPACE | PAGE UP |
| DELETE | PRINT SCREEN |
| END | TAB |

* Both ENTER keys are programmable.


## F8  Ansbk SET-UP Menu
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You can program a message of up to 20 characters to identify the terminal to the computer. Enter the message at the cursor position. Correct errors by pressing   ← to delete characters or   Home to clear the message.

CONCEAL hides the answerback message, so it is not displayed in setup mode.

To save the message in nonvolatile memory, exit Setup mode with the YES option.
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## F9  Lan Setup Menu
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This menu configures the terminal for Ethernet communication.  Use of Ethernet communications provides the additional ability to open multiple sessions (applications) on one or more hosts/servers at the same time.  Support of these extended features requires the server to be configured to accept telnet connections.

**Note:** The Ethernet option in the F4 setup menu must be set to ON for the terminal to work in an Ethernet environment.

**Local IP Address** is the IP address assigned to this terminal.  This must be a unique IP address. An example of this address is 200.200.200.10.

**Netmask** is a value generated by the system based on the IP address.  The system administrator would have this information.  An example is 255.255.255.0

**Gateway** This IP address is used to communicate with other networks.  If a gateway is not being used this option should be blank.

**Remote IP 0...B Address** are for any remote host, or devices, that the terminal will communicate with for a specific session. These twelve remote IP addresses should all be identical if all communications will be with only one host. If Multisession ON in the F4 menu has been selected, and there is more than one host on your system, you must specify which host each session will communicate with.  To communicate with a different host for a future session, these settings must be changed.

**Note 1:** The Multisession option allows 8 separate sessions if any emulation other than ECON-80 is selected.  If ECON-80 emulation is selected, the Multisession option allows 12 separate sessions.

**Note 2:** Port 23 which is the telnet service by default.

**Note 3:** The terminal must be powered cycled after saving for these parameters to take effect.

**Term Type** allows definition of the terminal with up to 40 characters.  If Term Type is empty the default type is sent to the host by the system.

**Ethernet Node ID** displays the serial number of the hardware Ethernet interface device.  This is a default value of the manufacturer of the hardware device and should not be changed.
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## F10  Colr1 Set-up Menu
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Selects the color palette to be used for each screen attribute. A sample of the selected text is displayed next to each selection.

Normal                                                          Dim

| | |
|---|---|
| Normal | Normal |
| Blank | Blank |
| Blink | Blink |
| Blink Blank | Blink Blank |
| Rev | Rev |
| Rev Blank | Rev Blank |
| Rev Blink | Rev Blink |
| Rev Blink Blank | Rev Blink Blank |
| Undl. | Undl. |
| Undl. Blank | Undl. Blank |
| Undl. Blink | Undl. Blink |
| Undl. Blink Blank | Undl. Blink Blank |
| Undl. Rev | Undl. Rev |
| Undl. Rev Blank | Undl. Rev Blank |
| Undl. Rev Blink | Undl. Rev Blink |
| Undl. Rev Blink Blank | Undl. Rev Blink Blank |

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## F11  Colr2 Set-up Menu
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The color functionality differs with emulation.

In general VT100, VT220 and ANSI Console work with applications, which control the color directly.  The remaining personalities associate colors based on existing monochrome video attributes.

This section will define parameter selection based on personality selected.

| | | |
|---|---|---|
| **Background** | = | Will determine the color of the background screen under some conditions (16 colors). |
| **Normal F.G. \ Normal B.G.** | = | These fields allow you to select the character and background color (16 colors) for data entered on the display before your application defines the color display remotely. |
| **Border Color** | = | The color of the border around the edge of the screen. |
| Cursor | = | Will select the color of the cursor (16 colors). |
| **Intensity F.G. \ Intensity B.G.** | = | These fields allow you to select the character and background color (16 colors) for data entered on the display as Dim in ASCII emulation's and Bold in VT\ANSI emulation's before your application defines the color display remotely. |
| **Attribute** | = | Bold/Blink |
| **Color mode** | = | Is automatically selected based on your emulation selected. |

**Color map** **=** Applies in WY325 mode only and determines if the monochrome attribute Reverse or Blank will be used to map monochrome attributes to color.

**Color Association** = Off/On

## Color Set-up Menu, Continued

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|  | ASCII (NOT WY325) | WY325 * | VTXXX | ANSI CONSOLE |
|---|---|---|---|---|
| Background = | The whole data area of the screen will be displayed in this color, when the application hasn't entered character or spaces with the Normal or Intensity B.G. color. Changes in Background color will affect Normal and Intensity B.G. Any clear screen commands will clear to this color. | No Function | Same as ASCII | Same as ASCII |
| Cursor = | Selects Cursor color | Selects Cursor color | Selects Cursor color | Selects Cursor color |
| Normal F.G. = | Selects color of Normal F.G. | No Function | Initial color selection at power up | Initial color selection at power up |
| Normal B.G. = | Selects color of Normal B.G. | No Function | Initial color selection at power up | Initial color selection at power up |
| Intensity F.G. = | Selects color of Intensity F.G. | No Function | Initial color selection at power up | Initial color selection at power up |
| Intensity B.G. = | Selects color of Intensity B.G. | No Function | Initial color selection at power up | Initial color selection at power up |
| Color Mode = Normal/Palette | Automatic | Automatic | Automatic | Automatic |
| Color Map = Reverse/Blank | No Function | See Above | No Function | No Function |

\*   When the WY 325 personality is selected holding the Ctrl key down and depressing either the 0, 1, ..., 9 or (.) period keys in the numeric pad change the assignment of color on the screen. Each selection is called a palette and is described in Table 2-3.

**Table 2-3 Color Palettes**

| Palette | Display Attribute | Foreground Color | Background Color |
|---|---|---|---|
| 0 | Normal | Green | Black |
| | Reverse (or blank)[1] | Black | Yellow |
| | Intensity[2] | Blue | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Blue |
| | Underline | Cyan | Black |
| | Underline and reverse (or blank)[1] | Black | Cyan |
| | Underline and intensity[2,3] | Red | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Red |
| 1 | Normal | Green | Black |
| | Reverse (or blank)[1] | Black | Red |
| | Intensity[2] | Yellow | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Yellow |
| | Underline | Cyan | Black |
| | Underline and reverse (or blank)[1] | Black | Cyan |
| | Underline and intensity[2,3] | White | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | White |
| 2 | Normal | Cyan | Black |
| | Reverse (or blank)[1] | Black | White |
| | Intensity[2] | Red | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Red |
| | Underline | Magenta | Black |
| | Underline and reverse (or blank)[1] | Black | Magenta |
| | Underline and intensity[2,3] | Blue | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Blue |
| 3 | Normal | Cyan | Black |
| | Reverse (or blank)[1] | Black | Blue |
| | Intensity[2] | White | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | White |
| | Underline | Magenta | Black |
| | Underline and reverse (or blank)[1] | Black | Magenta |
| | Underline and intensity[2,3] | Yellow | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Yellow |

**Color Palettes, Continued**

| Palette | Display Attribute | Foreground Color | Background Color |
|---|---|---|---|
| 4 | Normal | Magenta | Black |
| | Reverse (or blank)[1] | Black | Cyan |
| | Intensity[2] | Blue | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Blue |
| | Underline | Green | Black |
| | Underline and reverse (or blank)[1] | Black | Green |
| | Underline and intensity[2],[3] | Red | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Red |
| 5 | Normal | Magenta | Black |
| | Reverse (or blank)[1] | Black | Yellow |
| | Intensity[2] | White | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | White |
| | Underline | Green | Black |
| | Underline and reverse (or blank)[1] | Black | Green |
| | Underline and intensity[2],[3] | Cyan | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Cyan |
| 6 | Normal | Yellow | Black |
| | Reverse (or blank)[1] | Black | Yellow |
| | Intensity[2] | Red | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Red |
| | Underline | Cyan | Black |
| | Underline and reverse (or blank)[1] | Black | Cyan |
| | Underline and intensity[2],[3] | Magenta | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Magenta |
| 7 | Normal | Red | Black |
| | Reverse (or blank)[1] | Yellow | Red |
| | Intensity[2] | Magenta | Black |
| | Intensity[2] and reverse (or blank)[1] | Black | Magenta |
| | Underline | Cyan | Black |
| | Underline and reverse (or blank)[1] | Black | Cyan |
| | Underline and intensity[2],[3] | Green | Black |
| | Underline, intensity,[2] and reverse (or blank)[1] | Black | Green |

**Color Palettes, Continued**

| Palette | Display Attribute | Foreground Color | Background Color |
|---|---|---|---|
| 8 | Normal | White | Black |
| | Reverse (or blank)[*1] | Black | White |
| | Intensity[*2] | Red | Black |
| | Intensity[*2] and reverse (or blank)[*1] | Black | Red |
| | Underline | Yellow | Black |
| | Underline and reverse (or blank)[*1] | Black | Yellow |
| | Underline and intensity[*2,*3] | Magenta | Black |
| | Underline, intensity,[*2] and reverse (or blank)[*1] | Black | Magenta |
| 9 | Normal | White | Black |
| | Reverse (or blank)[*1] | Black | White |
| | Intensity[*2] | Yellow | Black |
| | Intensity[*2] and reverse (or blank)[*1] | Black | Yellow |
| | Underline | Blue | Black |
| | Underline and reverse (or blank)[*1] | Black | Blue |
| | Underline and intensity[*2,*3] | Cyan | Black |
| | Underline, intensity,[*2] and reverse (or blank)[*1] | Black | Cyan |
| 10 (soft palette) | Normal | Green | Black |
| | Reverse (or blank)[*1] | Black | Yellow |
| | Intensity[*2] | Blue | Black |
| | Intensity[*2] and reverse (or blank)[*1] | Black | Blue |
| | Underline | Cyan | Black |
| | Underline and reverse (or blank)[*1] | Black | Cyan |
| | Underline and intensity[*2,*3] | Red | Black |
| | Underline, intensity,[*2] and reverse (or blank)[*1] | Black | Red |

**\*1.** Whether the reverse or blank attribute is mapped to the colors shown depends on an escape sequence or the setting of the Color Map setup parameter on the Attribute menu. The default is *reverse*. When the *blank* attribute is mapped, only the background is visible.

**\*2.** The intensity is *dim* in ASCII personalities and *bold* in ANSI personalities. (The intensity attribute is not supported in the following personalities: Wyse 50+, ADDS A2, TVI 910+, TVI925, and VT52.) The attribute can be disabled by an escape sequence or in setup mode (Intensity Attribute parameter).

**\*3.** In each palette, the status line displays the same foreground and background colors as shown here for the underline-and-intensity attribute.

# *3*
# Local Keyboard Commands

Table 3-1 lists local keyboard commands in the terminal's native mode.

## Table 3-1
## Local Keyboard Commands in Native Mode

|  | Key Sequence by keyboard Style |
| --- | --- |
| **Command** | **Enhanced PC** |
| Toggle CAPS LOCK on/off | CAPS LOCK |
| Toggle NUM LOCK on/off | NUM LOCK |
| Put terminal in SETUP mode | ALT ESC |
| Partially reset terminal, including communication unlock keyboard, turn off all print modes. | ALT PAUSE |
| Send break[1] | BREAK[2] |
| Toggle between block and full-duplex modes | SHIFT BREAK |
| Print Screen formatted | PRINT SCREEN |
| Turn auxiliary print mode on/off | SHIFT SYS REQ[3] |
| Turn monitor mode on/off | CTRL SHIFT 1 (kpd) |
| Turn status line display on/off | CTRL → |
| Speed scrolling rate | CTRL SHIFT ↑ |
| Slow scrolling rate | CTRL SHIFT ↓ |
| Home cursor and clear page | CTRL SHIFT HOME |
| Display page 0 | CTRL 0kpd |
| Display page 1 | CTRL 1kpd |
| Display next page (or active other window)[4] | PAGE DOWN |
| Display previous page (or active other window)[5] | PAGE UP |
| Toggle between split screen[5] and full screen format | CTRL SHIFT -kpd |

## Table 3-1
## Local Keyboard Commands in Native Mode, Continued

|  | Key Sequence by keyboard Style |
| --- | --- |
| **Command** | **Enhanced PC** |
| Toggle Session 0[6] | ALT F1 |
| Toggle Session 1[6] | ALT F2 |
| Toggle Session 2[6] | ALT F3 |
| Toggle Session 3[6] | ALT F4 |
| Toggle Session 4[6] | ALT F5 |
| Toggle Session 5[6] | ALT F6 |

| Command | Enhanced PC |
|---|---|
| Toggle Session 6*6 | ALT F7 |
| Toggle Session 7*6 | ALT F8 |
| Toggle Session 8*6 | ALT F9 |
| Toggle Session 9*6 | ALT F10 |
| Toggle Session A*6 | ALT F11 |
| Toggle Session B*6 | ALT F12 |
| Close the active Session by Local Terminal*6 | CTRL SHIFT . kpd |

*1. To MODEM port only when configured as data port: has no effect on AUX port.
*2. [BREAK] = [PAUSE] pressed together with [CTRL].
*3. [SYS REQ] = [PRINT SCREEN] pressed together with [CTRL].
*4. If screen is split.
*5. Splits screen at line 12.
*6. Only active at Ethernet mode on.

# Connector Pin Assignment

**Table 4-1**
**Serial port (Serial 1) Connector Pin Assignments (RS-232C 9-pin connector)**

| Pin | Signal | Mnemonic | Direction |
|-----|--------|----------|-----------|
| 1 | Data carrier detect | DCD | In |
| 2 | Receive data | RxD | In |
| 3 | Transmit data | TxD | Out |
| 4 | Data terminal ready | DTR | Out |
| 5 | Signal ground | SGND | |
| 6 | Data set ready | DSR | In |
| 7 | Request to send | RTS | Out |
| 8 | Clear to send | CTS | In |

**Table 4-2**
**Serial printer port (Serial 2) Connector Pin Assignments (RS-232C 9-pin connector)**

| Pin | Signal | Mnemonic | Direction |
|-----|--------|----------|-----------|
| 1 | Data carrier detect | DCD | In |
| 2 | Receive data | RxD | In |
| 3 | Transmit data | TxD | Out |
| 4 | Data terminal ready | DTR | Out |
| 5 | Signal ground | SGND | |
| 6 | Data set ready | DSR | In |
| 7 | Request to send | RTS | Out |
| 8 | Clear to send | CTS | In |

**Table 4-3**
**Printer Port Connector Pin Assignments (Compatible with the IBM PC parallel port)**

| Pin | Signal | Mnemonic | Direction |
|---|---|---|---|
| 1 | -Strobe | | Out |
| 2 | Data bit 0 | | Out |
| 3 | Data bit 1 | | Out |
| 4 | Data bit 2 | | Out |
| 5 | Data bit 3 | | Out |
| 6 | Data bit 4 | | Out |
| 7 | Data bit 5 | | Out |
| 8 | Data bit 6 | | Out |
| 9 | Data bit 7 | | Out |
| 10 | -Acknowledge | | In |
| 11 | Busy | | In |
| 12 | Paper end | | In |
| 13 | Slct | | In |
| 14 | -Auto feed XT | | Out |
| 15 | -Error | | In |
| 16 | -Init | | Out |
| 17 | -Slctn | | Out |
| 18-25 | Ground | | Out |

**Table 4-4**
**10BaseT connector Pin Assignments (RJ-45 8 pin phone jack connector)**

| Pin | Signal | Direction |
|---|---|---|
| 1 | Transmit + | Out |
| 2 | Transmit - | Out |
| 3 | Receive + | In |
| 6 | Receive - | In |

# COMMAND GUIDE

## Commands Supported in ASCII Personalities

Table 5-1 lists all the ASCII commands recognized by the terminal. The native mode code for the command is given in the second column. (The native mode include WY-325,WY-120 and WY-60.) The remaining columns show the support for the command in other ASCII personalities according to the following notations:

### Same
Same as native code (code is native to other terminal also)

### Wyse
Same as native code (Wyse enhancement- code not native to other terminal)

### ENH
Same as native code when enhance mode is on (Wyse enhancement - code not native to other terminal)

A code listed under a nonnative personality indicates that the related terminal's native code is supported.
A blank in any column indicates that the command is not supported.

Variables are shown in italics. Their values are listed in alphabetical order at the end of the table.

**Table 5-1**
**Commands Supported in ASCII personalities**

| FUNCTION | Command | | | | |
|---|---|---|---|---|---|
| | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
| **Monitor Mode** | | | | | |
| Monitor mode on | ESC U | Same | | Same | Same |
| Monitor mode off | ESC u | Same | | Same | Same |
| | or ESC X | | | | Same |
| **Selecting Personalities** | | | | | |
| Enhance mode off | ESC ~ SPACE | Same | ENH | ENH | ESC v SPACE |
| Enhance mode on | ESC ~ ! | Same | ENH | ENH | ESC v ! |
| Select WY-50+ mode | ESC ~" | Same | ENH | Wyse | ESC v " |
| Select TVI 910+ mode | ESC ~ # | Same | ENH | Wyse | ESC v # |
| Select TVI 925 mode | ESC ~ $ | Same | ENH | Wyse | ESC v $ |
| Select ADDS VP A2 mode | ESC ~ % | Same | ENH | Wyse | ESC v % |
| Select Console ANSI mode | ESC ~ A | Same | ENH | Wyse | ESC v A |
| Select Native mode | ESC ~ 4 | Same | ENH | Wyse | ESC v 4 |
| Select PC Term mode | ESC ~ 5 | Same | ENH | Wyse | ESC v 5 |
| Select VT52 mode | ESC ~ 6 | Same | ENH | Wyse | ESC v 6 |

| Function | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Select VT100 mode | ESC ~ ; | Same | ENH | Wyse | ESC v ; |
| Select PCGAPHIC mode[*1] | ESC ~ I | Same | ENH | Wyse | ESC v I |
| Select VT220-7 mode | ESC ~ < | Same | ENH | Wyse | ESC v < |
| Select VT220-8 mode | ESC ~ = | Same | ENH | Wyse | ESC v = |
| Select WY-325 mode[*3] | ESC ~ B | Same | ENH | Wyse | ESC v B |

**Communicating with the computer**

| | | | | | |
|---|---|---|---|---|---|
| Enable transmission | CTRL Q | Same | Same | Same | Same |
| Stop transmission Disconnect | CTRL S | Same | Same | Same | Same |
| Send ACK (if ACK mode on) | CTRL E | Same | | Wyse | Same |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| | Command | | | | |
|---|---|---|---|---|---|
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| ACK mode off | ESC e 6 | Same | | ENH | |
| ACK mode on | ESC e 7 | Same | | ENH | |
| Full-duplex mode on | ESC C ESC D F | Same | | Same | ESC } |
| Half-duplex mode on | ESC C ESC D H | Same | | Same | ESC { |
| Block mode on | ESC B | Same | | Same | Same |
| Block mode off (conversation) | | | | | ESC C |
| Half-duplex block mode on | ESC D H ESC B | Same | | Same | ENH |
| Set Serial 1 port receive handshaking protocol | ESC c 2 *hndshk* | Same | ENH | | |
| Set Serial 1 port transmit handshaking protocol | ESC c 4 *hndshk* | Same | ENH | | |
| Set maximum data transmission speed for host port | ESC c 6 *max* | | | | |
| Set Serial 1 port operating parameters | ESC c 0 *baud stop parity word* | | | | |
| Set Serial 2 port operating parameters | ESC c 1 *baud stop parity word* | | | | |
| Enable DTR Serial port 1handshaking | | | CTRL N | CTRL N | CTRL N |
| Enable X-on/X-off Serial port 1 | | | CTRL O | CTRL O | CTRL O |
| Program answerback message | ESC c; *answer* CTRL Y | Same | ENH | | |
| Conceal answerback message | ESC c = | Same | ENH | | |
| Send answerback message | ESC c < | Same | ENH | | |
| Turn answerback mode off | ESC e SP | Same | ENH | | |
| Turn answerback mode on | ESC e ! | Same | ENH | | |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| | Command | | | | |
|---|---|---|---|---|---|
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |

**Controlling the Terminal and Keyboard**

| | | | | | |
|---|---|---|---|---|---|
| Sound bell | CTRL G | Same | Same | Same | Same |
| *Select bell volume* | ESC c \\*volume* | Same | ENH | | |
| Unlock keyboard | CTRL N or ESC" | Same | CTRL B | ESC " | ESC " |
| Lock keyboard | CTRL O or ESC# | Same | CTRL D | Same | ESC # |
| CAPS LOCK off | ESC e ' | ENH | ENH | ENH | ESC SP M |
| CAPS LOCK on | ESC e & | ENH | ENH | ENH | ESC SP L |
| NUM LOCK off | ESC e @ | ENH | ENH | ENH | ESC SP K |
| NUM LOCK on | ESC e A | ENH | ENH | ENH | ESC SP J |
| SCROLL LOCK off | ESC e B | ENH | ENH | ENH | ESC SP O |
| SCROLL LOCK on | ESC e C | ENH | ENH | ENH | ESC SP N |
| Keyclick off | ESC e $ | Same | ENH | ESC < | ESC < |
| Keyclick on | ESC e % | Same | ENH | ESC > | ESC > |
| Margin bell off | ESC e L | Same | ENH | ENH | ESC n |
| Margin bell on | ESC e M | Same | ENH | ENH | ESC o |
| Set margin bell at curs position | ESC ' J | Same | ENH | | |
| Select standard ASCII key code mode | ESC e H | Same | ENH | | |
| Select PC scan code mode | ESC e I | Same | ENH | | |
| Key repeat off | ESC e , | Same | ENH | ENH | |
| Key repeat on | ESC e - | Same | ENH | ENH | |
| Read keyboard status | | | | | ESC [ |

**Redefining the keys**

| | | | | | |
|---|---|---|---|---|---|
| Clear function key definition | ESC z *fkey* DEL | Same | | | |
| Clear key direction and definition | ESC Z *dir key/fkey* DEL | Same | ENH | | |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| | Command | | | | |
|---|---|---|---|---|---|
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |

| | | | | | |
|---|---|---|---|---|---|
| Program function key definition | ESC z *fkey sequence* DEL | Same | ENH | ENH | |
| Program key direction and definition | ESC Z *dir key/fkey sequence* DEL | Same | | Wyse | ESC \| *p1 p2 sequence* CTRL Y |
| Read key direction and definition | ESC Z ~*key* or ESC Z ~*fkey* | Same | | | |

**Screen and Cursor Display**

| Function | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Screen display off | ESC ` 8 | Same | ENH | ESC o | ESC O |
| Screen display on | ESC ` 9 | Same | ENH | ESC n | ESC N |
| Screen saver off | ESC e P | Same | ENH | ENH | |
| Screen saver on | ESC e Q | Same | ENH | ENH | |
| Set reverse screen | ESC ^ 1 | Same | ENH | ESC b | |
| Restore normal screen | ESC ^ 0 | Same | ENH | ESC d[4] | |
| Set scrolling speed and type | ESC ` scroll | Same | ENH | | |
| Smooth scrolling on | | | | ESC 8[5] | |
| Smooth scrolling off | | | | ESC 9[5] | |
| Set cursor display features | ESC ` cursor | Same | ENH | ESC . cursor1 | ESC . cursor1 |
| Cursor display off | ESC ` 0 | Same | CTRL W | | |
| Cursor display on | ESC ` 1 | Same | CTRL X | | |
| 25th line display off | | | | | ESC e |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| | Command | | | | |
|---|---|---|---|---|---|
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |

**Displaying the Message Fields**

| Function | Native Mode | Wyse | ADDS | TVI | PC Term |
|---|---|---|---|---|---|
| Extended status line on | ESC ` a | Same | ENH | | |
| Standard status line on | ESC ` b | Same | ENH | | |
| Status line off | ESC ` c | Same | ENH | | |
| Program/display computer message on status line | ESC F message CR | Same | ENH | | |
| Program computer message on unshifted lable line[6] | ESC z ( text CR | Same | ENH | ESC f[5] text CR | ESC f text CR |
| Program computer message on shifted label line | ESC z ) text CR | Same | ENH | | |
| Turn off shifted label line | ESC z DEL | Same | ENH | ENH | |
| Clear unshifted label line | ESC z ( CR | Same | ENH | | |
| Clear shifted label line | ESC z ) CR | Same | ENH | ENH | |
| Program/display function key label | ESC z field label CR | Same | ENH | ENH | |
| Clear function key label | ESC z field CR | Same | ENH | ENH | |

**Defining the data Area**

| Function | Native Mode | Wyse | ADDS | TVI | PC Term |
|---|---|---|---|---|---|
| Select 80-column display | ESC ` : | Same | ENH | | |
| Select 132-column display | ESC ` ; | Same | ENH | | |
| Economy 80-column mode off | ESC e F | Same | ENH | | |
| Economy 80-column mode on | ESC e G | Same | ENH | | |
| Width-change-clear mode off | ESC e . | Same | ENH | | |
| Width-change-clear mode on | ESC e / | Same | ENH | | |
| Display 24 data lines[7] | ESC e ( | Same | ENH | | |
| Display 25 data lines[7] | ESC e ) | Same | ENH | | ESC ^ |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

------------------------------------------------------------------------------------------------

|  | Command | | | | |
|  | --- | --- | --- | --- | --- |
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |

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**Display Memory/Split Screen**

| Divide memory into pages | ESC w *length* | Same | ENH | | |
| --- | --- | --- | --- | --- | --- |
| Display previous page | ESC w B or ESC J*8 | Same | ENH | ESC J | |
| Display next page | ESC w C or ESC K*8 | Same | ENH | ESC K | |
| Display page n | ESC w *page* | Same | ENH | | |
| Split screen horizontally (simple split) | ESC x A *line* | Same | | | |
| Split screen horizontally (simple split) and clear pages | ESC x 1 *line* | Same | | | |
| Split screen horizontally (adjustable split) and clear pages | ESC x 3 *line* | Same | | | |
| Split screen horizontally (adjustable split) | ESC x C *line* | Same | | | |
| Activate upper window | ESC ] | Same | | | |
| Activate lower window | ESC } | Same | | | |
| Activates other window (or page *8) | ESC J or ESC K | Same | ESC J*5 | | |
| Lower horizontal split | ESC x P | Same | | | |
| Raise horizontal split | ESC x R | Same | | | |
| Roll window up in page | ESC w E | Same | | | |
| Roll window down in page | ESC w F | Same | | | |
| Redefine screen as one window | ESC x @ | Same | | | |
| Redefine screen as one window and clear pages | ESC x 0 | Same | | | |

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**Display Attributes**

| Assign display attribute to a message field | ESC A *mf attr* | Same | ESC \*4 | | |
| --- | --- | --- | --- | --- | --- |
| Assign character display attribute | ESC G *attr* | Same | ENH | Same | Same |

------------------------------------------------------------------------------------------------

## Table 5-1
## Commands Supported in ASCII personalities, Continued

------------------------------------------------------------------------------------------------

|  | Command | | | | |
|  | --- | --- | --- | --- | --- |
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |

------------------------------------------------------------------------------------------------

| Character attribute mode off | ESC e 0 | | | | |
| --- | --- | --- | --- | --- | --- |
| Character attribute mode on | ESC e 1 | | | | |
| Page attribute mode on | ESC e 2 | Same | | | |
| Line attribute mode on | ESC e 3 | Same | | | |
| Assign write-protected character display attribute | ESC `*wpca* | Same | ESC 0 *wpca1* | | |
| Clear unprotected page to display attribute | ESC ! | ENH *attr* | Wyse | | |
| Assign line attribute | ESC G *lattr* | Same | ENH | | |
| Redefine color map values*9 | ESC d y *fcolor* *bcolor map* | | | | |
| Set tag protect attribute | | | | CTRL N | |
| Reset tag protect attribute | | | | CTRL O | |

| Function | Native Mode | | | | |
|---|---|---|---|---|---|
| Select a predefined color palette[9] | ESC d z *palette* | | | | |
| Map blank attribute[9] | ESC d { | | | | |
| Map reverse attribute[9] | ESC d \| | | | | |

**Protecting Data**

| Function | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Write-protect mode off | ESC ( | Same | CTRL O | Same | Same |
| Write-protect mode on | ESC ) | Same | CTRL N | Same | Same |
| Clear cursor column to write-protected spaces | ESC V | Same | ENH | Same | |
| Protect mode off | ESC , | Same | ENH | Same | Same |
| Protect mode on | ESC & | Same | ENH | Wyse | Same |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| FUNCTION | Command | | | | |
|---|---|---|---|---|---|
| | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
| **Graphics Characters** | | | | | |
| Graphics mode on | ESC H CTRL B | Same | ESC $ | ESC $ | |
| Graphics mode off | ESC H CTRL C | Same | ESC % | ESC % | |
| Display graphics character | ESC H *ldraw* | Same | | | |
| **Controlling the Cursor** | | | | | |
| Cursor left (backspace) | CTRL H | Same | Same | Same or CTRL U | Same |
| Cursor right | CTRL L | Same | CTRL F | Same | Same |
| Cursor up; no scroll | CTRL K | Same | CTRL Z | Same | Same |
| Cursor up; scroll (reverse linefeed) | ESC j | Same | ENH | Same[10] | Same |
| Cursor down; no scroll | | | | CTRL V | CTRL V |
| Cursor down; scroll (Linefeed) | CTRL J | Same | Same | Same | Same |
| Cursor to start of line | CTRL M | Same | Same | Same | Same |
| Cursor to start of next line | CTRL _ | Same | ENH | Same | Same |
| Home cursor | ESC { or CTRL ^ | Same | ENH or CTRL A | Wyse Same | CTRL ^ |
| Cursor to specific column | | | CTRL P *col* | ESC ][11] | |
| Cursor to specific line | | | CTRL K *line* | ESC [ | |
| End-of-line wrap off | ESC d . | Same | ENH | | ESC 0 |
| End-of line wrap on | ESC d / | Same | ENH | | ESC ~ |
| Received CR mode off | ESC e 4 | Same | ENH | ENH | ESC 9 |
| Received CR mode on | ESC e 5 | Same | ENH | ENH | ESC 8 |
| Autopage mode off | ESC d * | Same | ENH | ESC w | |
| Autopage mode on | ESC d + | Same | ENH | ESC v | |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| FUNCTION | Command | | | | |
|---|---|---|---|---|---|
| | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
| Autoscrolling mode off | ESC N | Same | ENH | | |
| Autoscrolling mode on | ESC O | Same | ENH | | |
| Address cursor in current 80-column page | ESC = *line col* | Same | ENH or ESC Y | Same | Same |
| Address cursor in specific 80-column page | ESC w @ *page line col* | Same | ENH | ESC - *page line col* | |
| Address cursor in specific 80-column window/page[8] | ESC - *wnd/ page line col* | Same | ENH | | Same |
| Address cursor in specific 80/132-column current page | ESC a *lll* R *ccc* C | Same | ENH | | Same |
| Read cursor line and column address in 80-column current page | ESC ? | Same | ENH | Same | Same |
| Read 80-column page number and cursor address | ESC w ` | Same | ENH | | |
| Read 80-column window/page number and cursor address | ESC / | Same | ENH | Same | Same |
| Read cursor address in 80/132-column page | ESC b | Same | ENH | | |

**Editing**

| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Clear all tab stops | ESC 0 | Same | ENH | ESC 3 | ESC 3 |
| Set tab stop | ESC 1 | Same | ENH | Same | Same |
| Clear tab stop | ESC 2 | Same | ENH | Same | Same |
| Tabulate cursor | ESC i or CTRL I | Same | ENH | CTRLI | CTRLI |
| Backtab | ESC I | Same | ENH | Same | Same |
| Field tab | | | | ESC I | ESC i |
| Insert mode on, replace mode off | ESC q | Same | ENH | ENH | ESC Z |
| Insert mode off, replace mode on | ESC r | Same | ENH | ENH | Same |
| Insert space character | ESC Q | Same | ENH | Same | Same |

## Table 5-1
## Commands Supported in ASCII personalities, Continued

| FUNCTION | Command | | | | |
|---|---|---|---|---|---|
| | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
| Insert line of spaces | ESC E | Same | ENH | Same | Same |
| Delete cursor character | ESC W | Same | ENH | Same | Same |
| Delete cursor line | ESC R | Same | ESC l | Same | Same |

**Clearing Data**

| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Clear page to nulls | ESC * | Same | ENH | Same | Same |
| Clear page to spaces | ESC + | Same | ENH | | |
| Clear page to write-protected spaces | ESC , | Same | ENH | | Same |
| Clear unprotected page to spaces | ESC ; or CTRL Z | Same | ESC ; | ESC ; | Same |

| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| | | | ENH | or ESC + | |
| Clear unprotected page to nulls | ESC : | Same | ENH | Same | Same |
| Clear unprotected page to a specific character | ESC .*char* | Same | ENH | | |
| Clear unprotected page to protected spaces | | | | | ESC , |
| Clear unprotected page to display attribute | | ESC ! *attr* | ENH | ENH | |
| Clear unprotected page to spaces from cursor | ESC Y | Same | ESC k | Same | Same |
| Clear unprotected page to nulls from cursor | ESC y | Same | ENH | Same | Same |
| Clear unprotected line to spaces from cursor | ESC T | Same | ESC K | Same | Same |
| Clear unprotected line to nulls from cursor | ESC t | Same | ENH | Same | Same |
| Fill page with H's | | | | | ESC F |

**Sending data**

| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Begin print / send at top of page | ESC d' | Same | ENH | | |
| Begin print / send at top of screen | ESC d& | Same | ENH | | |

**Table 5-1**

**Commands Supported in ASCII personalities, Continued**

| | Command | | | | |
|---|---|---|---|---|---|
| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
| Send cursor character | ESC M | Same | | | |
| Send line through cursor | ESC 6 | Same | Same | ESC 6 | |
| Send unprotected line through cursor | ESC 4 | Same | Same | ESC 4 | |
| Send page through cursor | ESC 7 | Same | ENH | Same | ESC 7 |
| Send unprotected page through cursor | ESC 5 | Same | Same | ESC 5 | |
| Mark block beginning | ESC 8 | Same | ENH | | |
| Mark block end | ESC 9 | Same | ENH | | |
| Send entire block | ESC s | Same | ENH | Same | Same |
| Send unprotected | ESC S | Same | ENH | Same | Same |
| Report terminal status | | | | | ESC [ |
| Report attribute under cursor | | | | | ESC D |

**Print Functions**

| FUNCTION | Native Mode | Wyse WY-50+ | ADDS VP A2 | TVI 910+/925 | PC Term |
|---|---|---|---|---|---|
| Print formatted page | ESC P | Same | ENH | Same | Same |
| Print formatted unprotected page | ESC @ | Same | ENH | | |
| Print unformatted page | ESC p or ESC L | Same | ESC p | ESC L[11] | |
| Select Parallel printer | ESC d ( | Same | Same | | |
| Select Serial printer | ESC d ) | Same | Same | | |
| Auxiliary print mode off | CTRL T | Same | Same | ESC A | ESC A |
| Auxiliary print mode on | CTRL R | Same | Same | ESC @ | |
| Transparent print mode off | CTRL T | Same | ESC 4 | ESC a | ESC a |
| Transparent print mode on | ESC d # | Same | ESC 3 | ESC ` | ESC ` |
| Bi-directional mode off | ESC d $ | | | CTRL T | CTRL T |
| Bi-directional mode on | ESC d % | | | CTRL R | CTRL R |
| Auxiliary receive mode off | ESC d SPACE | | | | |
| Auxiliary receive mode on | ESC d ! | | | | |
| Set print terminator | | | | ESC p | ESC p |
| Define delimiters | | | | ESC x | ESC x |

**Table 5-1**

**Commands Supported in ASCII personalities, Continued**

---

| | Command | | | | |
|---|---|---|---|---|---|
| | --- | | | | |
| FUNCTION | **Native Mode** | **Wyse WY-50+** | **ADDS VP A2** | **TVI 910+/925** | **PC Term** |

---

**Character Sets**

| | | | | | |
|---|---|---|---|---|---|
| Select primary character set | ESC c D | Same | | | |
| Select secondary character set | ESC c E | Same | | | |
| Define primary character set | ESC c B *bank* | Same | | | |
| Define secondary character set | ESC c C *bank* | Same | | | |
| Load font bank with predefined | ESC c @ *bank set* | Same | | | |
| Clear font bank | ESC c ? *bank* | Same | | | |
| Define and load character | ESC c A *bank pp bb...bb* CTRL Y | Same | | | |

---

**\*1**. PCG ALPHA in Mono. Text Model machine.

**\*3**. Valid only in Color Model machine.

**\*4**. With enhance mode off.

**\*5**. With enhance mode on.

**\*6**. Automatically display in native mode. May be hidden by assigning blank attribute (ESC A l l).

**\*7**. Screen cleared.

**\*8**. If screen is not split.

**\*9**. In WY-325 only

**\*10**. In TeleVideo 925 only

**\*11**. In TeleVideo 910+ only

# Variable Values for Table 5-1 Commands

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***answer***   Up to 20 characters to define answerback message

| *attr* | Display Attributes | *attr* | Display Attributes |
|--------|-------------------|--------|-------------------|
| SPACE | Space character | p | Dim |
| 0 | Normal | q | Dim and invisible |
| 1 | Blank | r | Dim and blink |
| 2 | Blink | s | Dim, blink, invisible |
| 3 | Blink and Blank | t | Dim and reverse |
| 4 | Reverse | u | Dim, reverse, invisible |
| 5 | Reverse and invisible | v | Dim, reverse, blink |
| 6 | Reverse and blink | w | Dim, reverse, blink invisible |
| 7 | Reverse, blink, invisible | x | Dim and underline |
| 8 | Underline | y | Dim, underline, invisible |
| 9 | Underline and invisible | z | Dim, underline, blink |
| : | Underline and blink | { | Dim, underline, blink invisible |
| ; | Underline, blink, invisible | \| | Dim, underline, reverse |
| < | Underline and reverse | } | Dim, underline, reverse invisible |
| = | Underline, reverse, invisible | ~ | Dim, underline, reverse blink |
| > | Underline, reverse, blink | DEL | Dim, underline, reverse blink, invisible |
| ? | Underline, reverse, blink invisible | | |

| *bank* | Font Bank[*a] | *bank* | Font Bank[*a] |
|--------|-----------|--------|-----------|
| 0 | Font bank 0 | 2 | Font bank 2 |
| 1 | Font bank 1 | 3 | Font bank 3 |

**\*a**   Holds predefined character set

| *baud* | Baud Rate | *baud* | Baud Rate | *baud* | Baud Rate | *baud* | Baud Rate |
|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| 0 | 115200 | 4 | 19200 | 8 | 2400 | < | 200 |
| 1 | 76800 | 5 | 9600 | 9 | 1200 | = | 134.5 |
| 2 | 57600 | 6 | 7200 | : | 600 | > | 110 |
| 3 | 38400 | 7 | 4800 | ; | 300 | ? | 50 |

***bb...bb***   32-byte character string defining bit pattern of character

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# Variable Values for Table 5-1 Commands, Continued

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| *bcolor* | Background Color | *bcolor* | Background Color |
|----------|-----------------|----------|-----------------|
| 1 | Black | 5 | Red |
| 2 | Blue | 6 | Magenta |
| 3 | Green | 7 | Yellow |
| 4 | Cyan | 8 | White |

***ccc***   One-to three-decimal value of column relative to home

***char***   Character that replaces unprotected characters

***col***   See line/col

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

| cursor | Cursor Display | cursor | Cursor Display |
|---|---|---|---|
| 0 | Cursor display off | 3 | Blinking line cursor |
| 1 | Cursor display on | 4 | Steady line cursor |
| 2 | Steady block cursor | 5 | Blinking block cursor |

| cursor1 | Cursor Display | cursor1 | Cursor Display |
|---|---|---|---|
| 0 | Cursor display off | 3 | Blinking line cursor |
| 1 | Blinking block cursor | 4 | Steady line cursor |
| 2 | Steady block cursor | | |

| dir | Direction |
|---|---|
| 0 | Normal |
| 1 | Remote |
| 2 | Local |

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## Variable Values for Table 5-1 Commands, Continued

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| fcolor | Foreground Color | fcolor | Foreground Color |
|---|---|---|---|
| 1 | Black | 5 | Red |
| 2 | Blue | 6 | Magenta |
| 3 | Green | 7 | Yellow |
| 4 | Cyan | 8 | White |

| Key | field Unshifted | field shifted | Key | field Unshifted | field shifted |
|---|---|---|---|---|---|
| F1 | 0 | P | F7 | 6 | V |
| F2 | 1 | Q | F8 | 7 | W |
| F3 | 2 | R | F9 | 8 | X |
| F4 | 3 | S | F10 | 9 | Y |
| F5 | 4 | T | F11 | : | Z |
| F6 | 5 | U | F12 | ; | [ |

| Function Key | fkey Unshifted | fkey Shifted | Function Key | fkey Unshifted | fkey Shifted |
|---|---|---|---|---|---|
| F1 | @ | ` | F7 | F | f |
| F2 | A | a | F8 | G | g |
| F3 | B | b | F9 | H | h |
| F4 | C | c | F10 | I | i |
| F5 | D | d | F11 | J | j |
| F6 | E | e | F12 | K | k |

| hndshk | Handshaking Protocol Receive | Transmit |
|---|---|---|
| 0 | None (default) | None (default) |
| 1 | XON/XOFF | XON/XOFF |
| 2 | DTR | |
| 3 | Both | |

**Keyboard Style**

| key | Enhanced PC | key | Enhanced PC | key | Enhanced PC |
|---|---|---|---|---|---|
| SPACE | ESC | & | SHIFT TAB → | $ | RETURN |
| % | SHIFT ESC | " | ← BACKSPACE | ) | SHIFT RETURN |
| ! | TAB → | ' | SHIFT← BACKSPACE | * | HOME |

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## Variable Values for Table 5-1 Commands, Continued

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| key | Enhanced PC | key | Enhanced PC | key | Enhanced PC |
|-----|-------------|-----|-------------|-----|-------------|
| / | SHIFT HOME | 3 | SHIFT → | 6 | SHIFT DELETE |
| + | ↑ | s | ENTER kpd | R | PRINT SCREEN |
| 0 | SHIFT ↑ | 4 | SHIFT ENTER kpd | X | SHIFT PRINT SCREEN |
| , | ↓ | q | INSERT | \ | END |
| 1 | SHIFT ↓ | p | SHIFT INSERT | ] | SHIFT END |
| - | ← | r | PAGE DOWN | : | PAGE UP |
| 2 | SHIFT ← | w | SIFT PAGE DOWN | ; | SHIFT PAGE UP |
| . | → | 5 | DELETE | | |

*label*    9 characters (80 columns); 7 characters (132 columns)

**lattr**    **Line Attribute**
@        Single-high, single-wide characters
A        Single-high, double-wide characters.
B        Top half of double-high, single-wide characters
C        Bottom half of double-high, single-wide characters
D        Top half of double-high, double-wide characters
E        Bottom half of double-high, double-wide characters

| ldraw | Graphics Character | ldraw | Graphics Character |
|-------|--------------------|-------|--------------------|
| 0 | ⊤ | 8 | + |
| 1 | └ | 9 | ⊣ |
| 2 | ┌ | : | — |
| 3 | ┐ | ; | ▆ |
| 4 | ├ | < | = |
| 5 | ┘ | = | ⊥ |
| 6 | │ | > | ‖ |
| 7 | ■ | ? | ▆ |

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## Variable Values for Table 5-1 Commands, Continued

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| length | Multiple | Length of Page |
|---|---|---|
| G | 1xlines | Equal to the number of data lines |
| H | 2xlines | Double the number of data lines |
| I*b | 4xlines | Four times the number of data lines |

*b  Available only in WY-50+ personality.

| Line/Column | line/col*c | Line/Column | line/col*c | Line/Column | line/col*c | Line/Column | line/col*c |
|---|---|---|---|---|---|---|---|
| 1 | space | 25 | 8 | 49 | P | 73 | h |
| 2 | ! | 26 | 9 | 50 | Q | 74 | i |
| 3 | " | 27 | : | 51 | R | 75 | j |
| 4 | # | 28 | ; | 52 | S | 76 | k |
| 5 | $ | 29 | < | 53 | T | 77 | l |
| 6 | % | 30 | = | 54 | U | 78 | m |
| 7 | & | 31 | > | 55 | V | 79 | n |
| 8 | ' | 32 | ? | 56 | W | 80 | o |
| 9 | ( | 33 | @ | 57 | X | 81 | p |
| 10 | ) | 34 | A | 58 | Y | 82 | q |
| 11 | * | 35 | B | 59 | Z | 83 | r |
| 12 | + | 36 | C | 60 | [ | 84 | s |
| 13 | , | 37 | D | 61 | \ | 85 | t |
| 14 | - | 38 | E | 62 | ] | 86 | u |
| 15 | . | 39 | F | 63 | ^ | 87 | v |
| 16 | / | 40 | G | 64 | _ | 88 | w |
| 17 | 0 | 41 | H | 65 | ` | 89 | x |
| 18 | 1 | 42 | I | 66 | a | 90 | y |
| 19 | 2 | 43 | J | 67 | b | 91 | z |
| 20 | 3 | 44 | K | 68 | c | 92 | { |
| 21 | 4 | 45 | L | 69 | d | 93 | | |
| 22 | 5 | 46 | M | 70 | e | 94 | } |
| 23 | 6 | 47 | N | 71 | f | 95 | ~ |
| 24 | 7 | 48 | O | 72 | g | 96 | DEL/RUB |

*c  Native codes also recognized in WY-50+, TVI 910+/925, and PC Term personalities, and in ADDS VP A2
     personality absolute cursor addressing.

*lll*   One- to three-decimal value of line relative to home

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## Variable Values for Table 5-1 Commands, Continued

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| map | Definition | map | Definition |
|---|---|---|---|
| 1 | Normal | 5 | Underline |
| 2 | Reverse (or blank*d) | 6 | Underline and reverse (or blank*d) |
| 3 | Intensity | 7 | Unterline and intensity |
| 4 | Intensity and reverse (or blank*d) | 8 | Underline, intensity, and reverse (or blank*d) |

*d.  Colors mapped to reverse or blank depending on the setting of the Color Map setup parameter or the equivalent
      escape sequences.

*max*   **Maximum Speed**

| | |
|---|---|
| 1 | 60 characters per second |
| 2 | No limit (default) |
| 3 | 150 characters per second |

*message*   46 characters (80 columns); 98 characters (132 columns)

| mf | Screen Area*e | mf | Screen Area*e |
|---|---|---|---|
| 0 | Data area | 2 | Terminal message field |

| 1 | Function key label line | 3 | Computer message field |
|---|---|---|---|

**\*e**    In native mode, only the reverse attribute can be assigned to the data area.

| *p1* | **Function Key** | *p1* | **Function Key** |
|---|---|---|---|
| 1 | F1 | 6 | F6 |
| 2 | F2 | 7 | F7 |
| 3 | F3 | 8 | F8 |
| 4 | F4 | 9 | F9 |
| 5 | F5 | 0 | F10 |

| *p2* | **Direction** |
|---|---|
| 1 | Remote |
| 2 | Local |
| 3 | Normal |

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## Variable Values for Table 5-1 Commands, Continued

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| *page* | **Page** | |
|---|---|---|
| 0 | page 0 | In the 80 columns mode: There have 4 pages of display memory. |
| 1 | page 1 | In the 132 columns mode: There have 3 pages of display memory. |
| 2 | page 2 | In the Econ-80 columns mode: There have 7 pages of display memory. |
| 3 | page 3 | |
| 4 | page 4 | |
| 5 | page 5 | |
| 6 | page 6 | |

| *palette* | **Color Palette** | *palette* | **Color palette** | *palette* | **Color palette** |
|---|---|---|---|---|---|
| 0 | Palette 0 | 4 | Palette 4 | 8 | Palette 8 |
| 1 | Palette 1 | 5 | Palette 5 | 9 | Palette 9 |
| 2 | Palette 2 | 6 | Palette 6 | . | Palette 10 |
| 3 | Palette 3 | 7 | Palette 7 | | |

| *parity* | **Parity Bits** | *parity* | **Parity Bits** |
|---|---|---|---|
| 0 | None | 2 | Mark |
| 1 | Odd | 3 | Even |

*pp*    2-byte hex value of character position**\*f**.

**\*f**    In the illustrations, DEC = decimal value; HEX = hexadecimal value. Read across, then down.

| *scroll* | **Scrolling Type** | **Speed(lps)** |
|---|---|---|
| @ | Jump scroll | |
| < | Smooth scroll | 1 |
| = | Smooth scroll | 2 |
| > | Smooth scroll | 4 |
| ? | Smooth scroll | 8 |

*sequence*    Up to 64 bytes to be loaded in function key

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## Variable Values for Table 5-1 Commands, Continued

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*set*    **Predefined Character Set**

| @ | Native Mode |
| A | PC Multinational |
| B | Standard ASCII |
| D | PC Standard |
| G | Standard ANSI |

| *stop* | **stop bits** |
|---|---|
| 0 | 1 |
| 1 | 2 |

*text*   78 characters (80 columns); 130 characters (132 columns)

| *volume* | **BELL Volume** | *volume* | **BELL Volume** |
|---|---|---|---|
| # | Loud | ! | Low |
| " | Medium | SP | Off |

| *wnd/page* | **Window or Page** |
|---|---|
| 0 | Page 0 or upper window |
| 1 | Page 1 or lower window |

| *word* | **Data Word** |
|---|---|
| 0 | 7 bits |
| 1 | 8 bits |

| *wpca* | **Write-Protected Display Attribute** | *wpca* | **Write-Protected Display Attribute** |
|---|---|---|---|
| 6 | Reverse*g | C | Invisible on |
| 7 | Dim*g | E | Underline on |
| A | Normal*g | F | Reverse on |
| B | Blink on | G | Dim on |

**\*g**   Clears other write-protected attributes

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## Variable Values for Table 5-1 Commands, Continued

| *wpca1* | Display Attribute | *wpca1* | Write-Protected Display Attribute |
|---|---|---|---|
| @ | Normal | H | Normal |
| A | Dim | I | Dim |
| B | Blink | J | Blink |
| C | Dim/Blink | K | Dim/Blink |
| D | Invisible | L | Invisible |
| P | Reverse(Rev) | X | Reverse(Rev) |
| Q | Rev/Dim | Y | Rev/Dim |
| R | Rev/Blink | Z | Rev/Blink |
| S | Rev/Dim/Blink | [ | Rev/Dim/Blink |
| T | Rev/Invisible | \ | Rev/Invisible |
| . | Underline(UL) | h | Underline(UL) |
| a | UL/Dim | i | UL/Dim |
| b | UL/Blink | j | UL/Blink |
| c | UL/Dim/Blink | k | UL/Dim/Blink |
| p | UL/Rev | x | UL/Rev |
| q | UL/Rev/Dim | y | UL/Rev/Dim |
| r | UL/Rev/Blink | z | UL/Rev/Blink |
| s | UL/Rev/Dim/Blink | { | UL/Rev/Dim/Blink |

# ANSI COMMAND GUIDE

## VT100, VT220 and Console ANSI  Command Guide

### Table 6-1
### Supported VT100, VT220 and Console ANSI Commands

| FUNCTION | Command | |
| --- | --- | --- |
| | VT100, VT220 | Console ANSI |
| **Controlling Functional modes**[1] | | |
| Lock keyboard | CSI 2 h | Same |
| Unlock keyboard | CSI 2 l | Same |
| Monitor mode on [2] | CSI 3 h | Same |
| Monitor mode off | CSI 3 l | Same |
| Insert mode on | CSI 4 h | Same |
| Insert mode off | CSI 4 l | Same |
| Local echo off | CSI 12 h | Same |
| Local echo on | CSI 12 l | Same |
| New line mode on | CSI 20 h | Same |
| New line mode off | CSI 20 l | Same |
| Cursor keys send application-dependent codes | CSI ?1 h | Same |
| Cursor keys send cursor movement codes | CSI ?1 l | Same |
| VT100 mode on | CSI ?2 h or CSI 61 "p | Same |
| VT52 mode on | CSI ?2 l | Same |
| National character set mode on | CSI ?42 h | Same |
| National character set mode off | CSI ?42 l | Same |

### Table 6-1
### Supported VT100, VT220 and Console ANSI Commands, Continued

| FUNCTION | Command | |
| --- | --- | --- |
| | VT100, VT220 | Console ANSI |
| 132-column display | CSI ?3 h | Same |
| 80-column display | CSI ?3 l | Same |
| Smooth scrolling on | CSI ?4 h | Same |
| Jump scrolling on | CSI ?4 l | Same |
| Reverse screen video on | CSI ?5 h | Same |
| Normal screen video on | CSI ?5 l | Same |
| Line 1 is top of scrolling region | CSI ?6 h | Same |
| Line 1 is top of display area | CSI ?6 l | Same |
| Autowrap on | CSI ?7 h | Same |
| Autowrap off | CSI ?7 l | Same |
| Autorepeat on | CSI ?8 h | Same |
| Autorepeat off | CSI ?8 l | Same |

| Block mode on | CSI ?10 h | Same |
| Block mode off | CSI ?10 l | Same |
| Send form feed after print screen operation | CSI ?18 h | Same |
| No form feed sent after print screen operation | CSI ?18 l | Same |
| Print full screen | CSI ?19 h | Same |
| Print scrolling region | CSI ?19 l | Same |
| Display cursor | CSI ?25 h | Same |
| Cursor off | CSI ?25 l | Same |
| Blank screen | CSI 30 h | Same |
| Display screen | CSI 30 l | Same |
| Display status line | CSI 31 h | Same |
| Blank status line | CSI 31 l | Same |
| Screen saver | CSI 32 h | Same |
| Screen saver off | CSI 32 l | Same |
| Cursor steady (nonblinking) | CSI 33 h | Same |
| Cursor blinking | CSI 33 l | Same |
| Underline cursor on | CSI 34 h | Same |
| Block cursor on | CSI 34 l | Same |

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## Table 6-1
## Supported VT100, VT220 and Console ANSI Commands, Continued

--------------------------------------------------------------------------------

| | Command | |
| | --- | --- |
| **FUNCTION** | **VT100, VT220** | **Console ANSI** |
| Don't clear screen after width change | CSI 35 h | Same |
| Clear screen after width change | CSI 35 l | Same |
| Send erasable and nonerasable characters | CSI 37 h | Same |
| Send only erasable characters | CSI 37 l | Same |
| Send full screen | CSI 38 h | Same |
| Send scrolling region | CSI 38 l | Same |
| Turn 25th line on | CSI 40 h | Same |
| Turn 25th line off | CSI 40 l | Same |
| Select standard ANSI key codes | CSI 54 h | Same |
| Select PC scan codes | CSI 54 l | Same |
| VT220 8-bit mode on | CSI 62;2"p | Same |
| VT220 7-bit mode on | CSI 62;1"p | Same |
| 8-bit transmission mode on (VT220) | ESC space G | |
| 7-bit transmission mode on (VT220) | ESC space F | |

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| Select next page | | CSI U |
| Select preceding page | | CSI V |
| Select page 0 | | CSI 0 z |
| Select page 1 | | CSI 1 z |

--------------------------------------------------------------------------------

| **Character Set Selection** | **ESC *Ps final*** | **Same** |

| *Ps* | Label assigned | *Ps* | Label assigned |
| --- | --- | --- | --- |
| ( | G0 | * | G2(VT220 only) |
| ) | G1 | + | G3(VT220 only) |

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## Table 6-1
## Supported VT100, VT220 and Console ANSI Commands, Continued

--------------------------------------------------------------------------------

| | | Command |
| --- | --- | --- |
| | | ------------------------------------------------- |
| **FUNCTION** | | **VT100, VT220**      **Console ANSI** |

| *final* | **Final character** | *final* | **Final character** |
| --- | --- | --- | --- |
| A | Designating UK ANSI character set | < | Designating DEC supplemental(VT220 only) |
| B | Designating ASCII character set | DSCS* | Designating Down-line loadable character set |
| 0 | Designating DEC special graphics | | |

**\***   DSCS can consist of zero, one or two intermediate character and a final character. Intermediate characters are in the range of 2/0 to 2/15. Final characters are in the range of 3/0 to 7/14

| | | |
| --- | --- | --- |
| Load G0 character set into GL | CTRL O | Same |
| Load G1 character set into GL | CTRL N | Same |
| Load G1 character set into GR | ESC ~ | Same |
| Load G2 character set into GL | ESC n | Same |
| Load G2 character set into GR | ESC } | Same |
| Load G3 character set into GL | ESC o | Same |
| Load G3 character set into GR | ESC \| | Same |
| Shift G2 character set into GL for one character only | ESC N | Same |
| Shift G3 character set into GL for one character only | ESC O | Same |

**Controlling Character, Field, and Line Attributes**

| **Define character attributes**[3] | | **CSI *Ps* m** | **Same** |
| --- | --- | --- | --- |

| *Ps* | **Character Attribute** | *Ps* | **Character Attribute** |
| --- | --- | --- | --- |
| 0 | Normal (all attributes off) | 25 | Blink off |
| 1 | Bold (blank off) | 27 | Reverse off |
| 4 | Underline | 28 | Blank off |
| 5 | Blink | 30 | Black character |
| 7 | Reverse | 31 | Red character |
| 8 | Blank (bold off) | 32 | Green character |
| 22 | Normal intensity | 33 | Brown character (Bold on = Yellow) |
| 24 | Underline off | 34 | Blue character |

<span style="color:green">**Table 6-1**</span>
<span style="color:green">**Supported VT100, VT220 and Console ANSI Commands, Continued**</span>

| | | Command |
| --- | --- | --- |
| | | ------------------------------------------------- |
| **FUNCTION** | | **VT100, VT220**      **Console ANSI** |

| *Ps* | **Character Attribute** | *Ps* | **Character Attribute** |
| --- | --- | --- | --- |
| 35 | Magenta character | 43 | Brown background (Bold on = Yellow) |
| 36 | Cyan character | 44 | Blue background |
| 37 | White character | 45 | Magenta background |
| 40 | Black background | 46 | Cyan background |
| 41 | Red background | 47 | White background |
| 42 | Green background | | |

**Select Graphic Rendition (Console ANSI mode only)**        **CSI *ps* m**

| *ps* | **Function** |
| --- | --- |
| 10 | Select Primary Font |
| 11 | Select First Alternate Font. Allows ASCII characters less than 32 to be displayed as ROM character. |
| 12 | Select Second Alternate Font. Toggles high bit of extended ASCII code before displaying as ROM character. |

| | | |
|---|---|---|
| Set bold background bit | ESC[ =*Pn*E | same |
| *Pn* = 0: set bit 7 of attribute byte as B/G intensity | | |
| 1: set bit 7 of attribute byte as B/G blink | | |

| | | |
|---|---|---|
| Set normal  foreground color | ESC[ = *Psn* F | same |
| Set normal  background color | ESC[ = *Psn* G | same |
| Set reverse foreground color | ESC[ = *Psn* H | same |
| Set reverse background color | ESC[ = *Psn* I | same |
| Set graphic foreground color | ESC[ = *Psn* J | same |
| Set graphic background color | ESC[ = *Psn* K | same |
| Set border color | ESC[ = *Psn* A | same |

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### Table 6-1
### Supported VT100, VT220 and Console ANSI Commands, Continued

---

| | Command | |
|---|---|---|
| **FUNCTION** | **VT100, VT220** | **Console ANSI** |

| *Psn* | **Color** | *Psn* | **Color** | *Psn* | **Color** | *Psn* | **Color** |
|---|---|---|---|---|---|---|---|
| 0 | Black | 4 | Red | 8 | Gray | 12 | Lt. Red |
| 1 | Blue | 5 | Magenta | 9 | Lt. Blue | 13 | Lt. Magenta |
| 2 | Green | 6 | Brown | 10 | Lt. Green | 14 | Yellow |
| 3 | Cyan | 7 | White | 11 | Lt. Cyan | 15 | Lt. White |

| | | |
|---|---|---|
| Access alternate graphic set | | CSI Png |
| Define erasable character | CSI 0 "q or CSI 2 "q | Same |
| Define non-erasable character | CSI 1 "q | Same |
| Define top half of double-high, double-wide line | ESC # 3 | Same |
| Define bottom half of double-high, double-wide line | ESC # 4 | Same |
| Define single-high, single-wide line | ESC # 5 | Same |
| Define single-high, double-wide line | ESC # 6 | Same |
| Define top half of double-high, single-wide line | ESC # : | Same |
| Define bottom half of double-high, single-wide line | ESC # ; | Same |

---

**Controlling the Cursor**

| | | |
|---|---|---|
| Display cursor | CSI ?25 h | Same |
| Cursor off | CSI ?25 l | Same |
| Cursor steady (nonblinking) | CSI 33 h | Same |
| Cursor blinking | CSI 33 l | Same |
| Underline cursor on | CSI 34 h | Same |
| Block cursor on | CSI 34 l | Same |
| Cursor keys send application-dependent codes | CSI ?1 h | Same |
| Cursor keys send cursor movement codes | CSI ?1 l | Same |
| Move cursor to n column | CSI n G or CSI n ` | Same |
| Move cursor up n lines | CSI n A | Same |
| Move cursor down n lines | CSI n B or CSI n e | Same |
| Move cursor right n columns | CSI n C or CSI n a | Same |
| Move cursor left n columns | CSI n D | Same |
| Move cursor down cursor n line to column 1 | CSI n E | Same |

### Table 6-1
### Supported VT100, VT220 and Console ANSI Commands, Continued

---

| | Command | |
|---|---|---|

| FUNCTION | VT100, VT220 | Console ANSI |
|---|---|---|
| Move cursor up n lines to column 1 | CSI n F | Same |
| Move cursor to line n | CSI n d | Same |
| Move cursor to line n1, column n2 | CSI n1; n2 H | Same |
|  | or CSI n1; n2 f | Same |
| Move cursor down one line in current column, | IND | Same |
|   scroll up if at bottom line | or ESC D | Same |
| Move cursor down one line in current column, | CTRL J | Same |
|   execute CR if linefeed mode is on | or CTRL K or CTRL L | Same |
| Move cursor up one line in current column, | RI | Same |
|   scroll down if at top line | or ESC M | Same |
| Move cursor down one line to column 1 | NEL or ESC E | Same |
| Save display attributes, cursor position, character sets, | ESC 7 | Same |
|   wrap flag and origin mode status | or CSI s | Same |
| Restore last saved display attributes, cursor position, | ESC 8 | Same |
|   character set, wrap flag, and origin mode status | or CSI u | Same |
| Backspace cursor | CTRL H | Same |
| Move cursor to next tab stop | CTRL I | Same |
| Move cursor to column 1 of current line | CTRL M | Same |

## Editing Functions

| FUNCTION | VT100, VT220 | Console ANSI |
|---|---|---|
| Erase from cursor to end of display | CSI 0 J | Same |
| Erase from start of display to cursor | CSI 1 J | Same |
| Erase entire display | CSI 2 J | Same |
| Erase from cursor to end of line | CSI 0 K | Same |
| Erase from start of line to cursor | CSI 1 K | Same |
| Erase entire line | CSI 2 K | Same |
| Erase erasable characters from cursor to end of display | CSI ?0 J | Same |

<span style="color:green">**Table 6-1**</span>
<span style="color:green">**Supported VT100, VT220 and Console ANSI Commands, Continued**</span>

| FUNCTION | Command | |
|---|---|---|
|  | VT100, VT220 | Console ANSI |
| Erase erasable characters from start of display to cursor | CSI ?1 J | Same |
| Erase erasable characters in entire display | CSI ?2 J | Same |
| Erase erasable characters from cursor to end of line | CSI ?0 K | Same |
| Erase erasable characters from start of line to cursor | CSI ?1 K | Same |
| Erase erasable characters from entire line | CSI ?2 K | Same |
| Erase n characters beginning at cursor | CSI n X | Same |
| Insert n blank characters beginning at cursor | CSI n @ | Same |
| Insert n blank lines beginning at cursor line | CSI n L | Same |
| Delete n line beginning at cursor line | CSI n M | Same |
| Delete n characters beginning at cursor | CSI n P | Same |

## Controlling Margins

| Set top/bottom margins of scrolling | CSI *t;b* r | Same |
|---|---|---|

*t*: Top line number
*b*: Bottom line number (optional; if omitted, treated as bottom screen line)

## Controlling Tabs

| | | |
|---|---|---|
| Clear tab stop at cursor | CSI 0 g or CSI 2 W | CSI 2W |
| Clear all tab stops | CSI 3 g or CSI 5 W | CSI 5W |
| Set tab stop at cursor | CSI 0 W or ESC H | Same |
| Set tab stop every 8th column | CSI ?5 W | Same |
| Move forward n tab stops | CSI n I | Same |
| Move backward n tab stops | CSI n Z | Same |
| Move cursor to next tab stop | CTRL I | Same |

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**Table 6-1**
**Supported VT100, VT220 and Console ANSI Commands, Continued**

| | Command | |
|---|---|---|
| **FUNCTION** | **VT100, VT220** | **Console ANSI** |
| **Controlling Scrolling** | | |
| Smooth scrolling on | CSI ?4 h | Same |
| Jump scrolling on | CSI ?4 l | Same |
| Set 0 lps smooth scrolling speed | CSI 0 z | |
| Set 1 lps smooth scrolling speed | CSI 1 z | |
| Set 2 lps smooth scrolling speed | CSI 2 z | |
| Set 4 lps smooth scrolling speed | CSI 3 z | |
| Set 8 lps smooth scrolling speed | CSI 4 z | |
| **Program function keys** | **DCS $c;kl$ \|** $kc/hc$ **ST** | **ESC Q** $Fn$ **"***string***"** |

**1. VT100 mode:**

| $c$ | **Clear** | $kl$ | **Key lock** |
|---|---|---|---|
| 0 | Clear all key definitions | 0 | Lock key definitions |
| 1 | Clear keys only as they are redefined | 1 | Don't lock key definitions |

| $kc$ | **Shifted function key** | $kc$ | **Shifted function key** |
|---|---|---|---|
| 12 | F1 | 18 | F7 |
| 13 | F2 | 19 | F8 |
| 14 | F3 | 20 | F9 |
| 15 | F4 | 21 | F10 |
| 16 | F5 | 23 | F11 |
| 17 | F6 | 24 | F12 |

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|  |  | Command | |
|---|---|---|---|
|  |  | --------------------------------------------------------------- | |
| **FUNCTION** |  | **VT100, VT220** | **Console ANSI** |

----------------------------------------------------------------------------------------------------------------------------

| *kc* | **Unshifted function key** | *kc* | **Unshifted function key** |
|---|---|---|---|
| 6 | F1 | 38 | F7 |
| 7 | F2 | 39 | F8 |
| 8 | F3 | 40 | F9 |
| 9 | F4 | 41 | F10 |
| 10 | F5 | 43 | F11 |
| 37 | F6 | 44 | F12 |

*hc* Hexadecimal representation of character string assigned to the function key.

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

**2. Console ANSI mode:**

Redefine keys with string
Function: Define Specific Programmable Function key or Numeric keypad with String.
Format: ESC Q Fn " string "
Parameters: Fn

| 0  -  F1 | <  - S_F1 | H - C_F1 | T - C_S_F1 |
|---|---|---|---|
| 1  -  F2 | =  - S_F2 | I  - C_F2 | U - C_S_F2 |
| 2  -  F3 | >  - S_F3 | J  - C_F3 | V - C_S_F3 |
| 3  -  F4 | ?  - S_F4 | K - C_F4 | W - C_S_F4 |
| 4  -  F5 | @ - S_F5 | L - C_F5 | X - C_S_F5 |
| 5  -  F6 | A - S_F6 | M - C_F6 | Y - C_S_F6 |
| 6  -  F7 | B - S_F7 | N - C_F7 | Z - C_S_F7 |
| 7  -  F8 | C - S_F8 | O - C_F8 | [ - C_S_F8 |
| 8  -  F9 | D - S_F9 | P - C_F9 | \ - C_ S_F9 |
| 9  -  F10 | E - S_F10 | Q - C_F10 | ] - C_ S_F10 |
| :  - F11 | F - S_F11 | R - C_F11 | ^ - C_ S_F11 |
| ;  - F12 | G - S_F12 | S - C_F12 | _ - C_ S_F12 |

**Table 6-1**
**Supported VT100,VT220 and Console ANSI Commands, Continued**

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for numeric keypad:

| ` - '7' key | c - '-' key | f - '6' key | i - '2' key |
|---|---|---|---|
| a - '8' key | d - '4' key | g - '+' key | j - '3'key |
| b - '9' key | e - '5' key | h - '1' key | k - '0' key |

Notes:
1. The string should not include the delimiter, or unexpected conditions maybe occur.
2. The defined contents of F1 ~F12 will be transmitted out by keying F1~F12.
   The defined contents of S_F1~S_F12 will be transmitted out by multi-keying the Shift and Function key.
   The defined contents of C_F1~C_F12 will be transmitted out by multi-keying the Ctrl and Function key.
   The defined contents of C_S_F1~C_S_F12 will be transmitted out by multi-keying the Ctrl, Shift and Function key.

Examples: Define Function Key F1 to the character ABC123: ESC Q 0"ABC123"

**Auxiliary Keypad Modes**

| | | |
|---|---|---|
| Auxiliary keypad numeric mode on | ESC > | Same |
| Auxiliary keypad application mode on | ESC = | Same |

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## Table 6-1
## Supported VT100, VT220 and Console ANSI Commands, Continued

| | Command | |
|---|---|---|
| **FUNCTION** | **VT100, VT220** | **Console ANSI** |

**Transmission/Printer Control**

| | | |
|---|---|---|
| Transmit through cursor position | CSI 16 h | Same |
| Transmit to end of line or end of display | CSI 16 l | Same |
| Send form feed after print screen operation | CSI ?18 h | Same |
| No form feed sent after print screen operation | CSI ?18 l | Same |
| Print full screen | CSI ?19 h | Same |
| Print scrolling region | CSI ?19 l | Same |
| Print screen | CSI 0 i or CSI i | Same |
| Send screen | CSI 2 i | Same |
| Transparent print mode off | CSI 4 i | Same |
| Transparent print mode on | CSI 5 i | Same |
| PR port receive mode off | CSI 6 i | Same |
| PR port receive mode on | CSI 7 i | Same |
| Select parallel printer | CSI 8 i | Same |
| Select serial printer | CSI 9 i | Same |
| Print line | CSI ?1 i | Same |
| Send line | CSI ?3 i | Same |
| Copy print mode off | CSI ?4 i | Same |
| Copy print mode on | CSI ?5 i | Same |
| Transmit form feed after send screen operation | CSI 1 \| | Same |
| No form feed after send screen operation | CSI 0 \| | Same |
| Send characters at cursor | ESC 5 | Same |
| Send answerback message | CTRL E | Same |
| Suspend transmission | CTRL S | Same |
| Resume transmission | CTRL Q | Same |

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## Table 6-1
## Supported VT100, VT220 and Console ANSI Commands, Continued

| FUNCTION | Command VT100, VT220 | Console ANSI |
|---|---|---|
| **More Terminal Control Commands** | | |
| Display screen adjustment pattern | ESC # 8 | Same |
| Sound bell, if enabled | BEL (CTRL G) | Same |
| Abort escape sequence; no character displayed[*3] | CAN (CTRL X) | Same |
| Abort escape sequence; display reverse question mark^ | SUB (CTRL Z) | Same |
| Initiate escape sequence | ESC (CTRL []) | Same |
| Next Page | CSI U | Same |
| Preceding Page | CSI V | Same |
| **Terminal Resets** | | |
| Soft terminal reset | CSI ! p | Same |
| Hard terminal reset | ESC c | Same |
| **Terminal Status Reports** | | |
| Request primary attributes report | CSI 0 c or ESC Z | Same |
| Request secondary attributes report | CSI > 0 c | Same |
| Respond with current revision | CSI > 1; 20; 0c | Same |
| Request terminal status report | CSI 5 n | Same |
| Respond terminal functioning and ready | CSI 0 n | Same |
| Request cursor position report | CSI 6 n | Same |
| Respond cursor at line l, column c | CSI l; c R | Same |
| Request printer status report | CSI ?15 n | Same |
| Respond printer ready | CSI ?10 n | Same |
| Respond printer not ready | CSI ?11 n | Same |
| Respond printer not connected | CSI ?13 n | Same |
| Request function key status report | CSI ?25 n | Same |
| Respond key definitions not locked | CSI ?20 n | Same |
| Respond key definitions locked | CSI ?21 n | Same |

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|  | Command | |
| --- | --- | --- |
|  | ------------------------------------------------------------ | |
| **FUNCTION** | **VT100, VT220** | **Console ANSI** |
| ------------------------------------------------------------------------------------------------------------ | | |
| **Request keyboard status report** | CSI ? 26 n | Same |
| **Respond with keyboard language** | CSI ? 27; *Ps* n | Same |

| *Ps* | **Keyboard Language** | *Ps* | **Keyboard Language** |
| --- | --- | --- | --- |
| 1 | U. S. | 6 | Spanish |
| 2 | U. K. | 7 | Swedish |
| 3 | Danish | 8 | Norwegian |
| 4 | German | 9 | Italian |
| 5 | French | | |

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**\*1.** More than one mode, but less than 17, may be set with one sequence.  Enter multiple numeric parameters separated by semicolons (;).  However you cannot combine sequences containing "?" with those that don't contain "?", nor can you combine sequences ending with "h" with those ending with "l".

**\*2.** To toggle monitor mode from the keyboard, press CTRL SHIFT 1 (use the 1 on the numeric keypad).

**\*3.** In VT52 or VT100 modes, displays checkerboard character.

# VT52 Command Guide

## Table 6-2
## VT52 Mode Escape Sequences

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| Command | VT52 | |
|---|---|---|
| Move cursor up one line | ESC A | |
| Move cursor down one line | | ESC B |
| Move cursor right one column | | ESC C |
| Move cursor left one column | | ESC D |
| Move cursor to home position | | ESC H |
| Move cursor up one line with scroll | | ESC I |
| Move cursor to line *line*, column *col* | | ESC Y *line col* |
| Select graphics character set | ESC F | |
| Select U.S. ASCII character set | | ESC G |
| Erase from cursor to end of display | | ESC J |
| Erase from cursor to end of line | | ESC K |
| Print cursor line | | ESC V |
| Print display | | ESC ] |
| Transparent print mode on | ESC W | |
| Transparent print mode off | ESC X | |
| Copy print mode on | | ESC ^ |
| Copy print mode off | | ESC _ |
| Keypad application mode on | | ESC = |
| Keypad application mode off | | ESC > |
| Enter VT100 mode | | ESC < |
| Identify terminal | | ESC Z |

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# Using Printer Server in Ethernet Terminal

## 1.   Introduction

There are two ways to send the print jobs to Ethernet Terminal for printing: 1) through LPD protocol, and 2) through TFTP protocol.  The first method is more suitable for printing environments with a large number of users.  The reason for this is since the LPD protocol has a queue process so that the print jobs will be kept in the print  queues in the host.  But TFTP does not implement the print queue concept; if printer port is not ready for accepting new print jobs, TFTP will be terminated.  Consequently, the user must send the print job again.  Thus the TFTP protocol is suitable for printing small jobs, in a small number of users environment, or for testing purposes.

LPD is a built-in printing protocol in the BSD type of UNIX. However, it is also available in most UNIX system. With LPD, users do not need to install additional software to the host to print the jobs.  Most implementations of the LPD protocol sends out the data file before the control file. However, since Ethernet Terminal must print the data file immediately upon receiving it, then the print option specified in the control file cannot take affect.

To install the printer server function of Ethernet Terminal, the first step is Basic setup. Whichever printing protocol you use, you need to run basic setup first. If you plan to use LPD to print your jobs, you need to go through the Setup for LPD procedures. If you plan to use TFTP to print your jobs, you need to go through the Setup for TFTP procedures.

## 2.   Basic Setup

Because the TCP/IP world uses IP addressing to communicate with each other, the purpose of Basic Setup is to assign an IP address to the Ethernet Terminal.

For the purpose of this explanation, assume the following:

(1) Login to the UNIX host as root

(2) Your Ethernet terminal is on the same network segment that the host resides.

**Step 1.**   Add the Print Server to /etc/hosts

Create a new entry in the /etc/hosts file on all UNIX hosts that are slated to work with Ethernet Terminal. To create a new entry, add the following line:

IP_Address PS_NAME # comment

where:  IP_Address is an IP address.

PS_NAME is a host name of a print server.

The statement after # is the comment for the new entry.

**e.g.** 90.3.2.2 ETPS1 # Ethernet Terminal

This example assigns the name ETPS1 to the Ethernet Terminal with IP address 90.3.2.2.

**NOTE:** The IP address is defined in setup Screen of Ethernet Terminal, as a Local IP address. You can change it by yourself.

**Step 2.** Check to see if above steps are completed

You can check if the IP address of print Server function is installed successfully by issuing the following ping command:

ping PS_NAME [Enter]

**e.g.** ping ETPS1 [Enter]

# 3. Setup for LPD

Follow those steps from step 1 to step 2 described in Basic Setup. The following steps are dependent on the operating system. Please refer to the UNIX administration guide. The following illustrated steps are under BSD system.

**Step 3.** Create a spooling directory

Use mkdir command to create a directory for spooling.

**e.g.** mkdir/usr/spool/ETPS1

**Step 4.** Make the directory be available to LPD main process

Basically, the method has the following three procedures:

1) Assign the spooling daemon as the owner of this directory.

2) Allow the spooling daemon to be able to read from or write to the directory.

3) Enable the group of LPD main processes to be able to read from or write to the directory.

**e.g.** If it works on a BSD UNIX host and makes the directory /usr/ spool/ETPS1 (created in step 3) available, then follow these three procedures:

chown daemon /usr/spool/ETPS1

chmod 775 /usr/spool/ETPS1

chgrp daemon /usr/spool/ETPS1

**Step 5.** Add a remote printer

To add a remote printer, insert a block similar to the following in the /etc/printcap file.

```
Printer_name|Remote Printer on Ethernet
Terminal:\
:lp=:\
:rm=PS_NAME:\
:rp=Logic_Printer_name:\
```

**e.g.** If Ethernet Terminal works on a BSD UNIX host, then insert the following block into /etc/printcap file.

```
ETPS1|Remote Printer on Ethernet Terminal:\
:lp=:\
:rm=ETPS1:\
:rp=L1:\
:sd=/usr/spool/ETPS1:\
```

**Step 6.** Start host's print mechanism for BSD version UNIX system

Typing: lpc start printer_name [Enter]

**e.g.** lpc start ETPS1 [Enter]

Now your Ethernet Terminal is configured to accept LPD printing..

# 4.  LPD printing

LPD protocol is built-in to most of the UNIX system. However, detailed implementation of LPD differs among UNIX system. Please refer to your UNIX administration guide for reference. The following illustrated printing command is under BSD system or System V version.

For BSD system: lpr -P <printer_name><filename>
For System V version: lp -d <printer_name><filename>

This command is to print selected file to the selected printer.

**e.g.** lpr -PETPS1 /etc/hosts  (BSD version) or lp -dETPS1 /etc/hosts  (System V version)
      This example is to print the /etc/hosts file to the Ethernet Terminal printer.

# 5.  Setup for TFTP

If you are working on the BSD UNIX system, please run the setup procedure as 3 setup for LPD. Otherwise run the setup procedure as LPD except step 6.

# 6.  TFTP Printing

Before you use TFTP printing, your Ethernet Terminal needs to be installed completely by Basic Setup for TFTP in 5. TFTP Printing lets you send print jobs to the printers directory.  There are no spooling mechanisms involved.  Consequently, in case that printer is not ready, the TFTP process will be terminated immediately without sending print jobs to printers. The user need to make sure the printer is ready to print then issue TFTP command to have a successful result.

Firstly, you should log into the Ethernet Terminal with this command:

tftp <PS_NAME>

and then type:

put <file Name> Ln

where Ln is a logic printer for L1 to L8


**e.g.** tftp ETPS1

    tftp > put /etc/hosts L1


This example prints the /etc/hosts file to the logic printer 1 of Ethernet Terminal Printer ETPS1.

# On-Screen Display (OSD)

## On-Screen Display (OSD) Controls

### Operator Controls

The LCD push button controls have the following functions:

Menu        - Display the on screen menu. Move up a menu level once menu displayed.

Arrow Down     - Decrease brightness. Menu down or change item value in a menu.

Arrow Up      - Increase brightness. Menu up or change item value in a menu.

Select/Auto    - Auto Adjustment (when not displaying menu) or enter/select menu item

Power        - LCD power switch

### On-Screen Display (OSD) Menus

The following OSD menus can be displayed by using the Menu button. Items marked * will be set by Auto-Adjustment. *Only experienced users should alter these settings manually.*

### *Picture*

Brightness    - Adjusts image brightness

Contrast      - Adjusts image contrast

H Position * - Adjusts horizontal image position

V Position * - Adjusts vertical image position

Phase *      - Synchronizes the signal timing

Frequency *   - Changes line display data frequency

Scaling       - Can be set to Fill All or Fill Aspect Ratio

### *Advanced*

Sharpness - 1 thru 5 (softest to sharpest)

Gamma - Linear and CRT (Linear for LCD displays)

Color Temp - 5000, 7300, 9300, User

User Red   - Sets red user color temperature

User Green   - Sets green user color temperature

User Blue   - Sets blue user color temperature

## *Options*

OSD H Position - Sets horizontal position of on screen menu

OSD V Position - Sets vertical position of on screen menu

Language - Selects US English or German

More Options  - If 'Select' is pressed the following menu is displayed:

        DPMS - Selects power saving mode On (default) or Off

        Blank Color - Selects background color when no video present

        Source Icon - On or Off, display video signal information briefly

        Backlight - Adjusts the backlight on the LCD

## *Utilities*

OSD Timeout - Selects the number of seconds that the OSD is displayed for

OSD Background - Selects Opaque or Translucent OSD background

Reset - Resets all options back to factory default - Use Select to engage

More Utilities - Press select to allow display of a Test Pattern