



# 4000/160

## User's Guide





Before using this information and the product it supports, be sure to read the general information under "Notices."

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## This guide...

is a user's manual and contains all of the information necessary to install, setup, and use the 160 product.

More detailed information on programming using control codes and escape sequences, default strings and character sets, international language support, etc. can be obtained by calling:

USA and Canada calls .... 1-800-231-5445

International calls ..... 1-516-342-7400

At the options menu, press 2 for "Product Information," then press 2 for "Products or Program Information Mailed to You," and request the following:

260xx Programmer's Reference Guide

Part Number: 598-0005035

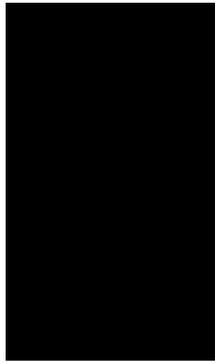
This manual is offered to our customers at no additional charge. When calling to order, please have your terminal's serial number available.



The 160 product's functionality is a subset of the 260xx product.







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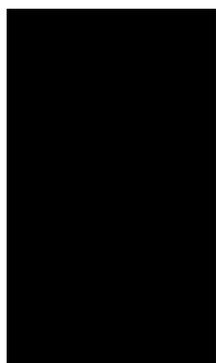


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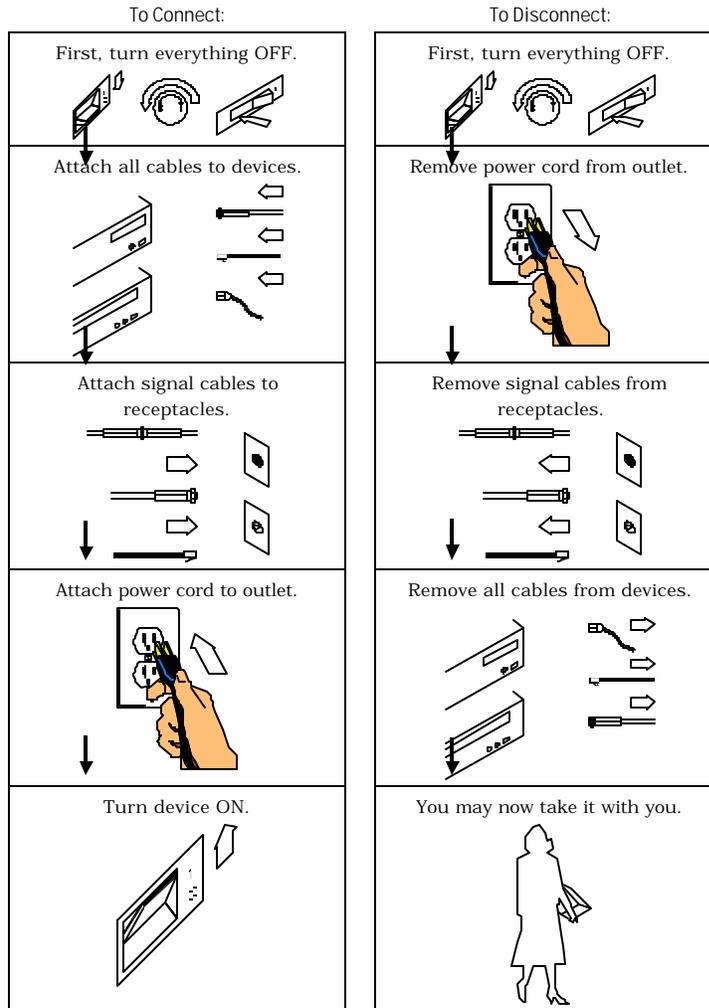
# Preface

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Boundless Technologies cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non- Boundless Technologies option cards.



## How to Connect/Disconnect the Terminal





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Note: In the UK, by law, the telephone cable must be connected after the power cord.

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Note: In the UK, by law, the power cord must be disconnected after the telephone line cable.

## Notices

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Boundless Technologies, Inc.  
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IBM	International Business Machines Corporation
MENTOR	Boundless Technologies, Inc.
SCO	Santa Cruz Operations, Inc.
TVI 925	TeleVideo Systems, Inc.
UL	Underwriters Laboratories Inc.
WYSE	Wyse Technology Inc.
WYSE 50/50+/60/120/150	Wyse Technology Inc.



## Electronic Emission Notices

### Federal Communication Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Boundless Technologies is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Canadian Department of Communications Compliance Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications.

### Avis de conformité aux normes du ministère des Communications du Canada

Cet équipement ne dépasse pas les limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles



que prescrites par le Règlement sur le brouillage radioélectrique  
établi par le ministère des Communications du Canada.



### Japanese Voluntary Control Council for Interference (VCCI) Statement

This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts.

This equipment could cause interference to radio and television receivers when used in and around residential districts.

Please handle the equipment properly according to the instruction manual.

### Korean Government Ministry of Communication (MOC) Statement

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

## Safety Notices

### Danger Notices

A danger notice indicates a hazard that could possibly cause death or serious personal injury.

The following danger notices are used throughout this manual.



**DANGER:** To prevent a possible electrical shock when installing the device, ensure that the power cord for that device is unplugged before installing signal cables.



**DANGER:** To prevent a possible electrical shock when adding the device to a system, disconnect all power cords, if possible, from the existing system before connecting the signal cable to that device.



**DANGER:** To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communication lines, display stations, printers, or telephones.



**DANGER:** To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables.



**DANGER:** To avoid a shock hazard:

- ▷ The power cord must be connected to a properly wired and earthed receptacle.
- ▷ Any equipment to which this product will be attached must also be connected to properly wired receptacles.



DANGER: Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, connect and disconnect cables as shown on the following page when installing, moving, or opening the covers of this product or attached devices.



DANGER: The device's switch is not the main disconnect. The device's main power disconnect is the detachable line cord.

#### Caution Notice

A caution notice indicates a hazard that could possible cause minor personal injury.

CAUTION: This product contains a lithium battery. Do not attempt to exchange or charge the battery. Discard the product as instructed by local regulations for limited lithium batteries. Do not burn.

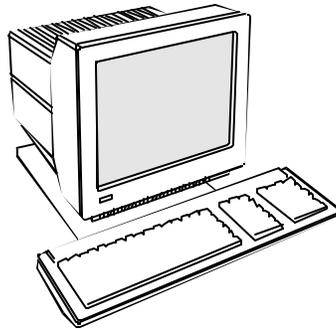
#### Warning Notice

A warning notice indicates the possibility of damage to a program, device, system, or data.

chapter

# 1

## Introduction



This terminal can emulate a number of ASCII and ANSI terminals, including PC-Term. The keyboards supported by the terminal are the 101/102 key extended PC (EPC), the 106/107 PC/+, and the VT220™-style ANSI keyboards. Clock, calendar, calculator, ASCII chart, and diagnostic desk accessories are provided. Another feature is the selectable overscan

border which can provide bezel-to-bezel video.

This terminal also features an easy-to-use Setup menu that is configuration dependent—only the options that are valid for a given emulation or hardware configuration are presented.

Setup also has a "**Quick**" menu that summarizes the options most critical to the operation of the terminal. Travel between menus is facilitated by function keys that are listed at the top of every menu.

## Features

### Compatibility

- ◊ ADDS-Viewpoint™
- ◊ Wyse™ 60, Wyse 50/50+
- ◊ DEC™ VT-320, VT-220, VT-100
- ◊ PC Terminal
- ◊ TVI™-925

### Display

- ◊ 100 Hz refresh rate (flicker-free)
- ◊ Selectable overscan borders
- ◊ Selectable screen saver
- ◊ 26, 30, 44, or 52 row display with top and bottom status lines
- ◊ 80 or 132 column display
- ◊ Double high/double wide display
- ◊ Up to 4 pages of memory
- ◊ Small footprint, tilt and swivel base

### Character Sets

- ◊ Numerous standard, graphic, and supplemental character sets
- ◊ Support for different keyboard languages: US (English), UK (English), Danish, Finnish, French, German, Norwegian, Portuguese, Spanish, Swedish, Dutch, Belgian-Flemish, French-Canadian, Italian, Latin American, Swiss-French, Swiss-German, Turkish

### Communications

- ◊ Serial RS-232-C host/printer port 1, operating from 110 to 134,400 baud
- ◊ Serial RS-232-C host/printer port 2, operating from 110 to 38,400 baud
- ◊ Parallel IBM™/Centronics™ compatible printer port

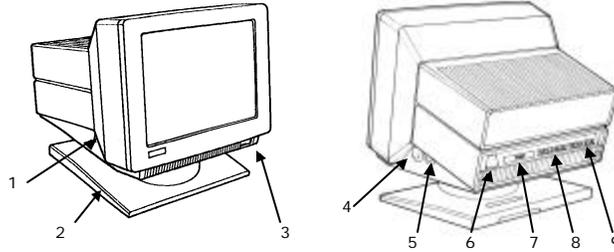
### Keyboards

- ◊ EPC 101/102-key keyboard for use in the US and Internationally
- ◊ ANSI (VT220 style) keyboard
- ◊ PC/+ 106/107-key keyboard for use in the US and Internationally
- ◊ Up to 35 shiftable and programmable edit and function keys

### Desk Accessories

- ◊ Calculator capable of transmitting results
- ◊ Monthly Calendar
- ◊ Clock with alarm settings
- ◊ ASCII and Diagnostic charts

## Physical Features



1. Keyboard Connector – push in the keyboard connector here.
2. Tilt and Swivel Base – use the tilt and swivel arrangement to adjust the viewing angle. Grasp the lower corners of the terminal and push up or down, or twist left or right.
3. Power Switch – “0” is off; “1” is on.



Leave the terminal's power switch in the off position (“0”) until power, keyboard, and communication connections are made.

4. Contrast Dial – adjust the contrast between characters of different intensities by rotating the dial.
5. Brightness Dial – adjust the overall screen brightness by rotating the dial.
6. Power Connection – plug the female end of the power cord into this connector and the male end of the cord into a properly grounded receptacle.



The Canadian Standards Association (CSA) recommends that the power outlet be near the terminal and easily accessible at all times.

7. Parallel Printer Port – connect the cable from the IBM/Centronics compatible parallel printer to this port. See the Installation chapter for options.
8. Printer Port – connect the cable from a serial printer here. See the Installation chapter for options.

9. Host Port – connect the cable from the host here. See the Installation chapter for options.

## Keyboards

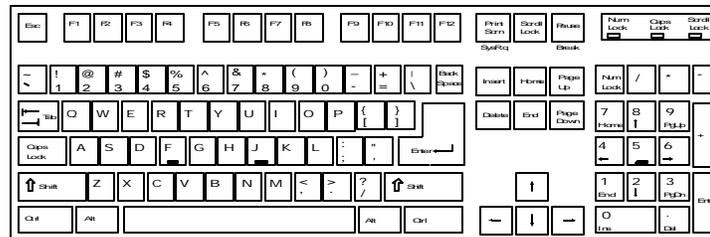
The "PC" keyboards, including the EPC (101-key) and the PC/+ (106/107-key), are similar in style and feature a number of key groups.

The alphanumeric keypad is the main typewriter keypad, while the function key group lies along the top of the keyboard and can be programmed locally or downloaded from the host. The numeric keypad is the calculator-style set of keys on the right-hand side of the keyboard, used to enter numeric data.

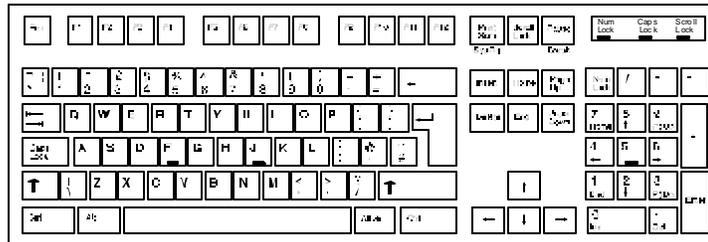
The cursor and edit keypads, located to the left of the numeric keypad, allows users to edit text and move around in the document. The communication key group, above the edit keypad, is used to control communications with the host or printer.

The ANSI keyboard varies from the PC keyboard styles mainly in that it features 20 function keys, a set of PF-keys, and a different style numeric keypad.

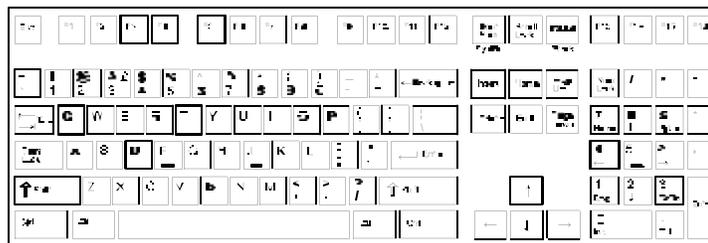
For each keyboard, there is a set of local "hot-keys." They perform a variety of terminal functions, such as "Print Screen" and "Enter Setup." (See Appendix A for a complete list of local functions.)



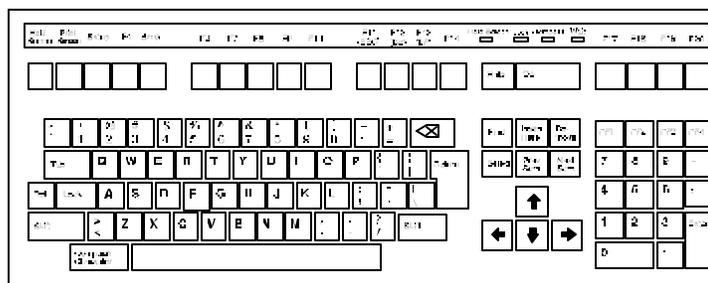
101-key EPC Keyboard - U.S.



102-key EPC Keyboard - International



106-key PC/+ Keyboard - U.S.



ANSI Keyboard

## Usage Notes

The following notations and symbols are used in this manual:

- ◊ Ctrl-F1: the two keys, **Ctrl** and **F1**, are to be pressed simultaneously.
- ◊ Ctrl,F1: the two keys, **Ctrl** and **F1**, are to be pressed in succession.
- ◊ 1-num or 1-alph: specifies that the number must be generated either from the numeric or alphanumeric keypads.
- ◊ 23h: the number 23 is represented in hexadecimal (hex) notation.
- ◊  applies to ASCII emulations *only*: ADDS-VP, Wyse 50+, Wyse 60, PC Term, and TVI-925.
- ◊  applies to ANSI emulations *only*: VT300/8, VT300/7, VT200/8, VT200/7, and VT100.
- ◊  applies to parallel attribute emulations *only*: includes all emulations *except* ADDS-VP and Wyse 50+ (which are field attribute emulations).
- ◊  applies to ASCII key mode only.
- ◊  applies only to Scan Code key mode.
- ◊  applies to the PC/+ or EPC keyboards only.
- ◊  applies to the ANSI keyboard only.

## Communications

This terminal is equipped with three ports. The two serial ports are intended for connecting to either a host/modem or a serial printer. The remaining port is a Centronics-compatible printer port. The port you use as the printer port depends on whether you have a serial or a parallel interface to the printer.

The first host/printer serial port (SES1-EIA) can communicate with your computer or printer at a baud rate of 110 to 134,400 baud (bits per second). The second host/printer serial port (SES2-AUX) can communicate at speeds from 110 baud to 38,400 baud. Either port can be used to connect to a host computer/modem or serial printer.

You have the choice of using either the second serial port or the parallel printer port as your printer interface. Refer to the following sections for further information on these ports.

### Receive Flow Control

Because devices can receive data faster than they can process it, data flow control (selectable in the PORTS menu of Setup) should be used to prevent data loss. Software flow control relies on the Xon and Xoff characters ("g" and "e" characters in Scan Code key mode) to indicate when the terminal is able or unable to store further data. The Xon signal transmits the DC1 character (11h) and the Xoff signal transmits DC3 (13h).

When "EIA (or Aux) Rcv" in the Setup menu for PORTS is "Xon-Xoff," the terminal issues an Xoff character, indicating to the host that it should stop transmitting data. The terminal will then continue to process data until its receive buffer is empty. It will then issue an Xon character to the host, indicating that it can resume sending data to the terminal.



If the "EIA (or Aux) Rcv" is "No Protocol" in Setup, the terminal will continue to accept characters into its receive buffer until it is full. Additional characters will be lost. Xon-Xoff protocol must also be set on the host computer or printer for proper handshaking.

In addition to software "receive" flow control (Xon-Xoff), the serial host/printer ports support "receive" hardware flow control. The SES1-EIA port has an outgoing DTR (Data Terminal Ready) signal. If "EIA Rec" is "DTR" in Setup, and the terminal's receive buffer fills to the level mentioned above, the terminal will set the DTR signal low to inform the host (serial) device to stop sending data. On the SES2-AUX port, if "Aux Rcv" is "DSR" in Setup, the outgoing DSR (Data Set Ready) signal serves to signal the host (serial) device that the terminal is not ready to receive more data.

#### Transmit Flow Control

Likewise, the terminal will understand the Xon and Xoff requests from the host when it is transmitting data (provided the "EIA (or Aux) Xmt" is "Xon-Xoff" in Setup). This is referred to as "transmit" flow control.

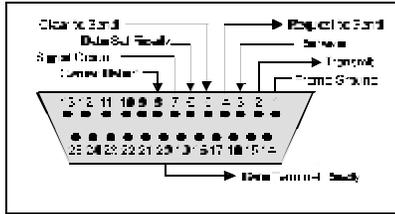
This terminal will stop transmitting data to the host or printer when it receives an Xoff (DC3) code. If, however, the terminal needs to send a receive protocol character, it will transmit that character even if it has received an Xoff code. When the terminal stops transmitting, the data will be buffered in the transmit buffer. Once the buffer is full, additional keyboard data will be lost. When an Xon (DC1) character is received, the terminal can again send data to the attached serial device.

In addition to software "transmit" flow control (Xon-Xoff), the serial host/printer ports support "transmit" hardware flow control. DSR on the SES1-EIA port and DTR on the SES2-AUX port monitor serial devices to control the flow of data to them (provided EIA and AUX Xmit are "DSR" and "DTR", respectively, in Setup).

For parallel printers, this terminal monitors the BUSY and ERROR signals which are sent by the printer to determine when data transmission should be stopped or resumed.

### Host/Printer Port 1

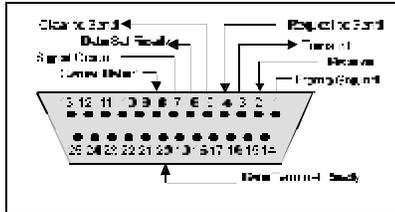
This port, labeled "SES1-EIA," is designed for connection to the host (computer or modem) or a serial printer via a 25-pin D-shell (DB25P) female connector. This port uses an RS-232-C communication interface, is configured as a DTE (Data Terminal Equipment) device, and can operate from 110 to 134,400 baud. The pins supported are shown below:



Host/Printer Port 1 Pin Assignments

### Host/Printer Port 2

This port, labeled "SES2-AUX," is designed to connect to a host connection (computer or modem) or a serial printer, and can operate from 110 to 38,400 baud. This port uses an RS-232-C interface via a DB25P female connector, and is configured as a DCE (Data Communication Equipment) device. The pin assignments for this port are shown below:



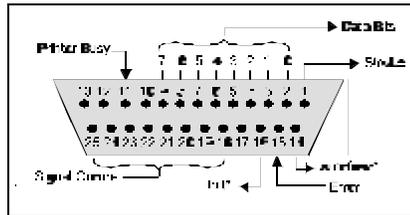
Host/Printer Port 2 Pin Assignments



Refer to the Installation chapter for details on the connection of all ports to serial devices (hosts, modems, or printers).

### Parallel Printer Port

This port, labeled "PAR," is designed for connection to a parallel printer, which has a Centronics interface with a 25-pin D-shell female connector. This port, unlike the others, is a uni-directional device—it only serves to output data to the printer and cannot receive data. The pins and signals supported are shown below:



Parallel Port Pin Assignments

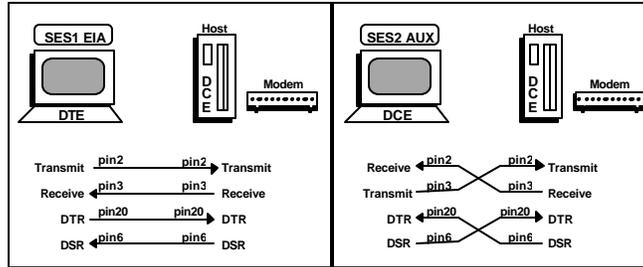
\* These signals are held high, in an inactive state.



If you have opted to use a parallel printer, but it is not connected, an error message will appear on the status line when any PRINT operation is done. To clear the message, press Ctrl-Shift-Tab.

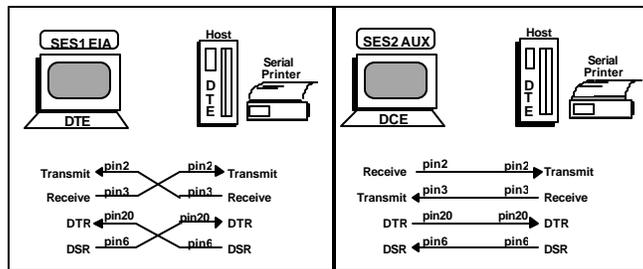
### Terminal to Modem (DCE) or Host

Refer to the diagram below to understand why a null modem adapter may be needed when connecting the second serial port (SES2-AUX) to a modem or a DCE host. The first serial port will connect directly without a null modem since it is a DTE device.



### Terminal to Host (DTE) or Printer

Refer to the diagram below to understand why a null modem adapter may be needed when connecting the first serial port (SES1-EIA) to a host port without a modem (most serial printers are DTE devices and most hosts are not). The second port (AUX) will connect directly, without a null modem, since it is a DCE device.



## Screen Display and Pages

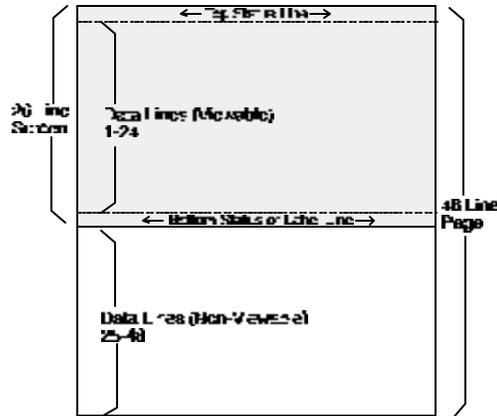
This terminal offers a variety of screen lengths including 26, 30, 44, or 52 lines. These numbers include the top and bottom status lines (or label line), as well as the lines used to display data. A "page" of terminal memory represents the total number of lines that can be accessed, whether or not they are all viewable on the screen at once. Refer to Appendix A for the number and lengths of pages available for your setup.

The page length is comprised of a base page length multiplied by 1, 2, 4, or 8. For instance, in certain modes, 24 (24x1), 48 (24x2), and 96 (24x4) are available, the same way that 25(25x1), 50 (25x2), and 100 (25x4) are. The base page length and the screen size determine whether a bottom status line or label line is displayed or not.

### Bottom Status/Label Line Display

With a screen length of "26 lines," the page lengths that are multiples of 24 allow the bottom status/label line to be displayed, while those that are multiples of 25 do not. The same idea applies with the 44 line screen size. A page length with 42 lines as a base page size will display a label line, while the 43 line base page length will not. An exception to this rule is if the screen length is significantly larger than the that page size, then the label line is displayed, such as if the screen is 44 lines and the page length is 25 lines.

The figure below represents the entire page memory of a 48 line page (24 base page length times a multiplier of 2) and the portion of the page that is viewable on the display screen, when "26 Lines" is selected. Notice that the label line is visible in this mode.



### Visual Effects of Screen and Page Lengths

The combination of page and screen lengths influence the number of displayable data lines. For example, if the page length is "50" (25 x 2), and the screen length is 44 lines, the number of data lines that are visible at any one time is 43, with no label line (the other line is used for the top status line). On a 52 line screen, 50 of the 52 data lines are visible at one time.

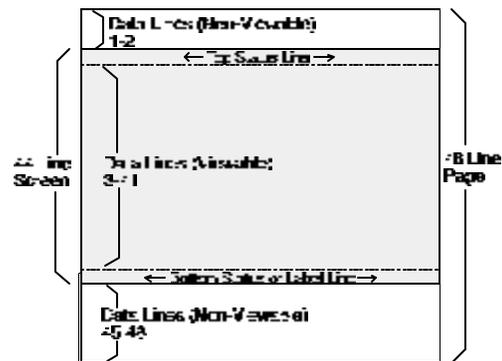
If the page length is shorter than the screen length, blank lines are present below the data line or status/label line. If the page length is larger than the allowable number of data lines, some of the rows are out of view. In order to bring them into view, "scrolling" or "panning" is used as necessary.

Scrolling causes a new line to scroll into view when the cursor advances past the last or first row on the page. If the cursor moves past the last row, the top row of text is lost; if past the first

row, the bottom row of text is lost (if Auto Scroll is "on" in Setup).  
Note that text scrolled off the screen is not recoverable.

If the current page or portion of the page is longer than the screen display or window in which it is displayed, local keystrokes can be used to "pan" the window up or down (Ctrl-↑ and Ctrl-↓). As a window is panned up, the page appears to be moving down; the opposite is true when panning the window down. Text that is panned off the screen is out of view, but is not lost.

The figure below represents the display screen with a 48 line page length on a 44 line screen, after panning the window down 2 lines.



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intentionally  
left blank.



# Installation

This section provides a "walk-through" approach to the installation of your terminal. This will enable you to physically connect the terminal to a printer and a host computer/modem, as well as to configure the Setup menu to suit your requirements and preferences.

The terminal is designed to provide great flexibility in configuring the terminal. An example of the flexibility is apparent in the fact that either the EIA or Aux ports can be used to connect either to a host or a printer port.

The procedures described here are among the most common. Described here are conventional setups, with or without a printer. These steps may need to be adjusted to meet your requirements.

## STEP 1 – Know Your Devices

The first step in our installation process will be to determine what type of serial ports you are connecting to the terminal. The Communications section in the Introduction chapter describes the differences between a DTE and DCE serial device. Determine what type of devices you are using (a DTE host, a DCE modem, a DTE printer, a parallel printer, etc.).

## STEP 2 – Physical Connections

Depending on the types of serial interfaces of your devices, you may need one or more “null modem” adapters to communicate properly.

First, refer to the Common Setups diagrams later in this chapter. If one of these setups matches your needs, make the connections as shown in the diagrams by referring to the Host/Printer Connection. Each cable connection in the diagram (the lines with arrows on each end) has a letter next to it.

The letters correspond to the letters in the Host/Printer Connection Guide. If these setups don't apply, choose the connections in the Host/Printer Connection Guide that are appropriate.

Your physical connections are now complete.

## STEP 3 – No Printer Option

If you did not opt to install a printer (did not complete E, F, G, or H), you must set the Printer portion of the Host/Printer selection in the Quick (F1) Setup menu to “None.” Choose the combination of Host/Printer that properly represents which terminal port you are connecting the host to, and “None” as the printer. For example, if the EIA port is connected to the host or modem, the setting would be “EIA/None.”

## STEP 4 – Know Your Serial Port(s) Protocol

Consult your system administrator to find out the communication settings on all the serial devices you are connected to, including EIA (or Aux) baud, data bits, stop bits, parity, parity checking on/off, and transmit and receive flow control protocol. This could include a host/modem, or a serial printer. Record this information in the User Settings Chart later in this chapter for reference in Step 7.

## STEP 5 – Communications Setup Selections

To complete this step, you must recall the letters next to the connections that you made in Step 2.

The procedures below correspond directly to the individual connections made. Notice that only certain connection procedures are to be followed, not all of them. For example, if you have made connections "C" and "F" to a modem and a serial printer, then follow connection procedures "C" and "F" below.



Only follow those steps that apply to your connections (A-H).



To access the Setup menu, press Ctrl-Scroll Lock on a PC keyboard or F3 on an ANSI keyboard.

### Connection A: Host DCE

1. Enter the Setup menu.
2. In the Setup Quick (F1) menu, set the Host portion of the "Host/Printer" selection to "EIA" without changing the current Printer option ("EIA/xxxx"). The Printer will be set in another connection procedure if needed.
3. In the Ports (F6) menu, set the proper communications settings for the EIA Baud, EIA Data Format, EIA Parity Check, EIA Recv, and EIA Xmt selections. See the Setup chapter for more information on the individual settings.

### Connection B: Host DTE

1. Enter the Setup menu.
2. In the Setup Quick (F1) menu, set the Host portion of the "Host/Printer" selection to "Aux" without changing the current Printer option ("Aux/xxxx"). The Printer will be set in another connection procedure if needed.
3. In the Ports (F6) menu, set the proper communications settings for the Aux Baud, Aux Data Format, Aux Parity

Check, Aux Recv, and Aux Xmt. See the Setup chapter for more information on the individual settings.

#### Connection C: RS-232 with Modem

1. Follow all procedures of Connection A, steps 1 through 3.
2. If you are connecting to a modem, set the "EIA Modem Control" parameter to "On" in the Ports (F6) menu.

#### Connection D: RS-232-C with Modem

1. Follow all procedures of Connection B, steps 1 through 3.
2. If you are connecting to a modem, set the "Aux Modem Control" parameter to "On" in the Ports (F6) menu.

#### Connection E: Printer

1. In the Setup Quick (F1) menu, set the Printer portion of the "Host/Printer" selection to "EIA" without changing the current Host option ("xxxx/EIA"). The Host will be set in another connection procedure if needed.
2. Follow procedure of Connection A, step 3.

#### Connection F: RS-232-C Printer

1. In the Setup Quick (F1) menu, set the Printer portion of the "Host/Printer" selection to "Aux" without changing the current Host option ("xxxx/Aux"). The Host will be set in another connection procedure if needed.
2. Follow procedure of Connection B, step 3.

#### Connections G and H: Parallel Printer

1. Enter the Setup menu.
2. In the Setup Quick (F1) menu, set the Printer portion of the "Host/Printer" selection to "Para" without changing the current Host option ("xxxx/ Para").

## STEP 8 – Emulation Setup Selection

This step requires setting a selection in the Setup menu to configure the “Emulation” of the terminal. Determine which emulation your applications run with.

Enter the Setup menu and set the “Emulation” parameter, in the Quick (F1) menu, to match your requirements.

## STEP 9 – Additional Setup Options

At this point, you should proceed to the Setup chapter and continue to set up your own selections for any other parameters such as those for the display, keyboard, function/edit keys, and tabs.

## STEP 10 – Save Parameters

Finally, remember to save your Setup parameters in permanent memory, so that they can be recovered if the terminal is powered down. When you exit the Setup menu, the prompt “Save all? (Y/N)” flashes. To save parameters, press “Y”. Another way to save parameters is to perform a “Save Terminal” operation, while in the Exec (F13/Prnt Scrn) menu of Setup.



Remember to save your Setup settings after the entire installation process.

## STEP 11 – Establish Communications

Your installation is now complete. By pressing the Return or Enter key, you should be able to communicate with the host computer(s). The printer should respond to the local print command, Shift-Ctrl-. (period on numeric keypad).

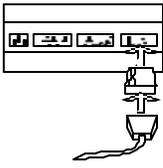
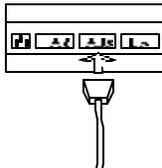
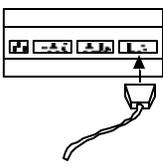
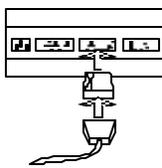
If for some reason, your installation was not successful, make sure your physical connections are secure, that the communications protocol settings match your devices, and that

the Setup selections are chosen to provide a proper interface between the terminal and your devices.

If you continue to have problems installing the terminal, call your local dealer for technical support.

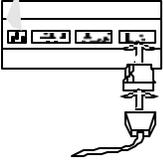
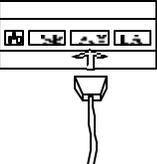
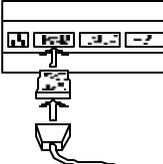
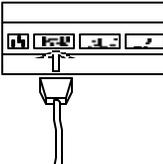
## Host/Printer Connection Guide

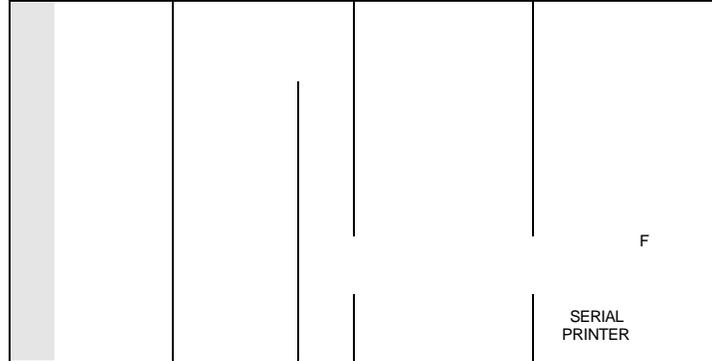
 CAUTION: Do not (un)plug in electrical storm.

	SE: -EIA (DTE)	SES: AUX (DCE)	PA
<p>DTE Host*</p> 	 <p>Connection A: Connect a null modem adapter between the host cable and the EIA port.</p>	 <p>Connection B: Connect the host cable directly to the AUX port.</p>	 <p>Not applicable.</p>
<p>DCE Host or Modem</p> 	 <p>Connection C: Connect the host or modem cable directly to the EIA port.</p>	 <p>Connection D: Connect a null modem adapter between the host or modem cable and the AUX port.</p>	 <p>Not applicable.</p>

 \* Most host computers are configured as a DTE device. The Mentor® System is an example of a DCE host system.

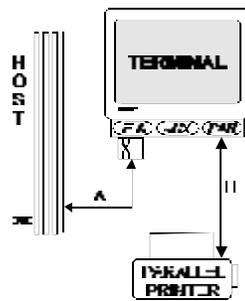
Mentor® System is an example of a DCE host system .

	Serial -EIA (DTE)	Serial -AUX (DCE)	Parallel
<p>DTE Serial Printer**</p> 	 <p>Connection E: Connect a null modem adapter between the serial printer cable and the EIA port.</p>	 <p>Connection F: Connect the serial printer cable directly to the AUX port.</p>	 <p>Connection G: This is an option if you connect a parallel-to-serial converter between the serial printer cable and the PAR port.</p>
<p>Parallel Printer (Centronics/IBM)</p> 	 <p>Not applicable.</p>	 <p>Not applicable.</p>	 <p>Connection H: Connect the parallel printer cable to the PAR port.</p>

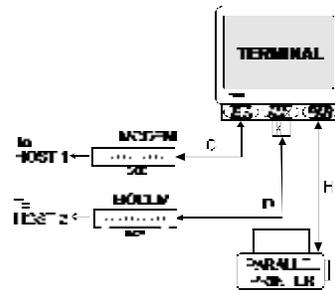


**NOTE** \*\* Most serial printers are configured as DTE device: .

Common Setups



Sessions=One  
 Host/Printer=Aux/Para  
 Aux Baud, Data Format, etc. matches the host



Sessions=One  
 Host/Printer=EIA/Aux  
 EIA Baud, etc. matches the host  
 Aux Baud, etc. matches the printer  
 EIA Modem Control=On

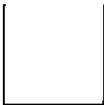
## User Settings

Use the chart below to document your system and terminal settings:

Parameters	Example ::	Your Settings:
Connections made Host/Printer Emulations	C and H EIA/Para ADDS-VI	
Host: Baud Data Bits Stop Bits Parity Parity Check Flow Control (In)* Flow Control (Out)** Modem Control	9600 8 1 None Off Xon-Xoff Xon-Xoff On	

Notes: \* Incoming flow control on the host should correspond to "EIA (or Aux) Rcv."

\*\* Outgoing flow control on the host should correspond to "EIA (or Aux) Xmt."



chapter  
3

## Setup

The Setup menu is your control panel for this terminal. It permits you to configure the terminal to communicate with the host computer as well as to suit your personal preferences.

### Overview

The Setup menus have been designed to allow maximum flexibility with a minimum investment of time. Thirteen menus provide you with the flexibility and the features below contribute to ease of use:

- ▷ The Quick menu is the first screen upon entry. It contains the parameters critical to the operation of the terminal with the host.
- ▷ Function keys permit easy access to any menu. The function keys are labeled at the top of every menu.
- ▷ Setup is “smart.” That is, it provides only the options that are valid for the hardware and current emulation.
- ▷ Keystrokes and Help Messages are at the bottom of every menu.
- ▷ Valid choices for the selected parameter are displayed at the bottom of the menu.

### Entry and Exit



EPC Keyboard: Press Ctrl-Scroll Lock to both enter and exit setup. Also, press F14 or Pause to exit.



ANSI Keyboard: entry is dependent upon the Setup selections:

- ↳ When "F1 to F5 keys" = Local, press F1 to enter.
- ↳ When "F1 to F5 keys" = FKey, press Ctrl-F3 to enter.
- ↳ When "Key Mode" = Scan Code, press Ctrl-Select to enter.

### Saving Parameters

Upon exiting setup mode, the prompt "Save All (Y/N)" blinks.

Press **Y** or **y** to exit setup and save settings in permanent (nonvolatile) RAM. Press **C** or **c** to cancel the exit request. Press **N** or **n** to exit Setup. The changes will take effect, but will be lost if the terminal is reset or powered off.



An exception to this is function/edit key and answer back message programming. Once edited in Setup, the changes are saved regardless of the way in which you exit Setup

## Movement Inside Menus

F1 through F12: Select the menu that corresponds to the function key. Depending on your keyboard, there will be another key, either F13 or the Print Screen key (on the EPC keyboard) available to access the "EXEC" menu. These keys are always active within Setup. The keys are labeled at the top of each menu.

Cursor Control Keys (↑ ← ↓ →): These keys control movement to parameters within the menu and is indicated by a highlighted selection bar. This selection bar will wrap to the other side of the menu at the top, bottom and side boundaries. For each parameter there are at least two choices. As the parameter is highlighted, the available choices appear in the area above the help bar.



Some parameters are action fields and have no choices. See the Action Fields section later in this chapter.

Enter and Shift-Enter: Cycle "up" or "down" through the choices for a given parameter.



The following keystrokes are also available but are not documented in the Setup help bar.

Tab and Shift-Tab: Move from menu to menu forward or backward without using function keys.

Space and Shift-Space: Cycle through the list of choices. Same as Enter and Shift-Enter.

Parameters that are changed are executed as soon as that field is exited. Page resets may occur when certain choices are made in Setup.

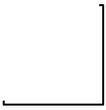
## Action Fields

Certain parameters are not selections but action fields. When the action field is highlighted and then selected, the action is taken. A "WAIT" message may appear at the top right portion of the screen, and when the action is completed, a "DONE" message

will appear. These messages are cleared when the selection bar is placed on another parameter.

## Setup Map

Key	Menu	Parameters Available (Not all will display for a given emulation, keyboard, or video mode)		
F1	<b>Quick</b>	Emulation Enhanced Host/Printer	Comm Mode EIA/AUX Data Format	EIA/AUX Baud Rate Language
F2	<b>General</b>	Emulation Auto Font Load Monitor Mode Warning Bell	Enhanced Auto Page Screen Saver Host/Printer	Auto Wrap Auto Scroll Bell Volume Bell Length
F3	<b>Display</b>	Page Length Display Cursor Columns Screen Length Refresh Rate	Screen Video Scroll Width Change Clear Speed	Cursor Overscan Borders Auto Adjust Cursor Scroll Speed
F4	<b>Keyboard</b>	Language Margin Bell Key Lock Num Lock	Key Repeat Key Mode Key Rate Keyboard Layout	Keyclick Char Set Mode Caps Lock Code Page
F5	 <b>Keys</b>	Enter Key Alt Key Return Key Repeat UDKs	Return Key Pound Key Desk Acc	Backspace Local Leadin Disconnect
	 <b>Keys</b>	Enter Key Compose Key	Return Key Pound Key	DEL key Local Leadin



Return Key Repeat	F1 to F5 keys	Disconnect
.. and ,, key	` and ~	<> key
UDKs		



<b>F6</b>	<b>Ports</b>	EIA Baud Rate	EIA Data Format	EIA Parity Check
		Aux Baud Rate	Aux Data Format	Aux Parity Check
		EIA Xmt	EIA Recv	EIA Xmt Pace
		Aux Xmit	Aux Recv	Aux Xmt Pace
		EIA Break	EIA Modem Control	EIA Disconnect
		Aux Break	Aux Modem Control	Aux Disconnect
<b>F7</b>	<b>Host</b>	Comm Mode	Local	Recv <CR>
		Recv <DEL>	Send ACK	Send Line Term
		Send Block Term	Send Region	Send End
		Null Suppress		
<b>F8</b>	<b>Print</b>	Prnt Line Term	Prnt Block Term	Prnt Region
		Prnt Mode	Secondary Recv	
<b>F9</b>	<b>Emulation</b> 	Attribute	Bright Video	Enhanced Attributes
		Page Edit	WPRT Intensity	WPRT Reverse
		WPRT Underline	WPRT Blink	Display NV Labels
		Save Labels	Char Set	Status Line
		Fkey Speed		
<b>Emulation</b> 	<b>Emulation</b>	Numeric Kpd	Cursor Kpd	Send Data
		Print	ANSI-ID	Function Key Lock
		Key Usage	Feature Lock	Char Set
		Status Line		
<b>F10</b>	<b>Tabs</b>	Auto Init Tabs	Default Tabs	
<b>F11</b>	<b>Answerback</b>	Answerback Mode	Answerback Conceal	
<b>F12</b>	<b>Program</b>	Key	Program	Key Dir
<b>PrtSc</b>	<b>Execute</b>	Save Terminal	Recall Terminal	Default Terminal
		Save Emulation	Recall Emulation	Default Emulation
		Reset Terminal	Reset Emulation	Reset Ports
		Clear Screen	Default Emulation UDks	
<b>Pause</b>	<b>Exit Setup</b>	Save all parameters? (Y/N)		

QUICK: F1

<b>F1</b> Quick	<b>F2</b> Local	<b>F3</b> Disp	<b>F4</b> Keys	<b>F5</b> Keys	<b>F6</b> Host	<b>F7</b> Prt	<b>F8</b> Emul	<b>F9</b> Emul	<b>F10</b> Emul	<b>F11</b> Emul	<b>F12</b> Emul	<b>Print</b> Screen
<b>Parameters</b>												
Emulation=Wyse-60			Comm Mode = Full Duplex				EIA Baud Rate = 9600					
Aux Baud Rate = 9600			Enhanced = On				EIA Data Format = 8/1/N					
Aux Data Format = 8/1/N			Language = U.S.									
Host/Printer = EIA/Para												
<b>Choices</b>												
ADD-VP		Wyse-60	Wyse-50+	PC-Term	TVI 925	VT-300-7	VT-300-8					
VT-200-7		VT-200-8	VT-100									
<b>Select</b>												
↑ → ↓ ←		Parameter				Enter 5-Char. Host-Port Choice				Exit: <b>Pause</b>		

Emulation: [ADDS VP, **Wyse 60**, Wyse 50+, PC Term, TVI 925, VT300/8, VT300/7, VT200/8, VT200/7, VT100]

Select the "personality" of the terminal (the way in which it responds to commands). If you are using PC-Term emulation, refer to the Local Leadin selection in the Keys: F5 section for access to local "hot keys."



All associated defaults are loaded when the emulation is changed. Default choices are in bold. Some default may vary depending on the selected emulation.

Comm Mode: [**Full Duplex**, Half Duplex, Full Block, Half Block]

Select the method of communication to match the host computer.

EIA Baud Rate: [134,400, 115,200, 76800, 57,600, 38400, 19200, **9600**, 4800, 2400, 2000, 1800, 1200, 600, 300, 150, 110]

Select the number of bits communicated per second to match the speed at which the primary host or printer expects to communicate.

AUX Baud Rate: [38400, 19200, **9600**, 4800, 2400, 2000, 1800, 1200, 600, 300, 150, 134.5, 110]

The speed at which the secondary host or printer expects to communicate.

Enhanced: **[On, Off]**

Normally, the terminal responds to a set of commands that correspond to the emulation selected. When Enhanced mode is *on*, the set of commands is extended to those printed in boldface in the programming chapter.

EIA Data Format: [7/1/N, 7/1/O, 7/1/E, 7/1/M, 7/1/S, 7/2/N, 7/2/O, 7/2/E, 7/2/M, 7/2/S, **8/1/N**, 8/1/O, 8/1/E, 8/1/M, 8/1/S, 8/2/N, 8/2/O, 8/2/E, 8/2/M, 8/2/S]

Select a data bits/stop bits/parity combination which matches the data format of the primary host or printer. Parity abbreviations are: O = odd, E = even, S = space, M = mark, and N = none.

AUX Data Format: [7/1/O, 7/1/E, 7/1/M, 7/1/S, 7/2/N, 7/2/O, 7/2/E, 7/2/M, 7/2/S, **8/1/N**, 8/1/O, 8/1/E, 8/1/M, 8/1/S, 8/2/N]

Select a data bits/parity bits/stop combination which matches the data format of the secondary host or printer. Parity abbreviations are: O = odd, E = even, S = space, M = mark, and N = none.



Language: **[U.S.]**, U.K., Danish, Finnish, French, German, Norwegian, Portuguese, Spanish, Swedish, Dutch, Belgian-Flemish, Fr-Canadian, Italian, Latin American, Swiss-French, Swiss-German, Turkish]

Select the language type which matches your keyboard's layout.



Language: **[U.S.]**, U.K., Danish, Dutch, Finnish, Belgian-Flemish, French, Fr-Canadian, German, Italian, Norwegian, Spanish, Swedish, Swiss-German, Swiss-French, Turkish]

Select the language type which matches your keyboard's layout.

Host/Printer: [EIA/Aux, **EIA/Para**, EIA/None, Aux/EIA, Aux/Para, Aux/None, None/EIA, None/Aux, None/Para, None/None]

The first part of the selection indicates the host (either the EIA port or the AUX port) and the second part of the selection indicates the printer port (if a serial printer is used, either the EIA or Aux port can be used to connect to the printer, but if a parallel printer is being used, the PAR port should be used).

## GENERAL: F2



This chapter lists all possible parameters for each menu, and all possible choices for each parameter. Depending on the emulation selected, and the key mode (ASCII or Sca (Code), Setup will only present the valid set of parameters and choices in each menu.

**Emulation:** Select the "personality" of the terminal. See the Quick menu earlier in this chapter.

**Enhanced:** Choose whether the terminal can respond to commands beyond the limitations of the current emulation. See the Quick menu earlier in this chapter.

**Auto Wrap:** [On, Off]

Select whether the cursor drops to the next line when it reaches the right margin or continues to display characters at the right margin. In ANSI emulations, the default is *off*.

**Auto Font Load:** [On, Off]

Select whether the four font banks (0-3) should automatically be loaded when screen size or the emulation is changed.

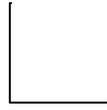
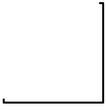
**Auto Page:** [On, Off]

When the cursor is moved off the page using a command that includes scroll and Auto Page mode is *on*, the screen displays the new page. These pages are numbered from 0 to a maximum of 9. When *on*, Auto Page will track the page even if Auto Scroll is *off*. The up-arrow key does not have a scroll command embedded, so it cannot be used to view the previous page even when Auto Page is *on*.

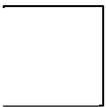
**Auto Scroll:** [On, Off]

Choose whether the terminal updates the display when the cursor is moved beyond the boundaries of the currently viewed screen.

**Monitor Mode:** [On, Off]



Choose whether control codes will be displayed as their graphic representations or be acted upon as terminal/cursor commands.



Screen Saver: [Off, 2 min, **5 min**, 15 min, 30 min]

Select whether the screen will go blank after lack of activity from the keyboard or the host of the selected period of time. The first key typed at the keyboard when the screen is blank will reactivate the display. The keycode will not be transmitted to the host. The Caps Lock LED will flash while Screen Saver is active.



Use screen saver to prevent "phosphor burn" on the screen when the display on the terminal is left unchanged or an extended time period.



20 minutes after the screen saver is activated, Energy Star, a power saving feature, is activated. The first key typed at the keyboard brings the energy level back up.

Bell Volume: [0, 1, 2, 3, 4, 5, **6**, 7, 8, 9]

Select the bell volume from off [0] to high [9]. This will be the volume for alarm tones, warning bells, and keyclicks.

Warning Bell: [**On**, Off]

Select whether a warning bell is sounded when errors (such as an invalid compose sequence) are encountered.

Host/Printer: Designates physical ports to the host and printer. See the Quick menu earlier in this chapter.

Bell Length: [**140 ms**, 350 ms, 570 ms, 780 ms]

Denotes duration of bell sound.

## DISPLAY: F3

Page Length: [24, 25, 42, 43, 48, 50, 84, 86, 96, \*24, \*25, \*42, \*43]

Select the number of lines per page. As many as four pages (0-3) may be available, but the number of pages in memory depends on the number of lines per page and whether 80-Only is selected for columns. The total lines used (Lines/Page x # of Pages) will not exceed 96. See the Page Configurations in Appendix A.

Page lengths which are multiples of 24 or 25 and those that are multiples of 42 or 43 are displayed by default on a 26-line or 44-line screen, respectively. The extra one or two lines on the screen can be used as status lines.

If a page length which is preceded by an asterisk (\*24, \*25, \*42, or \*43) is selected, the total number of pages will be two, where the first page contains the number of lines in the selection (24, 25, 42, or 43) and the second page contains the remaining allowable lines. (See Appendix A.)

Screen Length: [26 Lines, 30 Lines, 44 Lines, 52 Lines]

Select the number of lines that can be displayed on the screen at one time. The page length affects the default screen length.

Screen Video: [Normal, Reverse]

Choose between bright characters on a dark background (normal) and dark characters on a bright background (reverse). In reverse video mode only, the "Enhanced Attributes" parameter is available (see page 3-8).

Display Cursor: [On, Off]

Choose whether the cursor will be displayed.

Cursor: [Blink Block, Steady Block, Blink Line, Steady Line]

Choose the appearance of the cursor.

Auto Adjust Cursor: [On, Off]

Select whether the screen attempts to follow the cursor down the page by scrolling just enough to keep the cursor in view.

Columns: [**80**, 132, 80-Only]

Choose the number of columns that the screen can display.

80-Only provides more pages in memory for a given page length by disallowing changes to 132-column display.

Width Change Clear: [**On**, Off]

Select whether the screen is to be cleared when the number of columns on the screen is changed from 80 to 132 or vice versa.



Changing columns from/to 80-only forces the screen to clear independent of Width Change Clear.

Speed: [**Fast**, Normal]

Selecting "fast" improves the speed at which screen display occurs at the expense of minor, temporary distortion of text called "tearing."

Scroll: [**Jump**, Smooth]

Choose whether the data on the screen scrolls smoothly or "jumps" to accommodate data at the rate it is received.

Scroll Speed: [Smooth 1, Smooth 2, Smooth 4, **Smooth 8**]

Select the number of scan lines per second the page scrolls up when smooth scroll is selected. Smooth 1 is the slowest rate and Smooth 8 is the fastest.

Refresh Rate: [60 Hz, **71 Hz**, 82 Hz, 100 Hz]

Select the rate (number of times per second) at which the image on your terminal's display is updated. This selection is only available in 26 or 30 line display mode.

Overscan Borders: [**On**, Off]

Choose whether the overscan borders are active. The borders extend video from one edge of the screen to the next. (To see the borders, select *reverse* for Screen Video.)

## KEYBOARD: F4



Language: [U.S., U.K., Danish, Finnish, French, German, Norwegian, Portuguese, Spanish, Swedish, Dutch, Belgian-Flemish, Fr-Canadian, Italian, Latin American, Swiss-French, Swiss-German, Turkish]

Select the language type which matches your keyboard's layout.



Language: [U.S., U.K., Danish, Dutch, Finnish, Belgian-Flemish, French, Fr-Canadian, German, Italian, Norwegian, Spanish, Swedish, Swiss-German, Swiss-French, Turkish]

Select the language type which matches your keyboard's layout.

Char Set Mode: [PC, ANSI, ASCII]

Choose which NRC set to use. This selection is only available in National Mode and foreign languages. In VT emulations, the default is *ANSI*. To determine which sets are loaded for each mode, refer to the *260xx Programmer's Reference Guide*.

Key Mode: [ASCII, ScanCode]

Select whether keys transmit ASCII codes or the ScanCode. The ScanCode transmits a "make code" when a key is pressed and a "break code" upon its release. When ScanCode is selected, "Comm Mode" is forced to *Full Duplex* and "Character Set" is forced to *Multinational* (8-bit).

Keyclick: [On, Off]

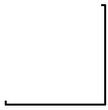
Choose whether pressing a key results in a clicking sound.

Key Repeat: [On, Off]

Choose whether keys, including function keys, will repeat when pressed for more than half a second. This setting does not affect the following keys on the EPC keyboard: Caps Lock, Scroll Lock, Num Lock, Shift keys, Ctrl keys, Alt keys, Return, Print Screen, Pause. On the ANSI keyboard, the following keys are unaffected: Lock, F1-F5, Shift keys, Control, Compose, and Return.

Key Rate: [15 cps, 20 cps, 30 cps]

When "Key Repeat" is on, a key that is pressed for more than half a second will automatically repeat. This selection allows you to



choose the number of characters that are generated per second  
when a key is auto repeating.



Keyboard Layout: [Q, F]

This selection is only available when Turkish keyboard is selected. Q and F refer to the two Turkish keyboard layouts available. Q and F correspond to the top left key on the alphanumeric keypad.

Margin Bell: [On, Off]

Choose whether a bell tone sounds when the cursor is nine positions away from the right margin.

Key Lock: [Caps, Reverse, Shift]

Affects the state of alphanumeric keys when Caps-Lock is engaged.

- ↳ **Caps** causes alphabetic keys to be uppercase regardless of the Shift key.
- ↳ **Reverse** causes the Shift key to generate lowercase alphabetic keys.
- ↳ **Shift** causes all alphanumeric keys to be generated as uppercase (or shifted, in the case of numbers). If the Shift key is hit, while Shift is selected, Caps-Lock will be disengaged.

Caps Lock: [Toggle, Always On, Always Off]

This setting effects the state of the Caps Lock key. When set to always on or always off the key has no effect. When set to toggle, the terminal will power on in the off mode and pressing the key will alternate between the off mode and the on mode.

Num Lock: [Toggle, Always On, Always Off]

This setting effects the state of the Num Lock key. When set to always on or always off the key has no effect. When set to toggle, the terminal will power on in the off mode and pressing the key will alternate between the off mode and the on mode.

Code Page: [DEC Multi, CP 437, CP 850, CP 852, CP 857, CP 860, CP 861, CP 863, ISO-1, ISO-2, ISO-5]

This selection is only available in 8-bit emulations in Multinational Mode. The default code page is based upon language and emulation selected. To determine which sets are

loaded for each code page, refer to the *260xx Programmer's Reference Guide*.

## KEYS: F5

Enter Key: [CR, CR-LF, TAB]

Select the code the enter key in the numeric keypad transmits.

Return Key: [CR, CR-LF, TAB]

Select the code the return key on the main alphanumeric keypad transmits.

Alt Key (left): [Meta, Compose, Funct, Scroll-Lock, **Alt Key**]

Select the way in which the left ALT key (or the Compose key on the ANSI keyboard) behaves.

- ↳ **Meta** sets the most significant bit for the next character and allows 8-bit data to be generated from the keyboard.
- ↳ **Compose** precedes sequences of keys to create a character that is not on the keyboard but is available in the active character set.
- ↳ **Scroll Lock** causes the Alt key to function as the Scroll Lock key, and is a toggle to hold/free data on the screen. It requires the use of flow control for the host port **Rcv Prtcl**.
- ↳ **Funct** causes the Alt key to function as the Funct key on an ASCII keyboard.
- ↳ **Alt Key** causes the left Alt key to behave identically to the right Alt key.

Pound Key: [U.S., British]

Choose the character transmitted for 23h—the US pound (#) or the British pound (£).

Return Key Repeat: [On, Off]

Select whether the Return key located on the alphanumeric keypad will repeat when held down for more than half a second (only selectable when “Key Repeat” = *On*).

 Local Leadin: [On, Off]

This parameter is only available when *Key Mode* (in the Kybd menu) is ScanCode. If Local Leadin is *off*, the only local function, shown in Appendix A, is Ctrl-Scroll Lock (Ctrl-Select on the ANSI

keyboard) to enter Setup. If Local Leadin is *on*, the Setup keystroke “introduces” the keystroke as local and then local functions can be generated using the keystrokes listed in Appendix A.

For example, to enter Setup when ScanCode and Local Leadin are *on*, press Ctrl-Scroll Lock (Ctrl-Select on the ANSI keyboard) to introduce this as a local function ("LEAD" will appear in the status line), and then Ctrl-Scroll Lock (Ctrl-Select on the ANSI keyboard) to enter Setup.



Local Leadin will not work if Comm Mode is set to H; if Block or Full Block.

UDKs: [Emul Dependent, User Dependent]

Choose whether the UDKs should get defaulted when the host changes the emulation.



The following selections apply to the PC keyboards:

Disconnect: [Disabled, **Pause**, Alt-Pause]

Select the keystroke that will generate a modem disconnect.

Backspace: [**BS/DEL**, DEL/BS, DEL/CAN, BS/BS]

Choose the codes sent by the backspace key in the normal/shifted positions.

Desk Acc: [Sh-Ctrl-Fkeys, **Ctrl** → , Disabled]

Select how the Desk Accessories can be accessed. This selection does not appear when SCO Console emulation is selected. In SCO Console emulation, Ctrl ← is the only access method.

The default allows the desk accessories to be accessed through a menu which appears when Ctrl and the left arrow key are pressed simultaneously. This brings up a pop-up window; selections for the specific accessory can be made from that menu by pressing F1-F5. The *Sh-Ctrl-Fkeys* option, when selected, allows direct access to desk accessories (bypassing the menu) by pressing Sh-Ctrl-F1 through Sh-Ctrl-F5. Selecting *Disabled* will inhibit entry to desk accessories. Once a desk accessory is displayed, any other desk accessory can be accessed by pressing only the function key associated with it (without pressing Sh-Ctrl).



The following selections apply only to the ANSI keyboard:

Disconnect: [Disabled, **Shift-F5**]

Choose to allow the keystroke that will generate a modem disconnect on the ANSI keyboard or to disable the Disconnect function. Note that if "F1 to F5 keys" is *Fkey* in Setup, the Disconnect function will be remapped to Ctrl-Shift-F5.

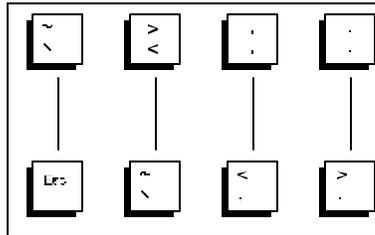
F1 to F5 keys: [Local, *Fkey*]

This selection determines whether the first five keys, labeled F1–F5, serve as local keystrokes (for example, F3 allows access to Setup) or will serve as function keys which are loaded with the default strings. (Only reprogrammed strings are visible in the text area for a given function or edit key; the default strings are not visible in Setup.)



If *Fkey* is selected, then the keystroke to enter Setup becomes Ctrl-F3 on the ANSI keyboard.

With the three remapping selections, keys which are available on a PC keyboard are now available on a PC keyboard are now available on the ANSI style keyboard: [ESC] [^~], [, and .].



The three selections should either be kept in their defaults (as they appear on the keyboard), or all three should be changed to follow the mapping scheme described here.

„ and .. [, and .. or ,< and .>]

Select the character sent by the comma and period keys in the normal and shifted mode.

<> Key [< and > or ^ and ~]

Select the characters sent by the triangle bracket key in the normal and shifted positions.

**/- Key** [ and ` or ESC]

Select the characters sent by the tic/tilde key.

Backspace: **[BS/DEL, DEL/BS, DEL/CAN]**

Choose the codes sent by the key in the normal/shifted positions.

## PORTS: F6

EIA Baud Rate: [134400, 115200, 76800, 57600, 38400, 19200, **9600**, 4800, 2400, 2000, 1800, 1200, 600, 300, 150, 110]

See the **Quick** menu earlier in this chapter.

EIA Data Format: [7/1/N, 7/1/O, 7/1/E, 7/1/M, 7/1/S, 7/2/N, 7/2/O, 7/2/E, 7/2/M, 7/2/S, **8/1/N**, 8/1/O, 8/1/E, 8/1/M, 8/1/S, 8/2/M, 8/2/N, 8/2/O, 8/2/E, 8/2/S]

See the **Quick** menu earlier in this chapter.

EIA (Aux) Parity Check: [On, **Off**]

Choose whether the parity bit will be checked. When parity check is on and the parity bit received is inconsistent with the data received, indicating an error in communications, an asterisk (\*) 2Ah is displayed instead of the character.

Aux Baud Rate: [38400, 19200, **9600**, 4800, 2400, 2000, 1800, 1200, 600, 300, 150, 134.5, 110]

See the **Quick** menu earlier in this chapter.

AUX Data Format: [7/1/O, 7/1/E, 7/1/M, 7/1/S, 7/2/N, 7/2/O, 7/2/E, 7/2/M, 7/2/S, **8/1/N**, 8/1/O, 8/1/E, 8/1/M, 8/1/S, 8/2/N]

See the **Quick** menu earlier in this chapter.

EIA (Aux) Recv: [No Protocol Xon-Xoff (XPC), **Xany-Xoff (XPC)**, DTR (DSR), Xany-Xoff/DTR (DSR)]

Choose the form of flow control for data received from the primary or secondary host. Software flow control uses *Xon-Xoff DC1* (11h) and DC3 (13h). *XPC* is used by "Scan Code" mode because it uses DC1 and DC3 as data. *Xany-Xoff (XPC)* is similar to Xon-Xoff, except that any character transmitted to the host is treated as an Xon, so data from the terminal is buffered, rather than being sent to the host. *DTR (DSR for Aux)* relies on the hardware signal DTR or DSR (pin 20 or pin 6) from the device. *Xany-Xoff/DTR (DSR)* uses software and hardware flow control.



Flow control is recommended to protect against data loss.

EIA (Aux) Xmit: **[No Protocol, Xon-Xoff, DSR (DTR), Both]**

This is similar to "EIA (Aux) Recv," except that it applies to the data transmitted from the terminal to the primary or secondary host or printer. DSR is the hardware signal for Data Set Ready (pin 6).



In ADDS™ VP emulation, DC1 and DC3 can be interpreted as data and should not be selected as a form of protocol.

EIA (Aux) Break: **[250 ms, 170 ms, 500 ms, Off]**

Choose the duration of the break signal in milliseconds. This is an interruption in data flow, and can be disabled.

EIA (Aux) Modem Control: **[On, Off]**

If a modem is being used to communicate with the primary or secondary host, modem control should be on. To perform a disconnect, the terminal drops the DTR signal. In full duplex, the terminal keeps RTS high and checks for a CD signal before sending data to the modem. In half duplex, it raises RTS and awaits a clear-to-send (CTS) signal from the modem before sending data.

EIA (Aux) Xmt Pace: **[Baud, 35 cps, 60 cps, 150 cps]**

Define the maximum number of characters per second that the terminal can transmit. When a characters limit (35 cps, 60 cps, or 135 cps) is set, the delays are averaged between characters for the selected baud rate. This is also known as "pacing." The *Baud* option provides no pacing, allowing data to be transmitted at the specified baud rate.

EIA (Aux) Disconnect: **[2sec, 60ms]**

Select the maximum time period that the modem can be disconnected (or the modem line be down) before the terminal performs a Modem Disconnect. This occurs if "EIA (Aux) Modem Control" is *on*.

## HOST: F7

Comm Mode: [**Full Duplex**, Half Duplex, Full Block, Half Block]

Select the communications mode.



Half-duplex is not available when KeyMode is *ScanCode*.

Receive <CR>: [**<CR>**, <CR><LF>]

Select the way in which carriage returns received will be interpreted.

Receive <DEL>: [**Ignore**, Destruct <BS>]

Choose to ignore the DEL control code (7Fh) when received or to treat it as a Destructive Backspace code.

Send ACK: [Off, **On**]

Decide whether the terminal should respond to inquiry (05h) or when certain terminal functions are performed (configuring the EIA (Aux) ports, splitting screen, etc.) with the ACK (06h) character.

Null Suppress: [**On**, Off]

In the default mode, the host ignores all received nulls (00 hex). When *off* is selected, the terminal will accept all received nulls, and act upon them according to the selected emulation.

Send Line Term: [**<US>**, <CR><LF>]

Select which line terminator is sent. <US> is 1Fh and <CR><LF> is 0Dh 0Ah.

Local: [**Off**, On]

Select whether keyed data is interpreted locally by the terminal and not sent to the host. Data sent by the host is lost, if Local is *on*. The ability to print data is not affected by this mode.

Send Block Term: [<ETX>, **<CR>**]

Select which character will indicate the end of a block. The choices above are for ASCII emulations. ANSI emulations have the following choices: [**None**, FF].



Send End: [Cursor, **Region**]

Select whether the end is indicated by the scroll region or by the cursor location.



Send Region: [Screen, Scroll]

Choose whether the terminal sends data from the entire screen or from the scrolling region.

## PRINT: F8



Print Mode: [**Normal**, Auto, Controller]

Select the way in which printing is controlled.

- **Normal** indicates that printing is to occur when a print request (such as print screen) is received.
- **Auto** prints a line when the terminal receives a LF, a FF, or a VT code, or when autowrap occurs.
- **Controller** indicates that host data is sent to the printer (pass through mode). Printing is controlled by the host computer.

Print Block Term: [<ETX>, <CR>]

Select the character which indicates to the printer that the block of data to be printed has ended. The options above are for ASCII emulations. In ANSI emulations, the choices are [**None**, <FF>].



Print Region: [**Screen**, Scroll]

Indicate the region of the screen that is to be printed: the entire screen or a certain section of it called the scrolling region. A scrolling region is a limited portion of the screen which applications (such as word processors) may designate to be the user's.



Print Line Term: [<US>, <CR><LF>]

Indicate the character that <R>is to terminate a line of print.

Secondary Recv: [Off, **On**]

When "on," data received from the serial printer is routed to the port assigned for the host. This data is not displayed on the screen, and is transparent to the user. When "off," data received from the printer port is ignored.

## EMULATION: F9

The parameters displayed in this menu depend upon the current emulation. This section is divided between parameters for ASCII and ANSI emulations.

### ASCII Emulations

Page Edit: [Off, On]

When page edit is *on*, edit features such as insert act upon text to the end of the current page.

WPRT Intensity: [Dim, Normal, Suppress]

Choose the intensity of write protected characters. *Suppress* indicates that the character's foreground is the same as its background with the effect of "suppressing" output.

WPRT Underline: [Off, On]

Choose whether write-protected characters are underlined.

WPRT Blink: [Off, On]

Choose whether write-protected characters blink.

WPRT Reverse: [Off, On]

Choose whether write-protected characters display in reverse video.

Fkey Speed: [Fast, Normal]

Selects the speed at which function keys and labels are programmed by the host. Fast mode will increase the speed for Wyse 50 compatibility, but will limit the amount of space in each function key and answerback message to 8 bytes. Edit keys are not available for programming in fast mode. Changing this selection will default all function keys, edit keys, and function keys labels.

Save Labels: [Off, On]

When *on*, labels that are downloaded by the host will be saved in non-volatile memory. If this selection and Display NV Labels are *off*, labels written by the host would be lost upon entry and exit to Setup.

Attribute: [**Char**, Line, Page]

Choose the extent to which attributes are propagated. (The only parallel ASCII emulations are PC Term and Wyse 60.)

**Display NV Labels: [On, Off]**

Select whether the labels in non-volatile memory are displayed on the lowest line. When *off* is selected, any existing labels will remain on the screen, until *on* is selected, and they are re-displayed. On a 26-line screen, they are displayed below line 24. On a 44-line screen, labels are displayed below line 42, and on a 52-line screen, they are displayed below line 50. (The top line is the top status line and cannot be used for data.) If the page length used is a multiple of 25 (instead of 24) and the screen length is 26 lines, then the last data line is used for data and labels will not be displayed regardless of this setting. The same is true for a page length that is a multiple of 43 (instead of 42) with a screen length of 44 lines.

**Status Line: [Standard, Extended, Off]**

Select the type of the status line. In *standard*, cursor row and column, emulation indicator, print indicator, Caps Lock, and communications mode are displayed. In *extended*, only emulation indicator, Caps Lock, communications mode, protect and write protect are displayed.

**Char Set: [National, Multinational]**

Select whether the character set used is the 7-bit national chart or the 8-bit multinational chart when Language is not U.S. If U.S. is chosen, the character set is *multinational*.

**Enhanced Attributes: [Off, On]**

When set to *on*, gives a better display presentation in overscan and reverse video modes. The blink and dim video attributes will affect the foreground text instead of the background. This selection is only available in reverse video mode.

**Bright Video: [Off, On]**

Provides a brighter display when set to *on*. Both normal and dim text are brighter than in the standard mode.



## ANSI Emulations

Numeric Kpd: [**Numeric**, Application]

Choose the set of strings sent by the numeric keypad.

Cursor Kpd: [**Cursor**, Application]

Choose the set of strings sent by the cursor control keypad.

Send Data: [**All**, Erasable]

Choose whether the data sent to the host is all data (erasable and selectively erasable) or only those characters tagged as erasable.

Print: [**National**, Line Drawing, Multinational]

Choose the set of characters used when printing.

ANSI-ID: [VT100, VT101, VT102, VT220, **VT320**]

Select the terminal's identification.

Function Key Lock: [**Off**, On]

Select whether the function keys are locked or modifiable by the host.



Key Usage: [**Typewriter**, Data Process]

This selection is available for all language selections except U.S. It applies to keys that have two characters printed side-by-side to select which character is sent by that key. *Typewriter* selects the character printed on the left side while *Data Process* selects the character printed on the right side of the keycap.

Char Set: [**Multinational**, National]

Select whether the character set used is from the 7-bit national chart or the 8-bit multinational chart. The default is the 8-bit multinational character set except when the emulation is VT100.

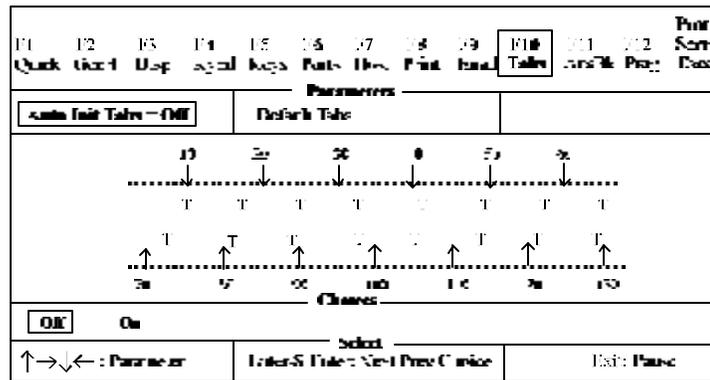
Feature Lock: [**Off**, On]

When on, the host cannot change user features: key repeat, scroll speed, screen background, tab stops, and keyboard lock.

Status Line: [Off, **Indicator**, Host-Write, Both]

Specify the way in which the status line is to be used: for host messages [host-write], as a cursor position indicator [indicator], for [both] or off.

TABS: F10



- Auto Init Tabs: [On, Off]  
 When on, tab settings will always be defaulted at power up.  
 Default Tabs: This action field sets tabs at every eighth column starting at column 9.  
 When the cursor is placed in the Tab Map, the keys below will appear in the Choices field:
- ↳ <Space> - clear the current tab setting.
  - ↳ <Shift> <Backspace> - clear all tab settings.
  - ↳ <T or t> - set a tab at the current location.
  - ↳ <- Ⓢ -> - move cursor on the Tab map or back to a Parameter field above the map.

## ANSWERBACK: F11

F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
Quick	Cloud	Disp	Keybd	Keys	Ports	Host	Prim	Para	Jobs	ANSIB	Prog	Exec
Parameters												
Answerback Mode: <input type="checkbox"/> Off		Answerback Conceal										
Answerback Message: _____												
Bytes Remaining: 8512												
Choices												
<input type="checkbox"/> Off		On										
↑ → ↓ ← : Parameter				Enter/Enter: New/Prev Choice				F10: Pause				

Answerback Mode: [On, Off]

Choose whether the answerback message (which is sent to the host at terminal reset or power up) mode is on. This can be used to log-in to the system.

Answerback Conceal: This is an action parameter which displays "Concealed" at the answerback edit field. Once it is concealed, the message cannot be redisplayed. This is a security measure for those who use answerback to send their login names and passwords to the host.

Answerback Message: This is a 30-character field which can be edited. (See the Edit Fields section later in this chapter.)

 When "Fkey Speed" is *Fast* in the Emul (F9) menu, the answerback edit field is limited to 8 bytes.

PROGRAM: F12

F12											End	
Quick	Cont	D'up	Kybd	Keys	Para	Dir	Prnt	Comm	Trns	Avail	F12	Screen
Parameters												
Key: F			Overrun - F/Key				Key Dir - Comm Dependent					
Text: _____												
_____												
_____												
Limit: _____												
Bytts Retaining: 0255												
Choices												
<input type="checkbox"/> F1 <input type="checkbox"/> F2 <input type="checkbox"/> F3 <input type="checkbox"/> F4 <input type="checkbox"/> F5 <input type="checkbox"/> F6 <input type="checkbox"/> F7 <input type="checkbox"/> F8 <input type="checkbox"/> F9 <input type="checkbox"/> F10 <input type="checkbox"/> F11 <input type="checkbox"/> F12 <input type="checkbox"/> F13 <input type="checkbox"/> F14 <input type="checkbox"/> F15 <input type="checkbox"/> F16												
Selected												
↑ ↓ ← → : Parameter				Enter:25-Limit:None:Type:Choice				ESC:Pause				

Program: [F/Key, Sh-F/Key, Edit Key, Sh-Edit Key]  
 Specify the type of key to be programmed—function or edit key in its normal or shifted state.

 When Fkey Speed is *Fast* in the EMUL (F9) menu, the Program options are F/Key and Sh-F/Key.

Key Dir: [Comm Depend, Host, Printer, Printer & Host, Screen, Host & Screen, Printer & Screen, All]

Select the destination of the contents of the function or edit key. *Comm Dependent* will cause the direction of the key data to correspond to the "Comm Mode" of the current emulation. For example, if the "Comm Mode" is *Full Block*, the contents of the key will be channeled to the screen only. If it were *Full Duplex*, then the contents would be sent to the host only.

Text: An edit field which permits up to 255 characters. Once the overall text limit (up to 542 characters) is reached, the terminal will beep and accept no more text. If the text is deleted with the backspace key, the default code is no longer programmed.

Shift-Backspace will restore the default. See the Edit Fields section or "Fkey Speed" in the Emulation section.

Label: A label of up to 7 characters can be entered for function keys in ASCII emulations only. See "Display NV Labels" in the Emulation section.

- **<Backspace>** - delete
- **<Shift> <Back>** - default field

Key: Select the key to be programmed. The keys that are listed as choices depend upon the Program parameter as shown below:

- When Program = *F/Key* or *Sh-F/Key*, the choices are [F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12].
- When Program = *Edit Key* or *Sh-Edit Key*, the choices are [Tab, Esc, Backspace, Delete, Return, Home, ↑, ↓, ←, →, EnterKpd, Insert, PageDown, PageUp, End, and Print].



When a PC style keyboard is attached, the following choices apply:

- When Program = *F/Key* or *Sh-F/Key*, the choices are [F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12].
- When Program = *Edit Key* or *Sh-Edit Key*, the choices are [(Tab, <X>], Select, Return, ↑, ↓, ←, →, Enter, Next, Screen, Remove, PF1, PF2, PF3, PF4)].



When an ANSI keyboard is attached, the choices are as follows:

- When Program = *F/Key* or *Sh-F/Key*, the choices are [F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13, F14, Help, Do, F17, F18, F19, F20]].
- When Program = *Edit Key* or *Sh-Edit key*, the choices are [Home, Esc, Backspace, Delete, Return, Home, ↑, ↓, ←, →, EnterKpd, Insert, PageDown, PageUp, End, and Print].



- To program an ESC (escape) character into the key text, press Ctrl-[.
- To program a DEL character into the text field, press Ctrl-Shift-\* (alphanumeric keypad).
- To program a carriage return or line feed into the key text

field, press Ctrl-M or Ctrl-J, respectively.

- To program the "Print Screen" key to perform a local print screen (page) function: In the key text field, press ; Ctrl-[ and then P. Next, set the "Key Dir"=Screen option.

## EXECUTE: Prnt Scrn

All of the parameters in this menu are action parameters.

**Terminal** parameters affect all settings, including the emulation. **Emulation** choices affect only settings that relate to the chosen emulation.

**Save Terminal:** Save all settings in non-volatile (permanent) memory, including those associated with the emulation selected.

**Reset Terminal:** All terminal parameters are initialized. It also performs reset pages and default modes.

**Recall Terminal:** Revert to all terminal and emulation settings that were saved in nonvolatile memory. A "Reset Terminal" is also performed. This is referred to as a hard reset and is equivalent to turning the terminal off and back on.

**Default Terminal:** Load all defaults for the terminal and emulation, including the emulation. A "Reset Terminal" is also performed.

**Save Emulation:** Save all the settings associated with the chosen emulation.

**Reset Emulation:** Initialize all emulation settings. This is also referred to as a "Soft-Reset." Perform page-resets and default modes. "Mode" specifies the parameters used by a emulation which are not selectable through Setup such as Insert-Mode, Split-Screen, and Graphics-Mode.

**Recall Emulation:** Load the previously saved settings associated with the chosen emulation. A "Reset Emulation" is also performed.

**Default Emulation:** Load all defaults associated with the emulation selected.

**Reset Ports:** Clear the transmit buffers for the host and printer port, and receive buffer for the host port. Unlocks the keyboard and clears its buffer data.

**Clear Screen:** Clear the screen and the entire page.

**Default Emulation UDKS:** Set the contents of all the function and edit keys associated with the chosen emulation to their factory default states.

## Edit Fields

Setup uses overwrite mode in text editing fields. That is, the cursor keys cannot be used to move to a location in the text to insert characters. Upon entry to a text field, the cursor is placed at the last text location. Use the following keystrokes:

- ↳ **Backspace** - move cursor left by deleting that character.
- ↳ **Shift-Backspace** - reset the field to its default value.
- ↳ **Alphanumeric keys** - enter text in the normal, shifted, or control state. To generate a control character (00h-1Fh) add 40h and use Ctrl with the character in the new position (40h-5Fh). For example, to insert CR-LF (0Dh, 0Ah) codes, press Ctrl-M, Ctrl-J (4Dh, 4Ah). The compose and meta functions can also be used to generate 8-bit characters.

## Glossary of Terms

Some of the terms that are used in the Exec (PrtSc) menu are defined below.

### Terminal Parameters

Terminal parameters includes emulation parameters (defined later) and non-emulation parameters that affect the terminal globally without regard to the emulation. The non-emulation parameters and their defaults are listed below:

- ↳ Setup Parameters: Bell Volume (6), Screen Saver (5 min), Overscan Borders (on), Language (U.S.), Keyclick (on), EIA(Aux) Baud Rate (9600), EIA (Aux) Data Format (8/1/N), EIA (Aux) Parity Check (off), EIA(Aux) Rcv Prtcl (Xon-Xoff/XPC), EIA (Aux) Xmit Prtcl (none), EIA (Aux) Break (250 ms), EIA (Aux) Xmit Pace (baud), EIA (Aux) Disconnect (2 sec), EIA (Aux) Modem Control (off), Emulation Display (full), Refresh Rate (70 Hz), Bright Video (off), Enhanced Attributes (on), Caps Lock (Toggle), Num Lock (Toggle), Key Repeat (On), Speed (fast).
- ↳ Desk Accessory Parameters: Clock Display (off), Clock Type (12 hour), Clock Location (column 48), Date, Time (not saved) ,

Alarm Time (12 PM), Tone (alarm/hourly), Calculator (printer off, tape on), and the row and column in which each accessory is displayed.

### Emulation Parameters

Emulation Parameters are parameters that are specific to the emulation selected. These include three types of parameters: Setup-Edit keys, Setup, and Modes.

- ▷ Setup-Edit Keys: Function and Edit keys and the Answerback message.
- ▷ Setup Parameters: All other Setup variables that are not included in Setup Parameters in Terminal Parameters (all global settings).
- ▷ Mode Parameters: Variables that are used by a emulation's emulation, but are not selectable through Setup. Some examples are Protect Mode, Graphics Mode, Insert Mode, Aux Mode, Split-Screen, Transparent Mode, and Character Set mappings.

### Page Reset

Page resets are executed when the emulation or terminal is reset or defaulted. When a page reset is performed, it affects all pages, and the following events occur: the page is erased, the cursor is homed, and scrolling regions are defaulted. All line attributes (such as double-high/wide, locked lines) are reset to normal. Split screens are cleared to a normal, single screen and protect mode is turned off.



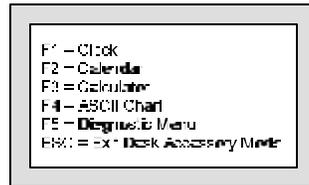
# Desk Accessories

This terminal features five desk accessories, which can be accessed one at a time through pop-up windows.

## Overview

### Desk Accessory Menu

To display this pop-up window to choose any of the five desk accessories, press Ctrl-←.



Function keys F1-F5 are used to display the clock, calendar, calculator, ASCII chart, and diagnostic menu, respectively.



To access this menu (with a PC keyboard), the selection "Desk Acc = ←" must be chosen in the KEYS (F5) Setup menu. This menu is always available with the ANSI keyboard.

### Direct Access

To display any desk accessory directly, without the desk accessory menu, the following keystrokes are used:

- Clock – press Ctrl-Shift-F1
- Calendar – press Ctrl-Shift-F2
- Calculator – press Ctrl-Shift-F3
- ASCII Chart – press Ctrl-Shift-F4
- Diagnostic Menu – press Ctrl-Shift-F5

You may also use a function key (F1-F5) to enter another desk accessory window, once one is entered.



To use these keystrokes with a PC keyboard, the selection “Desk Acc = Sh-Ctrl-Fkeys” should be chosen in the KEYS (F5) Setup menu. If an ANSI keyboard is attached, the “F to F5 keys = Local” should be chosen in the KEYS (F5) Setup menu.

To reposition any window on your screen, hold down the Shift key while pressing a cursor control (arrow) key.

### Exit Keystrokes

To exit any window and restore the original screen:



Press **ESC** on the PC keyboards



Press **F11** on the ANSI keyboard

### Inhibiting Access

Access to desk accessories can be inhibited by selecting “Disabled” for “Desk Acc” in the Setup menu.

## Calendar

This displays a calendar for any month from the years 1900 to 2099. The current date is displayed at the bottom. The keys below control the calendar that is displayed:

- ↳ **Right- and left-arrow keys** – display an earlier or later month.
- ↳ **Up- and down-arrow keys** – display the selected month in an earlier or later year.
- ↳ **Esc** – exit calendar.

The specified calendar month will display as shown below:

JANUARY '95						
SU	MON	TUE	WED	THU	FRI	SAT
						1 2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
T						
Sun Dec 31 '94						

## Clock

The clock menu (shown below) contains seven lines which can be modified:

Date	Jan 1, 1995
Time	08:00:00 AM
Display	Off
Type	12
Column	48
Alarm Set	12:00 PM
Tone	Off

Use the following keys to make changes:

- **Up- or down-arrow keys** - select a line. The line is highlighted.
- **Left- or right-arrow keys** - select a field on the chosen line. The selected field is now highlighted.
- **Spacebar** - move "up" through options available for this field.
- **Shift-Spacebar** - move "down" the options.
- **Enter (num)** - revert to the default setting for the current field.
- **Esc** - exit clock and save settings.

Each of the seven fields is described below:



The clock is reset to 08:00 AM at power-up. Due to hardware limitations, the clock may drift by 15 seconds per day. We recommend setting the terminal's time as part of the system login process.

**Date** - use the left or right arrow keys to highlight each field of the date (month, day, and year). Then, use the Spacebar or press Shift-Spacebar to cycle through the settings. The date can also be set by the host.

**Time** - use the procedure described for *Date* above to set the hour, minutes, or seconds.

**Display** - indicate whether only Time, only Date, or both the Time and the Date are displayed on the top status line. Display of Time/Date can also be turned Off. The date display can also be set by the host.

**Type** - select whether the clock functions on a 12- or 24-hour basis.

**Column** - set the column (36-99) in which the date/time will display (as enabled by *Display* above).

**Alarm Set** - time at which an alarm (a 1-2 second bell tone) should sound.

**Tone** - how alarm tone(s) should be activated: every Hour, on the Alarm setting only, or both on the Alarm setting and Hourly. The alarm tone can also be turned Off.

## Calculator

The numeric keypad located on the right side of your keyboard will serve as your calculator. See the figures below to relate the display to the keys on the numeric keypad that control it.



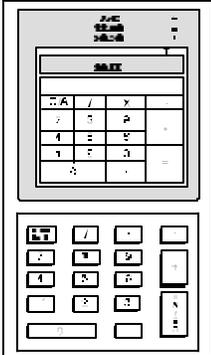
The ANSI keyboard calculator display is identical to the ones shown below for the PC keyboard except that the controlling keys on the numeric keypad are different. The ANSI keyboard control keys include PF1-PF4 keys and function keys F16-F20.

The calculator can process up to 10 digits to the left of the decimal point, and up to 9 to the right. When a number or number operator is pressed, it is momentarily highlighted on the display.

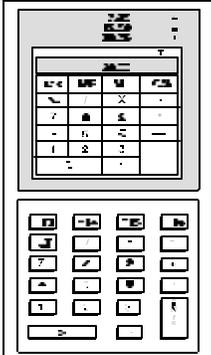
Number operators are defined as follows:

- +, -, /, X – the respective operations of addition, subtraction, division, and multiplication.
- MS – stores the displayed value in memory.
- MR – displays the stored value
- M+ – adds the displayed value to memory.
- +/- – make a number positive/negative.
- C/A – displays 0.0 when pressed once. When pressed twice, clears memory.

The figures below represents the calculator display:



Calculator Display (EPC keyboard)



Calculator Display (PC/+ keyboard)

In addition to the keys on the numeric keypad, you may use:

- **T** - toggle "tape" on/off. Results scroll above the display.
- **P** - toggle "printer" on/off. Results are transmitted onto the printer.



Use the printer option only when a printer is connected. Press Ctrl-Shift-Tab to clear a printer error.

- **X** - exit the calculator, transmitting the final result to the current application.
- **Ctrl** - (a number on the numeric keypad) - specify the precision, where the number of decimal places that will be displayed is equal to the number pressed with the Ctrl key.
- **Esc** - exit calculator.

### ASCII Chart

The ASCII chart, upon entry to this desk accessory, is centered on the character on which your cursor was last placed, and that character is highlighted. The chart will display as shown below:

CONTINUING				
DEC	OCT	HEX	BINARY	CHAR
126	156	7E	01111110	.
127	177	7F	01111111	,
128	100	00	00000000	
129	101	01	00000001	
130	102	02	00000010	

Characters are also displayed in octal, hexadecimal, and binary number representations. The CHAR column contains the ASCII representation of the character.

Use the following keys to change the display of the ASCII chart:

- **Up- or down-arrow** – scroll up or down the characters in the ASCII chart (0-127).
- **Left- or right-arrow** – scroll through the available font banks. The characters will display from the selected font bank.
- **Ctrl-*↑*, Ctrl-*↓*, Ctrl-*←*, Ctrl-*→*** – move the cursor on the screen up, right, down, or left. The ASCII chart will be redisplayed, and the chart will be centered on the character that the cursor now rests upon.



Upon exit, the cursor will be restored to its previous location at the time of entry to the desk accessory(ies).

- **Esc** – exit the ASCII chart.

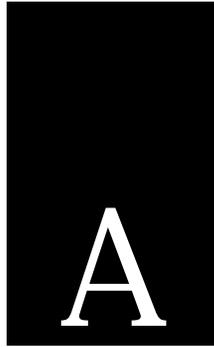
## Diagnostic Menu

This desk accessory is used to display terminal configuration information such as the amount of memory (RAM) in the terminal, the style of keyboard that you are using, and the firmware revision level. An example of the diagnostic menu is shown below:

Serial-Modem	3C	F0C05
Serial-Modem	3C	F0C00
Serial-RAM	3C	F0C01
Serial-RAM	32k	F0C02
Serial-RAM	128k	F0C03
Serial-RAM	128k	F0C04
Serial-RAM	128k	F0C05
Serial-RAM	128k	F0C06
Serial-RAM	128k	F0C07
Serial-RAM	128k	F0C08
Serial-RAM	128k	F0C09
Serial-RAM	128k	F0C0A
Serial-RAM	128k	F0C0B
Serial-RAM	128k	F0C0C
Serial-RAM	128k	F0C0D
Serial-RAM	128k	F0C0E
Serial-RAM	128k	F0C0F
Serial-RAM	128k	F0C10
Serial-RAM	128k	F0C11
Serial-RAM	128k	F0C12
Serial-RAM	128k	F0C13
Serial-RAM	128k	F0C14
Serial-RAM	128k	F0C15
Serial-RAM	128k	F0C16
Serial-RAM	128k	F0C17
Serial-RAM	128k	F0C18
Serial-RAM	128k	F0C19
Serial-RAM	128k	F0C1A
Serial-RAM	128k	F0C1B
Serial-RAM	128k	F0C1C
Serial-RAM	128k	F0C1D
Serial-RAM	128k	F0C1E
Serial-RAM	128k	F0C1F
Serial-RAM	128k	F0C20
Serial-RAM	128k	F0C21
Serial-RAM	128k	F0C22
Serial-RAM	128k	F0C23
Serial-RAM	128k	F0C24
Serial-RAM	128k	F0C25
Serial-RAM	128k	F0C26
Serial-RAM	128k	F0C27
Serial-RAM	128k	F0C28
Serial-RAM	128k	F0C29
Serial-RAM	128k	F0C2A
Serial-RAM	128k	F0C2B
Serial-RAM	128k	F0C2C
Serial-RAM	128k	F0C2D
Serial-RAM	128k	F0C2E
Serial-RAM	128k	F0C2F
Serial-RAM	128k	F0C30
Serial-RAM	128k	F0C31
Serial-RAM	128k	F0C32
Serial-RAM	128k	F0C33
Serial-RAM	128k	F0C34
Serial-RAM	128k	F0C35
Serial-RAM	128k	F0C36
Serial-RAM	128k	F0C37
Serial-RAM	128k	F0C38
Serial-RAM	128k	F0C39
Serial-RAM	128k	F0C3A
Serial-RAM	128k	F0C3B
Serial-RAM	128k	F0C3C
Serial-RAM	128k	F0C3D
Serial-RAM	128k	F0C3E
Serial-RAM	128k	F0C3F
Serial-RAM	128k	F0C40
Serial-RAM	128k	F0C41
Serial-RAM	128k	F0C42
Serial-RAM	128k	F0C43
Serial-RAM	128k	F0C44
Serial-RAM	128k	F0C45
Serial-RAM	128k	F0C46
Serial-RAM	128k	F0C47
Serial-RAM	128k	F0C48
Serial-RAM	128k	F0C49
Serial-RAM	128k	F0C4A
Serial-RAM	128k	F0C4B
Serial-RAM	128k	F0C4C
Serial-RAM	128k	F0C4D
Serial-RAM	128k	F0C4E
Serial-RAM	128k	F0C4F
Serial-RAM	128k	F0C50
Serial-RAM	128k	F0C51
Serial-RAM	128k	F0C52
Serial-RAM	128k	F0C53
Serial-RAM	128k	F0C54
Serial-RAM	128k	F0C55
Serial-RAM	128k	F0C56
Serial-RAM	128k	F0C57
Serial-RAM	128k	F0C58
Serial-RAM	128k	F0C59
Serial-RAM	128k	F0C5A
Serial-RAM	128k	F0C5B
Serial-RAM	128k	F0C5C
Serial-RAM	128k	F0C5D
Serial-RAM	128k	F0C5E
Serial-RAM	128k	F0C5F
Serial-RAM	128k	F0C60
Serial-RAM	128k	F0C61
Serial-RAM	128k	F0C62
Serial-RAM	128k	F0C63
Serial-RAM	128k	F0C64
Serial-RAM	128k	F0C65
Serial-RAM	128k	F0C66
Serial-RAM	128k	F0C67
Serial-RAM	128k	F0C68
Serial-RAM	128k	F0C69
Serial-RAM	128k	F0C6A
Serial-RAM	128k	F0C6B
Serial-RAM	128k	F0C6C
Serial-RAM	128k	F0C6D
Serial-RAM	128k	F0C6E
Serial-RAM	128k	F0C6F
Serial-RAM	128k	F0C70
Serial-RAM	128k	F0C71
Serial-RAM	128k	F0C72
Serial-RAM	128k	F0C73
Serial-RAM	128k	F0C74
Serial-RAM	128k	F0C75
Serial-RAM	128k	F0C76
Serial-RAM	128k	F0C77
Serial-RAM	128k	F0C78
Serial-RAM	128k	F0C79
Serial-RAM	128k	F0C7A
Serial-RAM	128k	F0C7B
Serial-RAM	128k	F0C7C
Serial-RAM	128k	F0C7D
Serial-RAM	128k	F0C7E
Serial-RAM	128k	F0C7F
Serial-RAM	128k	F0C80
Serial-RAM	128k	F0C81
Serial-RAM	128k	F0C82
Serial-RAM	128k	F0C83
Serial-RAM	128k	F0C84
Serial-RAM	128k	F0C85
Serial-RAM	128k	F0C86
Serial-RAM	128k	F0C87
Serial-RAM	128k	F0C88
Serial-RAM	128k	F0C89
Serial-RAM	128k	F0C8A
Serial-RAM	128k	F0C8B
Serial-RAM	128k	F0C8C
Serial-RAM	128k	F0C8D
Serial-RAM	128k	F0C8E
Serial-RAM	128k	F0C8F
Serial-RAM	128k	F0C90
Serial-RAM	128k	F0C91
Serial-RAM	128k	F0C92
Serial-RAM	128k	F0C93
Serial-RAM	128k	F0C94
Serial-RAM	128k	F0C95
Serial-RAM	128k	F0C96
Serial-RAM	128k	F0C97
Serial-RAM	128k	F0C98
Serial-RAM	128k	F0C99
Serial-RAM	128k	F0C9A
Serial-RAM	128k	F0C9B
Serial-RAM	128k	F0C9C
Serial-RAM	128k	F0C9D
Serial-RAM	128k	F0C9E
Serial-RAM	128k	F0C9F
Serial-RAM	128k	F0CA0
Serial-RAM	128k	F0CA1
Serial-RAM	128k	F0CA2
Serial-RAM	128k	F0CA3
Serial-RAM	128k	F0CA4
Serial-RAM	128k	F0CA5
Serial-RAM	128k	F0CA6
Serial-RAM	128k	F0CA7
Serial-RAM	128k	F0CA8
Serial-RAM	128k	F0CA9
Serial-RAM	128k	F0CAA
Serial-RAM	128k	F0CAB
Serial-RAM	128k	F0CAC
Serial-RAM	128k	F0CAD
Serial-RAM	128k	F0CAE
Serial-RAM	128k	F0CAF
Serial-RAM	128k	F0CB0
Serial-RAM	128k	F0CB1
Serial-RAM	128k	F0CB2
Serial-RAM	128k	F0CB3
Serial-RAM	128k	F0CB4
Serial-RAM	128k	F0CB5
Serial-RAM	128k	F0CB6
Serial-RAM	128k	F0CB7
Serial-RAM	128k	F0CB8
Serial-RAM	128k	F0CB9
Serial-RAM	128k	F0CBA
Serial-RAM	128k	F0CBB
Serial-RAM	128k	F0CBC
Serial-RAM	128k	F0CBD
Serial-RAM	128k	F0CBE
Serial-RAM	128k	F0CBF
Serial-RAM	128k	F0CC0
Serial-RAM	128k	F0CC1
Serial-RAM	128k	F0CC2
Serial-RAM	128k	F0CC3
Serial-RAM	128k	F0CC4
Serial-RAM	128k	F0CC5
Serial-RAM	128k	F0CC6
Serial-RAM	128k	F0CC7
Serial-RAM	128k	F0CC8
Serial-RAM	128k	F0CC9
Serial-RAM	128k	F0CCA
Serial-RAM	128k	F0CCB
Serial-RAM	128k	F0CCC
Serial-RAM	128k	F0CCD
Serial-RAM	128k	F0CCF
Serial-RAM	128k	F0CD0
Serial-RAM	128k	F0CD1
Serial-RAM	128k	F0CD2
Serial-RAM	128k	F0CD3
Serial-RAM	128k	F0CD4
Serial-RAM	128k	F0CD5
Serial-RAM	128k	F0CD6
Serial-RAM	128k	F0CD7
Serial-RAM	128k	F0CD8
Serial-RAM	128k	F0CD9
Serial-RAM	128k	F0CDA
Serial-RAM	128k	F0CDB
Serial-RAM	128k	F0CDC
Serial-RAM	128k	F0CDD
Serial-RAM	128k	F0CDE
Serial-RAM	128k	F0CDF
Serial-RAM	128k	F0CE0
Serial-RAM	128k	F0CE1
Serial-RAM	128k	F0CE2
Serial-RAM	128k	F0CE3
Serial-RAM	128k	F0CE4
Serial-RAM	128k	F0CE5
Serial-RAM	128k	F0CE6
Serial-RAM	128k	F0CE7
Serial-RAM	128k	F0CE8
Serial-RAM	128k	F0CE9
Serial-RAM	128k	F0CEA
Serial-RAM	128k	F0CEB
Serial-RAM	128k	F0CEC
Serial-RAM	128k	F0CED
Serial-RAM	128k	F0CEE
Serial-RAM	128k	F0CEF
Serial-RAM	128k	F0CF0
Serial-RAM	128k	F0CF1
Serial-RAM	128k	F0CF2
Serial-RAM	128k	F0CF3
Serial-RAM	128k	F0CF4
Serial-RAM	128k	F0CF5
Serial-RAM	128k	F0CF6
Serial-RAM	128k	F0CF7
Serial-RAM	128k	F0CF8
Serial-RAM	128k	F0CF9
Serial-RAM	128k	F0CFA
Serial-RAM	128k	F0CFB
Serial-RAM	128k	F0CFC
Serial-RAM	128k	F0CFD
Serial-RAM	128k	F0CFE
Serial-RAM	128k	F0CF7

If you require technical support, this menu provides a means for our support team to quickly assess your terminal installed options.

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# Appendix

## Local Keys

Action	Scan Code Mode	PC Keyboard	ANSI Keyboard
Toggle Caps-Lock	No	Lock	Lock
Toggle Num-Lock	No	Num-Lock	
Toggle Scroll-Lock <sup>1</sup>	No	Scroll-Lock	F1
Toggle Auto Print <sup>2</sup>	Yes	Ctrl-Print-Screen	Ctrl-F2*
Toggle Block-Mode	Yes	Ctrl-Shift-Pause	F4*
Toggle Monitor Mode	Yes	Ctrl-Shift-1\End	Ctrl-Shift-1 (num)
Toggle Ins/Replace	No	Ctrl-Insert	Ctrl-PF4
Instant Screen Saver <sup>3</sup>	Yes	Ctrl-Shift-*	Ctrl-Shift-PF3
Soft Reset <sup>4</sup>	No	Shift-Scroll Lock	Shift-F3*
Hard Reset (Power On)	No	Ctrl-Shift-Scroll Lock	Ctrl- F3*
Break <sup>5</sup>	Yes	Ctrl-Pause	F5*
Modem-Disconnect <sup>6</sup>	No	Pause	Shift-F5*
Send-Answerback	No	Shift-Pause	Ctrl- F5*
Print-Page	Yes	Ctrl-Shift-Del.	Ctrl-Shift- . (num)

*Continued*

*Continued*

Action	Scan Code Mode	PC Keyboard	ANSI Keyboard
Increment Scroll Rate <sup>7</sup>	Yes	Ctrl-Shift-↑	Ctrl-Shift-↑
Decrement Scroll Rate <sup>7</sup>	Yes	Ctrl-Shift-↓	Ctrl-Shift-↓
Raise Split <sup>8</sup>	Yes	Ctrl- - (num)	Ctrl- - (num)
Lower Split <sup>8</sup>	Yes	Ctrl- , (num)	Ctrl- , (num)
Split-Full Toggle <sup>8</sup>	Yes	Ctrl-Shift- - (num)	Ctrl-Shift- - (num)
Roll-Window-Up <sup>8</sup>	Yes	Ctrl-↑	Ctrl-↑
Roll-Window-Down <sup>8</sup>	Yes	Ctrl-↓	Ctrl-↓
Change Status Line <sup>9</sup>	Yes	Ctrl-→	Ctrl-→
Home & Clear Page	Yes	Ctrl-Shift-Home	
Auto Adjust Window	Yes	Ctrl-Home	
Enter Desk Accessory Mode	Yes	Ctrl-←	Ctrl-←
Enter Setup Mode <sup>10</sup>	Yes	Ctrl-Scroll-Lock	F3*
Exit Setup Mode <sup>10</sup>	Yes	Pause	F14
Enter Clock <sup>11</sup>	Yes	Ctrl-Shift-F1	Ctrl-Shift-F1*
Enter Calendar <sup>11</sup>	Yes	Ctrl-Shift-F2	Ctrl-Shift-F2*
Enter Calculator <sup>11</sup>	Yes	Ctrl-Shift-F3	Ctrl-Shift-F3*
Enter ASCII Chart <sup>11</sup>	Yes	Ctrl-Shift-F4	Ctrl-Shift-F4*
Enter Diagnostics <sup>11</sup>	Yes	Ctrl-Shift-F5	Ctrl-Shift-F5*
Exit Any Desk Accessory	Yes	Esc	F11 (Esc)
Next Page <sup>12</sup>	No	Ctrl-Page Down	Ctrl-Next Screen
Previous Page <sup>12</sup>	No	Ctrl-Page Up	Ctrl-Prev Screen
Display Page 0 <sup>13</sup>	No	Ctrl-0\Ins	Ctrl-0 (num)
Display Page 1 <sup>13</sup>	No	Ctrl-1\End	Ctrl-1 (num)
Display Page 2 <sup>13</sup>	No	Ctrl-2\↓	Ctrl-2 (num)
Display Page 3 <sup>13</sup>	No	Ctrl-3\Page Down	Ctrl-3 (num)



In Scan Code Mode, this chart applies only when Local Leadin is on.

## NOTES:

- \* See the Setup chapter. Keystrokes for these functions are operational only if Setup selection "F1 to F5 keys" = Local.
- \*\* The Compose key selection, in the F5 setup menu, must be equal to Alt.
- 1 This function is operational only if EIA (Aux) Rcv-Prtcl = Xon-Xoff/XPC or DTR.
- 2 In ANSI emulations, this keystroke toggles in and out of Auto Print Mode.
- 3 This function is operational even if Screen Saver is set to *off*.
- 4 This function unlocks the keyboard, turns off all print modes and re-initializes the serial ports for setup parameters.
- 5 The length of the Break Signal is dependent on the setup parameter of "EIA (Aux) Break."
- 6 This keystroke is dependent on the "Disconnect" setting in the "Keys" (F5) setup menu.
- 7 The Increment Scroll Rate toggles the scroll rate to the fastest smooth scroll. This function also stops at the jump scroll. The Decrement Scroll Rate toggles from jump scroll to the fastest smooth scroll toward the slowest smooth scroll.
- 8 These functions are not available in ANSI emulations.
- 9 The Change Status Line function will toggle in the status line display from "Indicator" to "Host Write" to "Both" to "Off" in ANSI Emulations and "Standard" to "Extended" to "Off" on ASCII Emulations.
- 10 For other keystrokes for these functions, see the Setup chapter.
- 11 Keystrokes for these functions are only operational if the "Desk Acc=Sh-Ctrl-Fkeys" in the setup menu.
- 12 When a Split Screen is not enabled, these keys select the next or previous pages. Wrapping takes place from the last page to the first and vice versa.
- 13 These local functions are operational only if the selected page is available.

## Page Configurations

Lines per Page	Number of Pages	
	0/132	80-column
24	2	4
48	1	2
96	-	1
*24	2 (24/32)	2 (24/72)
25	2	3
50	1	1
*25	2 (25/31)	2 (25/71)
42	1	2
84	-	1
*42	-	2 (42/54)
43	1	2
86	-	1
*43	-	2 (43/53)



When a page length (in the first column) is preceded by an asterisk (\*), a total of two pages will be available. The first page contains the selected number of lines and the second page contains the remaining allowable lines in memory. The number of lines are listed on this chart as (first page /second page).



## NOTE TO INSTALLER

This equipment complies with the FCC Regulation for Class A devices, Subpart J of Part 15. Shielded, grounded interface cables were used on all ports for FCC radiated emission testing.

The manufacturer is not responsible for any violation of the FCC Regulation for Class A devices that is caused by unauthorized modification of the equipment, or caused by equipment installation not in accordance with the instructions in this manual.

This equipment generates, uses, and can radiate radio frequency energy and may cause radio or television interference. All user equipment that interfaces with other products should be connected with shielded cables. (Contact a local dealer for more information on shielded cable assemblies and their availability.)

There is no guarantee that interference will not occur. If radio or television interference occurs (this can be determined by turning the equipment off and on while the radio or television is on), the user is solely responsible for correcting the interference and is encouraged to take one or more of these measures:

1. Reorient the receiving antenna.
2. Relocate the equipment, or move the equipment away from the receiver.
3. Plug the equipment into a different outlet so the unit and receiver are on different branch circuits.
4. Consult the dealer or an experienced radio/television technician.

It is also suggested that the user read the FCC booklet entitled How to Identify and Resolve Radio-TV Interference Problems. The booklet is available from the US Government Printing Office, Washington, DC 20402. (When ordering the booklet, specify stock number 04-000-00345-4.)

### Site Preparation

The screen display geometry on terminal products is aligned using magnetic devices. External magnetic fields created by other types of electronic equipment, such as printers, in very close proximity to the terminal, may cause minor display distortion.

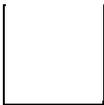


Examples of display distortion include:

- ↳ Shaky video
- ↳ Wavy lines
- ↳ Tilted display

This magnetic field interaction only occurs over a very short distance, normally less than twelve inches, and can be corrected by separating the equipment and/or slightly reorienting the display.





## Technical Support

Questions about this product should be directed to the Technical Support Department of the distributor from which you obtained your Boundless Technologies equipment. When requesting assistance, please have all pertinent information available including any error messages that may have appeared either on the terminal or the host.

If your distributor fails to provide adequate support for your needs, please contact the Boundless Technologies Technical Support Department directly. You will be required to provide the name of your distributor, and a description of the problem as described above.

Please refer to the Boundless Technologies Guide to Support Services which was packaged with the terminal.

Boundless Technologies can be reached at:

Boundless Technologies, Inc.  
Technical Support Department  
100 Marcus Blvd.  
Hauppauge, NY 11788

(800) 231-5445 ext. 7259 (voice)

(516) 342-7378 (fax)

Email: [support@boundless.com](mailto:support@boundless.com)

BBS: 407-333-8326 1200/14400 baud  
8 data bits, 1 stop bit, no parity

ftp: [ftp.boundless.com](ftp://ftp.boundless.com)

Web site: <http://www.boundless.com>

