Programmer's Guide

TE 2000 ™ VT/ANSI Terminal Emulation

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Document Change Record

This page records changes to this document. The document was originally released as Revision A.

Revision	Date	Description of Change
F	04/2003	Revised remap keys. Revised 2435A control keys. Added Direct Connect Port number. Added Define Origin option. Revised duration and error tone information. Added 700 Series keypad information. Added 2435A 48-key keypad information. Added 2435A 31/32 column bar code information. Added Magnetic Card Reader extended command.
G	10/2003	Written for software version 7.26 or greater. Revised Barcode Parms information for the 700 Series Computer. Revised Radio Comm information for Trakkar Antares terminals. Added Allow Alias, Security Opts, and SIP Toggle parameters. Revised 700 Computer screen size information. Updated 5055 DOS keyboard. Added 5055 .NET, CK30 Handheld Computer, and CV60 Data Collection PC information. Added Telxon Private Use escape sequences and information about implementing color attributes.
H	04/2004	Written for TE 2000 version 7.39 or greater. Added screen sizes and bar codes to Trakker Antares terminals. Modified 248X, 700 Series, CK30, and CV60 screen size information. Added an option to the Scan Options parameter. Added Software Input Panel information to 700 Series and CV60 Terminals. Added Session Name option to Sessions parameter. Updated applicable parameters to include Session 3 and Session 4 for 700 Series and CV60 Terminals. Removed references to "5055 .NET" and changed "5055 DOS" references back to "5055." Added screen captures of dialogs from the CV60 Terminal. Added Disconnect Val option to Radio Comm parameter.
J	03/2005	Written for TE 2000 version 8.00 or greater. Updated the 700 Series Auxiliary Keys and added Back Tab key to 2435A terminal in Chapter 3, "*Using the Terminal's Keyboard*." Added two VT/ANSI protocol options, revised the 2475, 2481, and 2486 terminal screen sizes, and revised the Code Page option in Chapter 4, "*Using the Terminal Emulation Menus*." Revised the Key Code Table, added TE_SETTINGS.INI settings, and updated the remapping information in Chapter 5, "*Customizing Your Configuration*." Added color attributes to SGR in Chapter 6, "*Programming*." Changed "DCS 300" references to "Intermec Application Server" and "CV60 Data Collection PC" references to "CV60 Vehicle Mount Computer." Added references to the CK31 Handheld Computer.

Contents

Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do not repair or adjust alone

Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid

Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation

Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Safety Icons

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this manual. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

Avertissement: Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manupulant l'équipement.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Attention: Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at www.intermec.com and click **Service & Support**. The Intermec Global Sales & Service page appears. From the **Service & Support** menu, move your pointer over **Support**, and then click **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at www.intermec.com to download our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at intermec.custhelp.com to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec Technologies Corporation.

Service	Description	In the U.S.A. and Canada call 1-800-755-5505 and choose this option
Factory Repair and On-site Repair	Request a return authorization number for authorized service center repair, or request an on-site repair technician.	1
Technical Support	Get technical support on your Intermec product.	2
Service Contract Status	Inquire about an existing contract, renew a contract, or ask invoicing questions.	3
Schedule Site Surveys or Installations	Schedule a site survey, or request a product or system installation.	4
Ordering Products	Talk to sales administration, place an order, or check the status of your order.	5

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

Who Should Read this Guide?

This guide provides you with information about the TE 2000 VT/ANSI terminal emulation application, and how to install, configure, operate, maintain, and troubleshoot the application.

Related Documents

This table contains a list of related Intermec documents and part numbers.

Manual	Part #
1100 Series Data Terminal User's Guide	961-047-069
5020 Data Collection PC User's Manual	068975-002
5055 Data Collection PC User's Guide	961-054-017
5900 Series User's Guide	961-047-121
700 Series Color Mobile Computer Quick Start Guide	962-054-053
700 Series Color Mobile Computer User's Manual	961-054-031
700 Series Monochrome Mobile Computer Quick Start Guide	962-054-061
700 Series Monochrome Mobile Computer User's Manual	961-054-032
The Bar Code Book	051241
CK30 Handheld Computer User's Manual	073528
CK31 Handheld Computer Usere's Manual	075205
CV60 Vehicle Mount Computer User's Guide	961-054-033
EZBuilder Getting Started Guide	066450
EZBuilder Tutorial	066449
Intermec Application Server User's Guide	072242
MobileLAN ™access 21xx System Manual	067150
Native Terminal Emulation Programmer's Guide	977-055-006
*PEN*KEY Model 6400 User's Guide*	961-047-098
RT1700 Radio Terminal User's Guide	961-047-068
TE 2000 3270 Terminal Emulation Programmer's Guide	977-055-003
TE 2000 5250 Terminal Emulation Programmer's Guide	977-055-004
TRAKKER Antares 241X Hand-Held Terminal User's Manual	069538
TRAKKER Antares 2420 and 2425 Hand-Held Terminal User's Manual	064024
TRAKKER Antares 243X Hand-Held Terminal User's Manual	071791-001
TRAKKER Antares 2455 Vehicle Mount Terminal User's Manual	067358
TRAKKER Antares 2475 Vehicle-Mount Terminal User's Manual	072383
TRAKKER Antares 248X Stationary Terminal User's Manual	066960
TRAKKER Antares Application Development Tools System Manual	064433
TRAKKER Antares Optical Link Adapter Quick Reference Guide	065826
TRAKKER Antares TD2400 Communications Dock Quick Reference Guide	065555
TRAKKER Antares TD2410 Communications Dock Quick Reference Guide	069552

The Intermec web site at www.intermec.com contains our documents that you can download in PDF format.

To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

1 Getting Started

This chapter introduces the TE 2000™ terminal emulation application.

Understanding Network Protocol Options

TE 2000 applications for the Enterprise Wireless LAN system, use one of the following network protocol options:

- **UDP Plus**
  The terminal communicates with the host computer through the Intermec® Application Server and an access point.
- **TCP/IP**
  The terminal communicates through an Intermec access point, which is directly connected to the host computer on an Ethernet or a token ring network.
- **WTP**
  The terminal communicates with the host computer through the Intermec Application Server, Intermec access point, or other Intermec gateways.

For network configuration options, refer to your terminal's user manual.

Setting Up the Terminal and the Network

Before you can start using the TE 2000 application on your terminal, you need to do the following:

1 **Set up your terminal.**
Set-up includes charging and installing the battery pack and turning on the terminal for the first time. For instructions, refer to your terminal's user manual.

Note: Battery packs do not apply to all terminals. Vehicle mount and stationary terminals are powered via an external source.

2 **Configure your terminal and the network.**
To use RF communications on the terminal, you need to:

   a Configure the Intermec Application Server (UDP Plus or WTP), other Intermec gateways (WTP), or host (TCP/IP).

   b Configure the access point. *This does not apply to the 2480/2481 Terminal, which contains an Ethernet NIC instead of a radio.*

   c Configure the network parameters on the terminal.

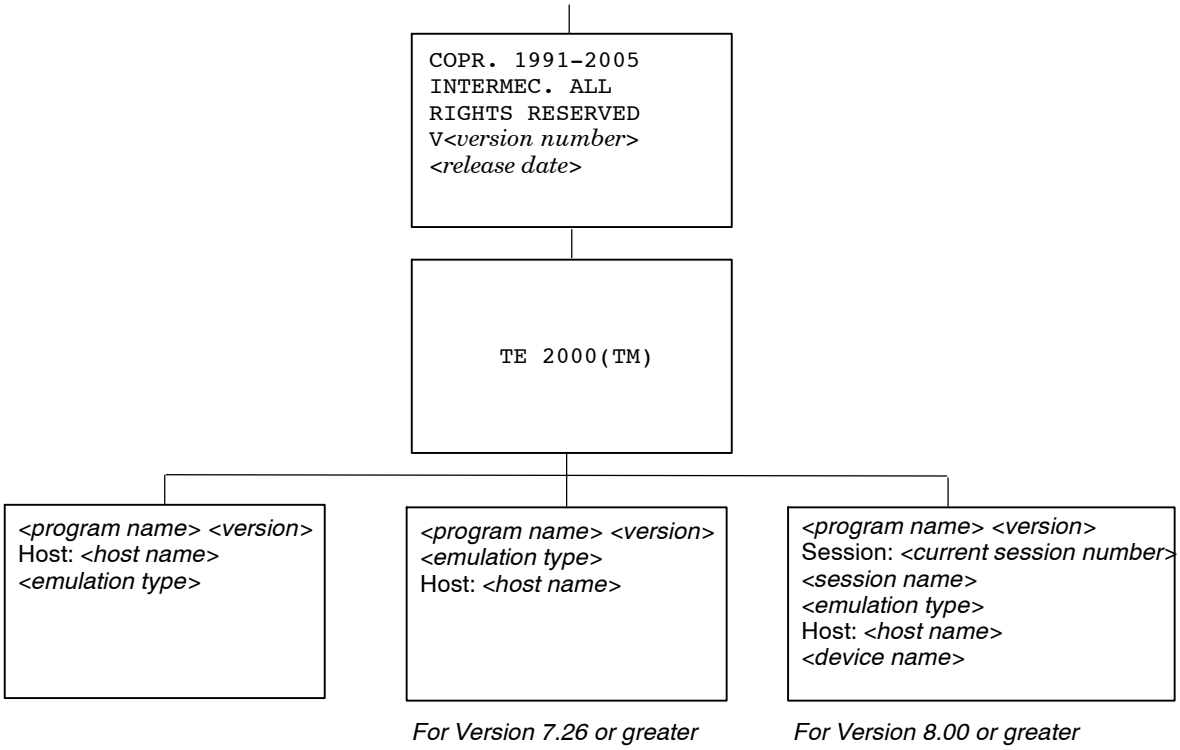
   For instructions, refer to your terminal's user manual.

3 **Verify that your terminal is communicating correctly with the access point and Intermec Application Server or the host.**
To verify that your terminal is communicating correctly, refer to the terminal's user manual for instructions.

Starting the TE 2000 Application

You are ready to start your application once the terminal is set up, the terminal and the network are configured, and communications are established with the gateway and access point or host.

To start your application:
Turn on the terminal. Wait a few seconds while the initialization screens (below) clear and the application starts.



Note: If your application does not start after a few seconds, you may not have configured the terminal correctly. For help, refer to your terminal's user manual.

You can now do one of the following:

- Become familiar with VT/ANSI TE if you have not previously used it
- Perform a quick configuration
- Configure your TE 2000 application
- Customize your TE 2000 application

Becoming Familiar With VT/ANSI Terminal Emulation

If you have not previously used the TE 2000 VT/ANSI application, see Chapter 2, "*Using Terminal Emulation Applications*," to understand VT/ANSI commands. See Chapter 3, "*Using the Terminal's Keyboard*," to become familiar with your terminal's keyboard and the keys you need to press to perform VT/ANSI commands.

Performing a Quick Configuration

Note: For Terminal Emulation Version 6.60 or greater, the default data stream is "VT/ANSI."

1 Change the data stream to VT/ANSI. The default data stream is "Native" for the 6400 (WTP), 5055 (WTP), 59XX, 17XX, and 11XX Terminals,. The default data stream for 2415, 2425, 2435A, 2455, 2475, 248X, and IP terminals is "3270."

a Access the terminal emulation configuration menus by pressing the following keys, then choose **1) Set-up Parms** from the Main Menu.

Terminal	Key Sequence
2415	(f) (F1) *(55-key keyboard)* (f) (5) *(37-key keyboard)*
2425	(f) (F1)
2435A	(Blue) (Blue) *(57-key and 39-key function numeric keyboards)* [Green] [ ] [Orange] [ ] *(48-key keyboard)*
2455, 2475, 248X	(f) F1
6400	[Gold] [Blue]
5055	[Blue] [M] *or* [ALT] [M]
59XX	[Brown] [Space]
17XX, 11XX	[Gold] [Black]

Note: Press a number to select a menu option, then press [**Enter**] to return to a previous menu.

b At the Enter Password prompt, enter **cr52401**.
*On 17XX (37-key) Terminals, the password is: **F12 F11 5 2 4 0 1***

c From the Set-up Parms menu, select **3) Protocol Opts**, **2) Data Stream**, then **4) VT/ANSI**.

2 Extended commands transmit or receive data over the terminal's RS-232 port, send information to an RS-232 device, or collect data. Enable the Extended Cmds option if your host computer is configured to send extended commands to the terminal. *It is disabled by default.*

From the Protocol Opts menu, select **3) Extended Cmds**, then **1) Enabled**.

3 From the Main Menu, select 7) **More**, then **2) Save Parms**.

4 At the Enter Password prompt, type "cr52401," then press [**Enter**].
*On 17XX (37-key) Terminals, the password is: **F12 F11 5 2 4 0 1***

5 From the Main Menu, select **6) Exit Menus**.

Note: For WTP devices, you should also set a terminal number.

6 Log in to a TE session, then use the terminal to collect or transmit data.

Configuring the TE 2000 Application

You can use the terminal's TE 2000 configuration menus to configure site-specific operational parameters, including UDP Plus, TCP/IP, or WTP communications, terminal emulation options, and the Main Menu password. For information about configuring the terminal, see Chapter 4, "*Using the Terminal Emulation Menus*."

Using Advanced Features

You can customize the standard TE 2000 program to do the following. For more information, see Chapter 5, "*Customizing Your Configuration*."

- Use the auto-login feature to send the same login information each time you login to the host.
- Display double-byte characters.
- Create a custom parameter set-up file.
- Change the text of TE configuration menus or system messages.
- Remap the terminal's keys.
- Preinitialize the VT/ANSI TE program.

Unsupported Commands and Functions

TE 2000 Terminal Emulation for the 2415, 2425, 2435A, 2455, 2475, and 248X Terminals does not support the following commands and functions, which were supported in previous versions.

- **End** (viewport)
  Moved window or viewport to the end of the last line displayed on the TE screen.
- **Fast Cursor Right or Left**
  Moved the cursor two positions to the right or left rather than one.
- **Home** (viewport)
  Moved the window or viewport to the top left corner of the TE screen.
- **Reshow**
  Resent screen image from local host buffer to refresh terminal screen.
- **Status**
  Toggled terminal screen between status line, normal field input displays.
- **Status line messages**
  Reported the operating status of the terminal and host system.
- **Dual sessions**
  Not supported in Trakker Antares UDP Plus or TCP terminals.

If you scan the bar code for an unsupported command, the bar code data is read into the terminal. If you press the key sequence for the command, the sequence is ignored.

Program Names

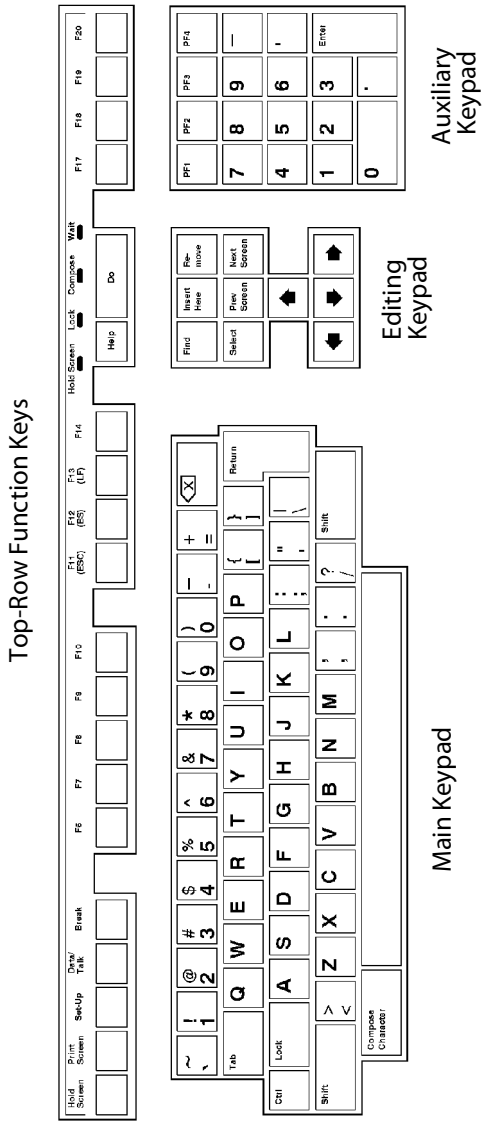
The following chart lists TE 2000 options and program names.

Note: The TE 2000 application does not support SST (Spread Spectrum Transmission) or regular UHF. "S-UHF" is synthesized UHF.

Model	Option	Program Name	
2415, 2425, 2435A, 2455, 2475, 248X	TE/WTP/2.4 GHz OpenAir TE/WTP/802.11 TE/UDP Plus/2.4 GHz OpenAir TE/UDP Plus/802.11 TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP240H0	
6400		*51-key keyboard*	*41-key keyboard*
	TE/WTP/2.4 GHz OpenAir	FWP640H0	FWP640H4
	TE/WTP/802.11	FWP640H0	FWP640H4
	TE/WTP/900 MHz Falcon	FWP640H0	FWP640H4
	TE/IP/2.4 GHz OpenAir	FWP64TH0	FWP64TH4
	TE/IP/802.11	FWP64TH0	FWP64TH4
5020	TE/UDP Plus/2.4 GHz OpenAir TE/UDP Plus/802.11 TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP502H0	
5055	TE/WTP/2.4 GHz OpenAir TE/WTP/802.11 TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP650H0 FWP650H0 FWP65TH0 FWP65TH0	
59XX	TE/WTP TE/WTP TE/WTP/2.4 GHz OpenAir TE/WTP/900 MHz Falcon TE/WTP/S-UHF	FWP592H0 FWP594H0 FWP598H0 FWP596H0 FWP591H1	
17XX		*57-key keyboard*	*37-key keyboard*
	TE/WTP	FWP170H0	FWP170H3
	TE/WTP	FWP174H0	FWP174H3
	TE/WTP/2.4 GHz OpenAir	FWP178H0	FWP178H3
	TE/WTP/900 MHz Falcon	FWP176H0	FWP176H3
	TE/WTP/S-UHF	FWP171H0	FWP171H3
11XX	TE/WTP TE/WTP TE/WTP/2.4 GHz OpenAir TE/WTP/900 MHz Falcon TE/WTP/S-UHF	FWP110H0 FWP114H0 FWP118H0 FWP116H0 FWP111H0	
700 Series	TE/IP/802.11	FWP700H0	
CK30, CK31	TE/IP/802.11 TE/UDP Plus/802.11	FWPCK3H0	
CV60	TE/IP/802.11	FWPCV6H0	

VT/ANSI Standard Terminal Keyboard

As you read how your terminal's keyboard emulates VT/ANSI operation, you may want to frequently refer to the following illustration for your terminal.



This illustration is of the VT/ANSI Terminal Standard North American Keyboard.

2 Using Terminal Emulation Applications

This chapter describes how to use the TE 2000™ VT/ANSI Terminal Emulation application for your particular terminal.

Annunciators

The terminal's display reserves a location for annunciators (icons) that help you monitor RF and network communications, or alert you of a condition that requires action. Following are TE 2000 VT/ANSI annunciators.

X	Keyboard action mode (KAM) was set. The terminal ignores all keystrokes that send characters to the host. This state stays on until KAM is reset.
K	The terminal is in Keypad mode.
C	Terminal is in Character mode. The terminal sends each character as it is pressed.
B	The terminal is in Line Edit (block) mode. When you press a terminating key, the terminal sends a block of characters to the host.
e	The terminal is in Local Edit mode, which is a feature of the VT330/VT340 Terminal.

For information about annunciators that indicate battery condition and general operational status, refer to the terminal's user manual.

Main Keypad

The VT/ANSI Terminal's main keypad consists of standard keys and function keys. Standard keys generate letters, numbers, and symbols. Function keys generate special function codes. The following describes the keys.

Compose character	The terminal does not support this function, which starts a compose sequence that creates characters that cannot be typed directly from the keyboard.
Ctrl	The Ctrl key is used with another key to send a control code.
Delete	Operation depends on how the DEL to BS option is set in the TE configuration menus. The key either sends a delete (DEL, 7F hexadecimal) or a backspace (BS, 08 hexadecimal).
Lock	The Lock key alone does not send a code. It is used with shift-lock, which either sets or clears shift-lock.
Return	Sends either a CR character (0D hexadecimal) or a CR character (0D hexadecimal) and an LF character (0A hexadecimal), depending on the set or reset state of line feed or new line mode (LNM).
Shift	The Shift key alone does not send a code. It is used with other standard keys to send uppercase characters.
Space bar	Sends an SP character (20 hexadecimal).
Tab	Sends an HT character (09 hexadecimal).

To enter a function key:
Press the keys listed in the section for the terminal. Or, scan the following bar codes (also in Appendix A, "*Bar Code Scanning*").

Backspace

%BKSP

Delete (Del)

%DEL

Editing Keypad

The terminal's editing keypad has editing keys and cursor (arrow) keys.

Cursor Keys

You can use cursor keys and paging keys to manually move the terminal's window/viewport. See the terminal user manual for more information.

Editing Keys

Editing keys have functions assigned to them by the application software in use. Refer to your application's software manual for information about editing key functions. Editing keys are **Find**, **Insert**, **Next Screen**, **Previous Screen**, **Remove**, and **Select**.

To enter an editing key:
Press the keys listed in the section for the terminal. Or, scan the following bar codes (also in Appendix A, "*Bar Code Scanning*").

Find (VT220/320 only)

%FIND

Insert (VT220/320 only)

%INS

Next Screen (VT220/320 only)

%NEXT

Previous Screen (VT220/320 only)

%PREV

Remove (VT220/320 only)

%REM

Select (VT220/320 only)

%SEL

Auxiliary Keys

The VT/ANSI terminal's auxiliary keypad consists of numeric keys (which enter numeric data) and programmable function (PF) keys. The following chart describes VT/ANSI terminal auxiliary keypad operations.

0–9	Enters numeric data.
– (hyphen)	Enters a hyphen character.
, (comma)	Enters a comma character.
. (period)	Enters a period character.
Enter	Sends CR, CRLF, or SS# M, depending on the mode settings.
PF1–PF4	The application software in use assign operations to these PF keys. See the application software manual for programmed uses of these keys.

To enter an auxiliary key:
Press the keys while the terminal is in Keypad mode. Or, scan the bar code in Appendix A, "*Bar Code Scanning*".

Top-Row Function Keys

VT220/320/340 terminals support function keys [**F1**]–[**F20**]. Keys [**F1**]–[**F5**] are used for hold screen, print screen, set-up, data/talk, and break. The terminal supports only the break function. For VT220/320/340, [**F1**]–[**F4**] are PF1–PF4.

F5 (Break)	Sends a break function to the host.
F6–F20	User-defined keys (UDKs) that have operations assigned to them by the application software in use. Refer to your application's software manual for their uses.

Note: VT100 Terminals only support top-row function keys [**F11**] (Escape), [**F12**] (Backspace), and [**F13**] (Line feed).

To enter a top-row function key:
Press the keys listed in the section for the terminal. Or, scan the bar code in Appendix A, "*Bar Code Scanning"*.

Transmission Mode

Use the transmission mode (labeled "Mode" on the overlay) to toggle between Line Edit (block) mode and Character mode. These modes are described in Chapter 6, "*Programming*."

When Lock mode is disabled, you can press the Mode key to toggle between Line Edit (block) mode and Character mode. When Lock mode is enabled, you cannot toggle between the modes. By default, Lock mode is disabled. You can configure Lock mode through the TE configuration menus. See Chapter 4, "*Using the Terminal Emulation Menus*," for information about the menus.

Local Edit Mode

If your application software program supports local editing, you can use the terminal in Local Edit Mode, a feature of the VT330/ VT340 terminal. Local Edit Mode is described in Chapter 6, "*Programming*."

VT/ANSI Printing and Serial Scanning

You can print data from a VT/ANSI host. If you are using a 2415, 2425, 2435A, 2455, 2475, or 248X Terminal, you can use different methods to connect it to your printer depending on the type of terminal and printer you have. To connect your terminal to a printer, refer to the terminal's user manual for instructions.

Using the Print Modes

The following chart defines the print modes you can use with the VT/ANSI TE application.

Auto print	Prints each line after the cursor leaves that line using a carriage return or when auto-advancing through fields. This mode can be turned on and off from a VT/ANSI host.
Printer controller	Prints all data from a VT/ANSI host. Turn this mode on or off from the host as all host screens are printed without allowing the user to respond. You cannot log on or off while in this mode.
Print cursor line	Prints the line that the cursor is on. This mode can only be turned on from a VT/ANSI host and turns off after the line prints.
Print form feed	After a screen is printed, the printer advances the printed screen out of the printer. This mode can be turned on and off from a VT/ANSI host.

To send commands from the host, refer to the programmer's guide for your VT/ANSI host for help.

Configuring Printing and Serial Scanning Options

The following instructions explain how to set printing and serial scanning options. The method depends on the type of terminal you are using.

2415, 2425, 2435A, 2455, 2475, or 248X Terminals

1. Connect your terminal to a printer or scanner.
2. Open the TRAKKER Antares 2400 Menu System.
3. Configure the terminal's serial port to match the parameters set for the serial port on either the printer or the scanner. Flow Control must be set to XON/XOFF on both the terminal and the printer. For help configuring the parameters, refer to your terminal's user manual.

Note that the baud rate must match the terminal's printer settings and the data bits, stop bits, and parity must match the terminal's serial port settings.

1. Open the TRAKKER Antares 2400 Menu System firmware.
2. From the Main Menu, choose **Configuration Menu >Communications Menu > Serial Port**, then configure the serial port parameters. See the terminal's user manual for help.

Do the following to set the RS232 Stream option:

1. Open the TE configuration menus. For the correct key sequence, see Chapter 1, "*Getting Started*."
2. From the Main Menu, select **1) Set-up Parms**, then enter "cr52401" at the Enter Password prompt.
3. Select **3) Protocol Opts**, **6) VT/ANSI**, then 7) **More**.
4. Select 7) **More** again.
5. Enable or disable the RS232 Stream option.

6400, 5055, 59XX, 17XX, 11XX Terminals

1. Connect your terminal to a printer or scanner.
2. Configure the terminal's serial port to match the parameters set for the serial port on either the printer or the serial scanner from the Main Menu. From the Main Menu, select **1) Set-up Parms**, then enter "cr52401" at the Enter Password prompt.
3. Select **3) Protocol Opts**, **6) VT/ANSI**, then 7) **More**.
4. Select **4) RS232 Setup**, then set the baud rate, parity, stop bits, data bits, or flow.

5020 Data Collection PC

1. Connect your data collection pc to a printer or serial scanner.
2. Open the TRAKKER Antares 2400 Menu System firmware.
3. *Note that the baud rate must match the terminal's printer or serial scanner settings.* From the Main Menu, choose **Configuration Menu** > **Communications Menu** > **Serial Port**, then configure the baud rate. See the *5020 Data Collection PC User's Manual* (P/N: 068975) for assistance.

700 Series, CK30, CK31, CV60 Terminals

1. Connect your mobile computer to a printer.
2. Configure the serial port on the mobile computer to match the parameters set for the serial port on the printer. From the Main Menu, select **1) Set-up Parms**, then enter "cr52401" at the Enter Password prompt.
3. Select **3) Protocol Opts**, **6) VT/ANSI**, then 7) **More**.
4. Select **4) RS232 Setup**, then set the baud rate. See any of these applicable manuals for assistance:
   - *700 Series Color Mobile Computer User's Manual* (P/N: 961-054-031)
   - *700 Series Monochrome Mobile Computer User's Manual* (P/N: 961-054-032)
   - *CK30 Handheld Computer User's Manual* (P/N: 073528)
   - *CK31 Handheld Computer User's Manaul* (P/N: ?????)
   - *CV60 Vehicle Mount Computer User's Guide* (P/N: 961-054-033)

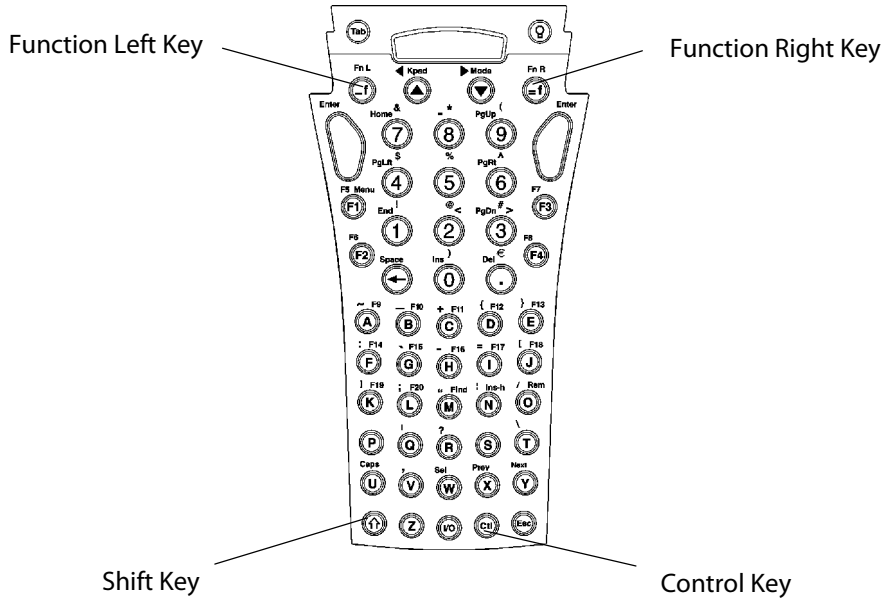
3 Using the Terminal's Keyboard

Your terminal has a special keyboard that contains most of the keys available on your VT/ANSI terminal keyboard. Use the keyboard to enter data in the TE screens.

The keys on the keyboard have their main character or operation marked directly on the key itself. To access that character or operation, just press the key.

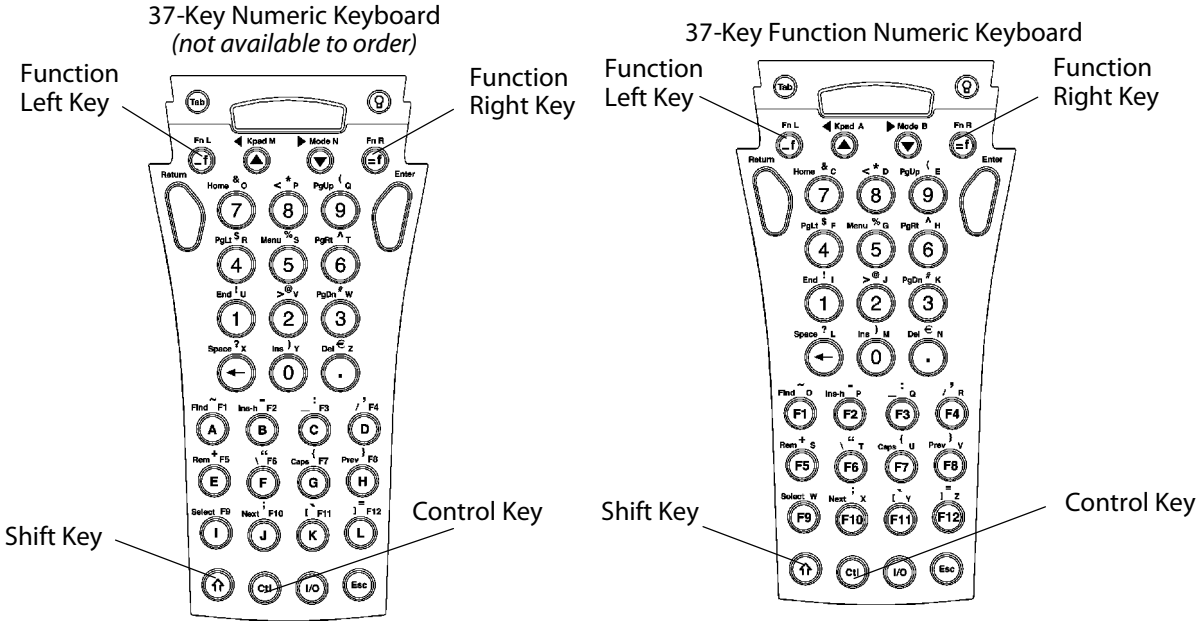
2415 Terminal

Your 2415 Terminal has a 55-key, 37-key numeric, or 37-key function numeric keyboard.



This illustration shows the 2415 Terminal 55-Key Keyboard.

For help with using the keyboards, refer to the *TRAKKER Antares 241X Hand-Held Terminal User's Manual* (P/N 069538).



This illustrations shows both 2415 Terminal 37-Key Keyboards. The left keyboard has the 37-key function numeric keyboard, which has function keys in the primary plane. The right keyboard has alphabetic keys in the primary plane. Note that the 37-key numeric configuration, while not orderable, is still supported.

2415 Paging Keys

To Enter	Press the Keys
Page up	(_f) (9)
Page down	(_f) (3)
Page right	(_f) (6)
Page left	(_f) (4)

2415 Standard Keys

To Enter	Press the Keys
0 – 9	(0) – (9)
Symbols	(_f) *or* (⇧), plus corresponding key.

2415 Function Keys

To Enter	Press the Keys: 55-Key Keyboard	37-Key Numeric Keyboard	37-Key Function Numeric Keyboard
Back Tab	f Tab	f Tab	f Tab
Backspace	←	←	←
Caps Lock	f U	f G	f F7
Ctrl	Ctl	Ctl	Ctl
Delete	f .	f .	f .
Forward Tab	Tab	Tab	Tab
Return	↵	↵	↵
Shift	⇧	⇧	⇧
Space bar	f ←	f ←	f ←

2415 Editing Keys

To Enter	Press the Keys: 55-Key Keyboard	37-Key Numeric Keyboard	37-Key Function Numeric Keyboard
Find	f M	f A	f F1
Insert here	f N	f B	f F2
Next screen	f Y	f J	f F7
Prev screen	f X	f H	f F8
Remove	f O	f E	f F5
Select	f W	f I	f F9

2415 Top-Row Function Keys

Note: Intermec® Application Servers do not support the **F5** (Break) function.

To Enter	Press the Keys: 55-Key Keyboard	37-Key Numeric Keyboard	37-Key Function Numeric Keyboard
F5 (Break)	f F1	f E	F5
F6	f F2	f F	F6
F7	f F3	f G	F7
F8	f F4	f H	F8
F9	f A	f I	F9
F10	f B	f J	F10
F11	f C	f K	F11
F12	f D	f L	F12
F13	f E	Not supported.	Not supported.
F14	f F	Not supported.	Not supported.
F15	f G	Not supported.	Not supported.
F16	f H	Not supported.	Not supported.
F17	f I	Not supported.	Not supported.
F18	f J	Not supported.	Not supported.
F19	f K	Not supported.	Not supported.
F20	f L	Not supported.	Not supported.

2415 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press ⇧ ▼.

2415 Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

2415 Control Keys

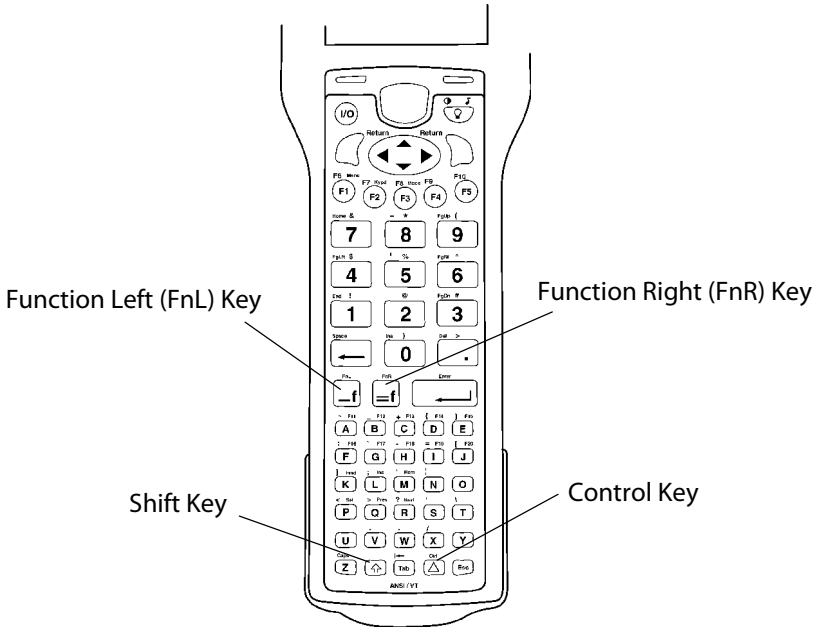
To Enter	Press the Keys: 55-Key Keyboard	37-Key Numeric Keyboard	37-Key Function Numeric Keyboard
FS (file separator)	Ctl F1	Ctl =f A	Ctl F1
GS (group separator)	Ctl F2	Ctl =f B	Ctl F2
RS (record separator)	Not supported.	Not supported.	Not supported.
US (unit separator)	Ctl F4	Ctl =f D	Ctl F4
NUL (null)	Ctl 0	Ctl 0	Ctl 0

2415 VT/ANSI Additional Functions

To Enter	Press the Keys: 55-Key Keyboard	37-Key Keyboard
Access TE configuration menus	=f F1	=f 5
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. For more information, see Chapter 4, "*Using the Terminal Emulation Menus*."	

2425 Terminal

For help with using the keyboard, refer to the *TRAKKER Antares 2420 and 2425 Hand-Held Terminal User's Manual* (P/N 064024).



This illustration shows the keyboard for the 2425 Terminal.

2425 Cursor Keys

To Enter	Press the Keys
Window/viewport up	_f ▲
Window/viewport down	_f ▼
Window/viewport right	_f ▶
Window/viewport left	_f ◀

2425 Paging Keys

To Enter	Press the Keys
Page up	_f 9
Page down	_f 3
Page right	_f 6
Page left	_f 4

2425 Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	A	A	⇧ A
b	B	B	⇧ B
c	C	C	⇧ C
d	D	D	⇧ D
e	E	E	⇧ E
f	F	F	⇧ F
g	G	G	⇧ G
h	H	H	⇧ H
i	I	I	⇧ I
j	J	J	⇧ J
k	K	K	⇧ K
l	L	L	⇧ L
m	M	M	⇧ M
n	N	N	⇧ N
o	O	O	⇧ O
p	P	P	⇧ P
q	Q	Q	⇧ Q
r	R	R	⇧ R
s	S	S	⇧ S
t	T	T	⇧ T
u	U	U	⇧ U
v	V	V	⇧ V
w	W	W	⇧ W
x	X	X	⇧ X
y	Y	Y	⇧ Y
z	Z	Z	⇧ Z
0 – 9	0 – 9		
Symbols	f *or* ⇧, plus corresponding key.		

2425 Function Keys

To Enter	Press the Keys
Back Tab	f Tab
Backspace	←
Caps Lock	f Z
Ctrl	△
Delete	f .
Forward Tab	Tab
Return	↵ *or* ↵
Shift	⇧
Space bar	f ←

2425 Editing Keys

To Enter	Press the Keys
Find	f K
Insert here	f L *or* f 0
Next screen	f R
Prev screen	f Q
Remove	f M
Select	f P

2425 Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break).

To Enter	Press the Keys
F5 (Break)	F5
F6	_f F1
F7	_f F2
F8	_f F3
F9	_f F4
F10	_f F5
F11	=f A
F12	=f B
F13	=f C
F14	=f D
F15	=f E
F16	=f F
F17	=f G
F18	=f H
F19	=f I
F20	=f J

2425 Transmission Mode

To toggle between Line Edit (block) and Character modes, press =f F3.

2425 Auto-Login Restart

To enter Auto-Login Restart, press =f F5 or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

2425 Control Keys

To Enter	Press the Keys
FS (file separator)	△ F1
GS (group separator)	△ F2
RS (record separator)	△ F3
US (unit separator)	△ F4
NUL (null)	△ F5

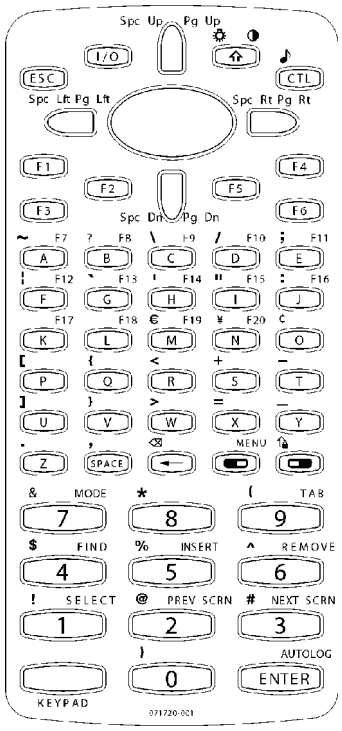
2425 VT/ANSI Additional Functions

To Enter	Press the Keys
Access TE configuration menus	=f F1
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. See Chapter 4, "*Using the Terminal Emulation Menus*."

2435A Terminal

For help with using the keyboards, refer to the *TRAKKER Antares 243X Hand-Held Terminal User's Manual* (P/N: 071791-001).

57-Key Keyboard



48-Key Keyboard

39-Key Keyboard

This illustration shows a 57-key (left), a 48-key (middle), and a 39-key (right) function numeric keyboard for the 2435A Terminal.

Characters on the Keyboards

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are:

[Orange]	Press Orange ▢ plus a key to type a character or do an operation printed in orange on the overlay.
[Green]	Press Green ▢ plus a key to type a character or do an operation printed in green on the overlay.

2435A Cursor Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
Window/viewport up		Orange, A	
Window/viewport down		Orange, B	
Window/viewport right		Orange, F	
Window/viewport left		Orange, E	

2435A Paging Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
Page up		Green, Q	
Page down		Green, V	
Page right		Green, W	
Page left		Green, U	

2435A Tab Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
Forward Tab	9	→	9
Back Tab	Not applicable	SHIFT →	Not applicable

2435A Standard Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
0–9	0 – 9	0 – 9	0 – 9
Symbols	⇧ plus corresponding key	⇧ plus corresponding key	⇧ plus corresponding key

2435A Function Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
Backspace	←	BKSP	←
Caps Lock	▬ ▬	Orange, SHIFT	▬ ▬
Ctrl	Ctl	Orange, ESC	Ctl
Delete	▬ ←	Orange, Green	▬ ←
Return	ENTER	↵	ENTER
Shift	⇧	SHIFT	⇧
Space bar	SPACE	SPACE	SPACE

2435A Editing Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
Find	▬ 4	Green, T	▬ 4
Insert here	▬ 5	Orange, →	▬ 5
Next screen	▬ 3	Green, SPACE	▬ 3
Prev screen	▬ 2	Green, →	▬ 2
Remove	▬ 6	Green, R	▬ 6
Select	▬ 1	Green, S	▬ 1

2435A Top-Row Function Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
F1	F1	Orange, 1	F1
F2	F2	Orange, 2	F2
F3	F3	Orange, 3	F3
F4	F4	Orange, 4	F4
F5	F5	Orange, 5	F5
F6	F6	Orange, 6	F6
F7	A	Orange, 7	F7
F8	B	Orange, 8	F8
F9	C	Orange, 9	F9
F10	D	Orange, 0	F10
F11	E	Green, 1	F11
F12	F	Green, 2	F12
F13	G	Green, 3	F1
F14	H	Green, 4	F2
F15	I	Green, 5	F3
F16	J	Green, 6	F4
F17	K	Green, 7	F5
F18	L	Green, 8	F6
F19	M	Green, 9	F7
F20	N	Green, 0	F8

2435A Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press 7 on the 57-key keyboard and 39-key function numeric keyboards; or press Green, M on the 48-key keyboard.

2435A Auto-Login Restart

To enter Auto-Login Restart, press ENTER on the 57-key keyboard and 39-key function numeric keyboards; press Green, ↵ on the 48-key keyboard, or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

2435A Control Keys

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Function Numeric Keyboard**
FS (file separator)	Ctl F1	Orange, ESC 1	Ctl
GS (group separator)	Ctl F2	Orange, ESC 2	Ctl
RS (record separator)	Ctl F3	Orange, ESC 3	Ctl
US (unit separator)	Ctl F4	Orange, ESC 5	Ctl
NUL (null)	Ctl 0	Orange, ESC 0	Ctl ENTER

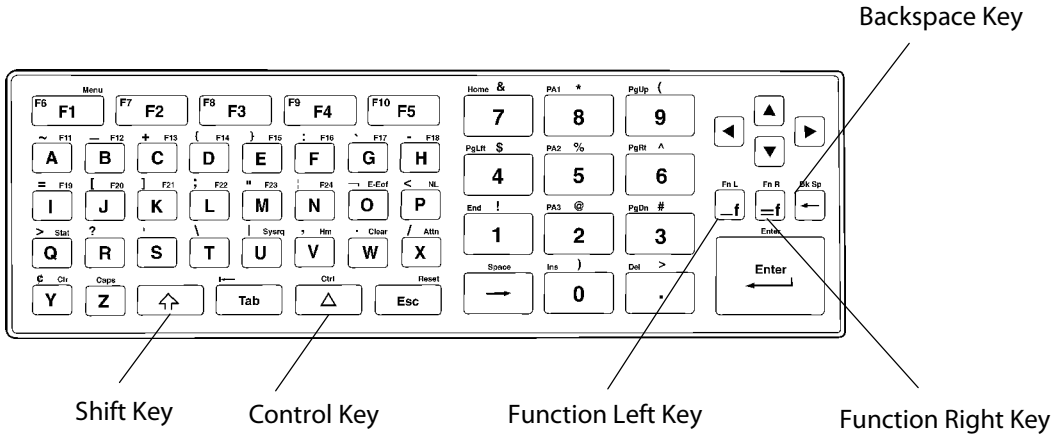
2435A VT/ANSI Additional Functions

	Press the Keys		
To Enter	**57-Key Keyboard**	**48-Key Keyboard**	**39-Key Keyboard**
Access TE configuration menus		Green, Orange	
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. For more information, see Chapter 4, "*Using the Terminal Emulation Menus*."		

2455 Terminal

For help with using the keyboard, refer to the *TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual* (P/N 067358).

Note: You must use the 2455 keyboard (P/N 067028) with the TE applications.



This illustration shows the keyboard for the 2455 Terminal.

2455 Cursor Keys

To Enter	Press the Keys
Window/viewport up	_f ▲
Window/viewport down	_f ▼
Window/viewport right	_f ▶
Window/viewport left	_f ◀

2455 Paging Keys

To Enter	Press the Keys
Page up	_f 9
Page down	_f 3
Page right	_f 6
Page left	_f 4

2455 Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	A	A	⇧ A
b	B	B	⇧ B
c	C	C	⇧ C
d	D	D	⇧ D
e	E	E	⇧ E
f	F	F	⇧ F
g	G	G	⇧ G
h	H	H	⇧ H
i	I	I	⇧ I
j	J	J	⇧ J
k	K	K	⇧ K
l	L	L	⇧ L
m	M	M	⇧ M
n	N	N	⇧ N
o	O	O	⇧ O
p	P	P	⇧ P
q	Q	Q	⇧ Q
r	R	R	⇧ R
s	S	S	⇧ S
t	T	T	⇧ T
u	U	U	⇧ U
v	V	V	⇧ V
w	W	W	⇧ W
x	X	X	⇧ X
y	Y	Y	⇧ Y
z	Z	Z	⇧ Z
0 – 9	0 – 9		
Symbols	f *or* ⇧, plus corresponding key.		

2455 Function Keys

To Enter	Press the Keys
Back Tab	f Tab
Backspace	←
Caps Lock	f Z
Ctrl	△
Delete	f .
Forward Tab	Tab
Return	↑ ↵
Shift	↑
Space bar	→

2455 Editing Keys

To Enter	Press the Keys
Find	f K
Insert here	f L *or* f 0
Next screen	f R
Prev screen	f Q
Remove	f M
Select	f P

2455 Top-Row Function Keys

To Enter	Press the Keys
F5 (Break)	F5
F6	_f F1
F7	_f F2
F8	_f F3
F9	_f F4
F10	_f F5
F11	=f A
F12	=f B
F13	=f C
F14	=f D
F15	=f E
F16	=f F
F17	=f G
F18	=f H
F19	=f I
F20	=f J

2455 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press =f F3.

2455 Auto-Login Restart

To enter Auto-Login Restart, press =f F5 or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

2455 Control Keys

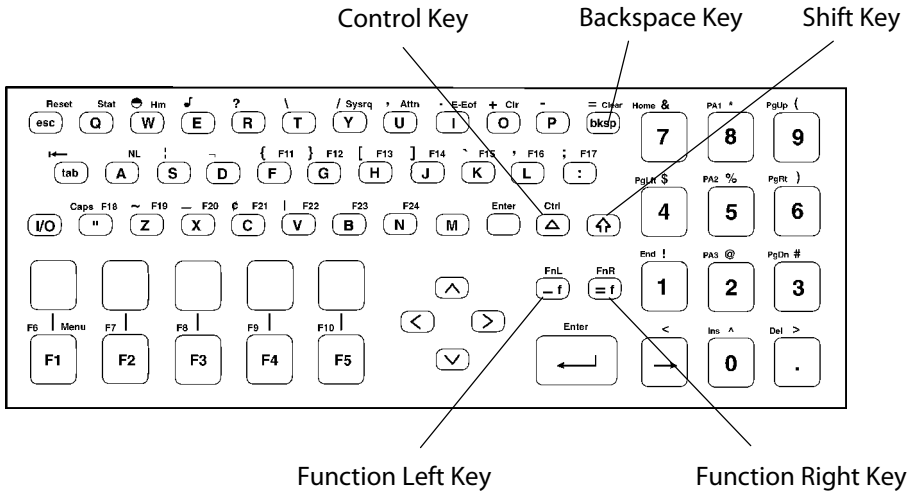
To Enter	Press the Keys
FS (file separator)	△ F1
GS (group separator)	△ F2
RS (record separator)	△ F3
US (unit separator)	△ F4
NUL (null)	△ F5

2455 VT/ANSI Additional Functions

To Enter	Press the Keys
Access TE configuration menus	=f F1
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. See Chapter 4, "*Using the Terminal Emulation Menus*."

2475 and 248X Terminals

For help with using the keyboard, refer either to the *Trakker Antares 2475 Vehicle-Mount Terminal User's Manual* (P/N: 072383) or the *TRAKKER Antares 248X Stationary Terminal User's Manual* (P/N 066960).



This illustration shows the keyboard for the 2475 and 248X Terminals.

2475 and 248X Cursor Keys

To Enter	Press the Keys
Window/viewport up	_f ^
Window/viewport down	_f v
Window/viewport right	_f >
Window/viewport left	_f <

2475 and 248X Paging Keys

To Enter	Press the Keys
Page up	_f 9
Page down	_f 3
Page right	_f 6
Page left	_f 4

2475 and 248X Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	A	A	⇧ A
b	B	B	⇧ B
c	C	C	⇧ C
d	D	D	⇧ D
e	E	E	⇧ E
f	F	F	⇧ F
g	G	G	⇧ G
h	H	H	⇧ H
i	I	I	⇧ I
j	J	J	⇧ J
k	K	K	⇧ K
l	L	L	⇧ L
m	M	M	⇧ M
n	N	N	⇧ N
o	O	O	⇧ O
p	P	P	⇧ P
q	Q	Q	⇧ Q
r	R	R	⇧ R
s	S	S	⇧ S
t	T	T	⇧ T
u	U	U	⇧ U
v	V	V	⇧ V
w	W	W	⇧ W
x	X	X	⇧ X
y	Y	Y	⇧ Y
z	Z	Z	⇧ Z
0 – 9	0 – 9		
Symbols	f *or* ⇧, plus corresponding key.		

2475 and 248X Function Keys

To Enter	Press the Keys
Back Tab	f tab
Backspace	bksp
Caps Lock	f "
Ctrl	△
Delete	f .
Forward Tab	tab
Shift	⇧
Space bar	→

2475 and 248X Editing Keys

To Enter	Press the Keys
Find	f Q
Insert here	f W *or* f 0
Next screen	f D
Prev screen	f S
Remove	f E
Select	f A

2475 and 248X Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break) function.

To Enter	Press the Keys
F5 (Break)	F5
F6	_f F1
F7	_f F2
F8	_f F3
F9	_f F4
F10	_f F5
F11	=f F
F12	=f G
F13	=f H
F14	=f J
F15	=f K
F16	=f L
F17	=f :
F18	=f
F19	=f Z
F20	=f X

2475 and 248X Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press =f F3.

2475 and 248X Auto-Login Restart

To enter Auto-Login Restart, press =f F5 or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

2475 and 248X Control Keys

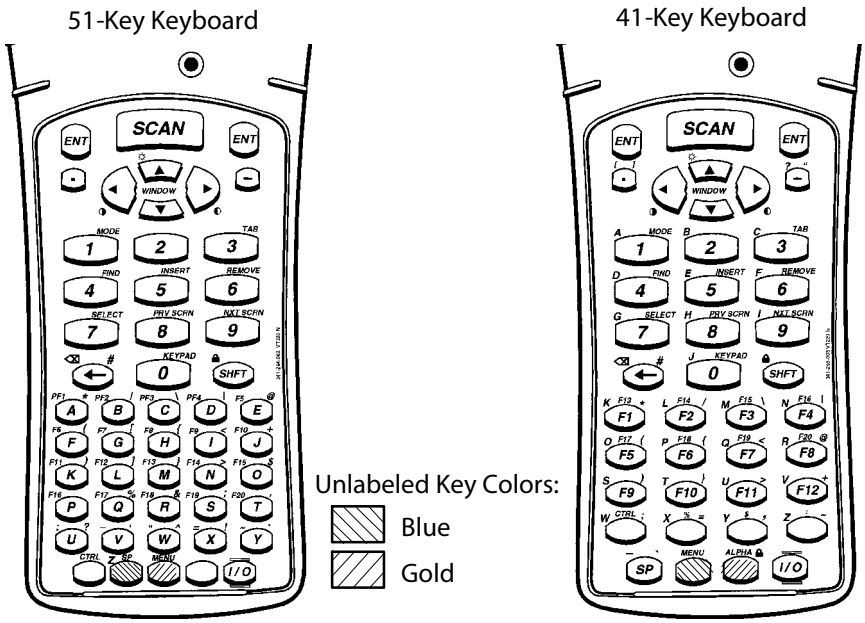
To Enter	Press the Keys
FS (file separator)	△ F1
GS (group separator)	△ F2
RS (record separator)	△ F3
US (unit separator)	△ F4
NUL (null)	△ F5

2475 and 248X VT/ANSI Additional Functions

To Enter	Press the Keys
Access TE configuration menus	=f F1
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. See Chapter 4, "*Using the Terminal Emulation Menus*."

6400 Computer

For help with using the keyboard, refer to the *PEN*KEY Model 6400 User's Guide* (P/N 961-047-093).



This illustration shows both the 51-key (left) and 41-key (right) keyboards for the 6400 Computer.

Characters on the Keyboards

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are:

[Green]	The **Green** [**SHFT**] puts the keyboard into green shift mode.
[Gold]	Press [**Gold**] plus a key to type a character or do an operation printed in gold on the overlay.
[Blue]	Press [**Blue**] plus a key to do operations printed in blue on the overlay.

The 51-key keyboard has two gray, unlabeled keys in the bottom row. These are the keys' functions when they are unshifted (in primary plane):

Gray key with "CTRL" printed above it is the **Control** key.
Gray key with "SP" printed above it is the **Space** key.

The 41-key keyboard has four gray, unlabeled keys near the bottom row. Following are the key's functions when they are in the primary plane:

Gray key with "CTRL" printed above it is the **Control** key.
Gray key with "%" printed above it is the **Percent** key which types a percent sign.
Gray key with "$" printed above it is the **Dollar** key which types a dollar sign
Gray key with ":" printed above it is the **Colon** key which types a colon.

Using the 41-Key Keyboard

The 41-key keyboard has standard numeric and [**ENT**] keys, plus application-defined function keys. The keys are color-coded according to function to make recognition and key entry easier.

Because a 6400 Computer with a 41-key keyboard does not have alphabetic keys in its primary plane, follow these procedures to enter passwords and cold-start the computer:

- To enter the password for the Set-up Parms menu, press [**Blue**] [**3**] or [**F12**] [**3**] to enter a "C," [**Blue**] [**F8**] or [**F11**] [**3**] to enter an "R," then press "52401." *Note that these are not case-sensitive.*
- To initiate the COLD START? firmware menu option, press [**Blue**] [**$**] to answer "yes."

You can use one of two methods to type letters on the 41-key keyboard: standard mode or alpha lock mode. When engaged, alpha lock mode switches the alphabetic keys with the function keys. That is, it moves lowercase alphabetic keys from their standard Blue plane to the primary plane. It moves uppercase alphabetic keys from their standard Shft Blue plane to the Shft plane. Alpha lock provides a faster way to type a series of letters because it reduces the number of key presses.

Note: Alpha lock mode moves only lowercase alphabetic keys to the primary plane.

To engage alpha lock mode press [**Blue**] [**Gold**]. Then, to type a series of letters, press the correct key combination. The keyboard stays in alpha lock mode until you press [**Blue**] [**Gold**] again to unlock it.

6400 Cursor Keys

To Enter	Press the Keys
Window/viewport up	[Gold] [▲]
Window/viewport down	[Gold] [▼]
Window/viewport right	[Gold] [▶]
Window/viewport left	[Gold] [◀]

6400 Paging Keys

To Enter	Press the Keys
Page up	[Blue] [▲]
Page down	[Blue] [▼]
Page right	[Blue] [▶]
Page left	[Blue] [◀]

6400 Standard Keys

To Enter	Press the Keys
0 – 9	[0] – [9]
Symbols	[Gold] *or* [Blue], plus the corresponding key.

6400 Function Keys

To Enter	Press the Keys
Ctrl	[Ctrl]
Delete	[Blue] [←]
Delete or Backspace	[←]
Forward Tab	[Gold] [3]
Lock	[Blue] [Shft]
Return	[ENT]
Shift	[Shft]
Space bar	[SP]

6400 Editing Keys

To Enter	Press the Keys
Find	[Gold] [4]
Insert here	[Gold] [5]
Next screen	[Gold] [9]
Prev screen	[Gold] [8]
Remove	[Gold] [6]
Select	[Gold] [7]

6400 Auxiliary Keys

	Press the Keys	
To Enter	**51-Key Keyboard**	**41-Key Keyboard**
0	[Gold] [0] [0]	[Gold] [0] [0]
1	[Gold] [0] [1]	[Gold] [0] [1]
2	[Gold] [0] [2]	[Gold] [0] [2]
3	[Gold] [0] [3]	[Gold] [0] [3]
4	[Gold] [0] [4]	[Gold] [0] [4]
5	[Gold] [0] [5]	[Gold] [0] [5]
6	[Gold] [0] [6]	[Gold] [0] [6]
7	[Gold] [0] [7]	[Gold] [0] [7]
8	[Gold] [0] [8]	[Gold] [0] [8]
9	[Gold] [0] [9]	[Gold] [0] [9]
- (hyphen)	[Gold] [0] [-]	[Gold] [0] [-]
, (comma)	[Gold] [0]+[Gold] [T]	[Gold] [0]+[Gold] [$]
. (period)	[Gold] [0] [.]	[Gold] [0] [.]
Enter	[Gold] [0] [ENT]	[Gold] [0] [ENT]
PF1	[Blue] [A]	[F1]
PF2	[Blue] [B]	[F2]
PF3	[Blue] [C]	[F3]
PF4	[Blue] [D]	[F4]

6400 Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break) function.

To Enter	Press the Keys (51-Key Keyboard)
F5 (Break)	[Blue] [E]
F6	[Blue] [F]
F7	[Blue] [G]
F8	[Blue] [H]
F9	[Blue] [I]
F10	[Blue] [J]
F11	[Blue] [K]
F12	[Blue] [L]
F13	[Blue] [M]
F14	[Blue] [N]
F15	[Blue] [O]
F16	[Blue] [P]
F17	[Blue] [Q]
F18	[Blue] [R]
F19	[Blue] [S]
F20	[Blue] [T]

When alpha lock mode is engaged on the 41-key keyboard, it switches the function keys with the alphabetic keys. That is, function keys normally in the primary plane ([**F1**] through [**F12**]) move to the Blue plane. Function keys normally in the Shft plane ([**F13**] through [**F20**]) move to the Shft Blue plane.

The following chart describes how to do function operations when the 41-key keyboard is in standard mode or alpha lock mode.

Note: The **F5** (Break) function does not work with Intermec Application Servers.

	Press the Keys	
To Enter	**Standard Mode**	**Alpha Lock Mode**
F5 (Break)	[F5]	[Blue] [F5]
F6	[F6]	[Blue] [F6]
F7	[F7]	[Blue] [F7]
F8	[F8]	[Blue] [F8]
F9	[F9]	[Blue] [F9]
F10	[F10]	[Blue] [F10]
F11	[F11]	[Blue] [F11]
F12	[F12]	[Blue] [F12]
F13	[Shft] [F1]	[Shft] [Blue] [F1]
F14	[Shft] [F2]	[Shft] [Blue] [F2]
F15	[Shft] [F3]	[Shft] [Blue] [F3]
F16	[Shft] [F4]	[Shft] [Blue] [F4]
F17	[Shft] [F5]	[Shft] [Blue] [F5]
F18	[Shft] [F6]	[Shft] [Blue] [F6]
F19	[Shft] [F7]	[Shft] [Blue] [F7]
F20	[Shft] [F8]	[Shft] [Blue] [F8]

6400 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press [**Gold**] [**1**] on the 51- and 41-key keyboards.

6400 Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

6400 Control Keys

Following are key combinations for the 51-key keyboard.

To Enter	Press the Keys (51-Key Keyboard)
DEL (delete)	[Ctrl] [8]
ESC (escape)	[Ctrl] [3]
FS (file separator)	[Ctrl] [4]
GS (group separator)	[Ctrl] [5]]
RS (record separator)	[Ctrl] [6]
US (unit separator)	[Ctrl] [7]

On the 41-key keyboard, press these combinations to use the control keys.

	Press the Keys	
To Do	**Standard Mode**	**Alpha Lock Mode**
CTRL A	[Ctrl] [Blue] [1]	[Blue] [Ctrl] [1]
CTRL B	[Ctrl] [Blue] [2]	[Blue] [Ctrl] [2]
CTRL C	[Ctrl] [Blue] [3]	[Blue] [Ctrl] [3]
CTRL D	[Ctrl] [Blue] [4]	[Blue] [Ctrl] [4]
CTRL E	[Ctrl] [Blue] [5]	[Blue] [Ctrl] [5]
CTRL F	[Ctrl] [Blue] [6]	[Blue] [Ctrl] [6]
CTRL G	[Ctrl] [Blue] [7]	[Blue] [Ctrl] [7]
CTRL H	[Ctrl] [Blue] [8]	[Blue] [Ctrl] [8]
CTRL I	[Ctrl] [Blue] [9]	[Blue] [Ctrl] [9]
CTRL J	[Ctrl] [Blue] [0]	[Blue] [Ctrl] [0]
CTRL K	[Ctrl] [Blue] [F1]	[Blue] [Ctrl] [F1]
CTRL L	[Ctrl] [Blue] [F2]	[Blue] [Ctrl] [F2]
CTRL M	[Ctrl] [Blue] [F3]	[Blue] [Ctrl] [F3]
CTRL N	[Ctrl] [Blue] [F4]	[Blue] [Ctrl] [F4]
CTRL O	[Ctrl] [Blue] [F5]	[Blue] [Ctrl] [F5]
CTRL P	[Ctrl] [Blue] [F6]	[Blue] [Ctrl] [F6]
CTRL Q	[Ctrl] [Blue] [F7]	[Blue] [Ctrl] [F7]
CTRL R	[Ctrl] [Blue] [F8]	[Blue] [Ctrl] [F8]
CTRL S	[Ctrl] [Blue] [F9]	[Blue] [Ctrl] [F9]
CTRL T	[Ctrl] [Blue] [F10]	[Blue] [Ctrl] [F10]
CTRL U	[Ctrl] [Blue] [F11]	[Blue] [Ctrl] [F11]
CTRL V	[Ctrl] [Blue] [F12]	[Blue] [Ctrl] [F12]
CTRL W	[Ctrl] [Blue] [Ctrl]	[Blue] [Ctrl] [Ctrl]
CTRL X	[Ctrl] [Blue] [%]	[Blue] [Ctrl] [%]
CTRL Y	[Ctrl] [Blue] [$]	[Blue] [Ctrl] [$]
CTRL Z	[Ctrl] [Blue] [:]	[Blue] [Ctrl] [:]

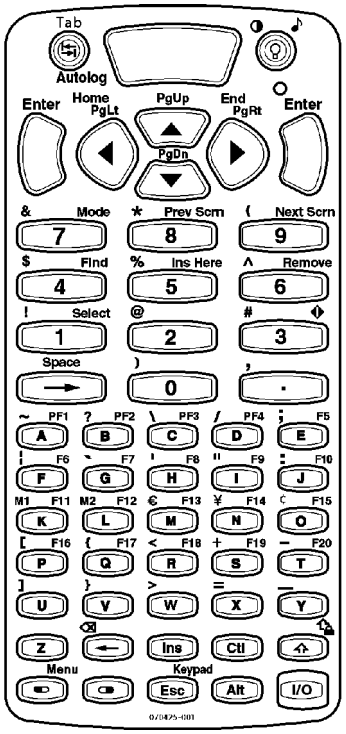
6400 VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	[Gold] [Blue]
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

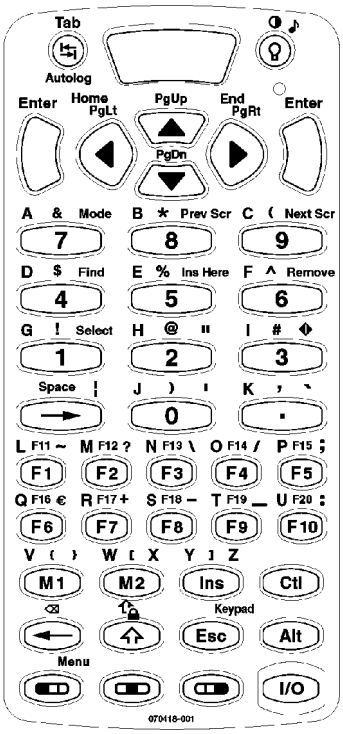
5020 Data Collection PC

For help with using the keyboard, refer to the *5020 Data Collection PC User's Manual* (P/N 068975-002).

55-Key Keyboard



43-Key Keyboard



This illustration shows both the 55-key (left) and 43-key (right) keyboards for the 5020 Data Collection PC.

Characters on the 5020 Keypad

Characters, symbols, and functions are printed in four places on or above the keys and are also color-coded to make key combinations.

Position on Keypad	Press the Keys
Printed on key	Press the key
Printed in *orange* on left side above key	, then the key
Printed in *lime* and centered above key	, then the key
Printed in *green* on right side above key	, then the key

5020 Cursor Keys

	Press the Keys	
To Enter	**55-key Keyboard**	**43-key Keyboard**
Window/viewport up	▲	▲
Window/viewport down	▼	▼
Window/viewport right	▶	▶
Window/viewport left	◀	◀

5020 Paging Keys

	Press the Keys	
To Enter	**55-key Keyboard**	**43-key Keyboard**
Page up	▲	▲
Page down	▼	▼
Page right	▶	▶
Page left	◀	◀

5020 Standard Keys

To Enter	**Press the Keys**
0 – 9	0 – 9
Symbols	, , *or* , plus the corresponding key.

5020 Function Keys

To Enter	**Press the Keys**
Ctrl	Ctl
Delete	
Delete or Backspace	
Return	or
Shift	
Space bar	

5020 Editing Keys

To Enter	Press the Keys
Find	Fn 4
Insert here	Fn 5
Next screen	Fn 9
Prev screen	Fn 8
Remove	Fn 6
Select	Fn 1

5020 Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break) function.

	Press the Keys	
To Enter	**55-key Keyboard**	**43-key Keyboard**
F5 (Break)	Fn [E]	F5
F6	Fn [F]	F6
F7	Fn [G]	F7
F8	Fn [H]	F8
F9	Fn [I]	F9
F10	Fn [J]	F10
F11	Fn [K]	Fn F1
F12	Fn [L]	Fn F2
F13	Fn [M]	Fn F3
F14	Fn [N]	Fn F4
F15	Fn [Q]	Fn F5
F16	Fn [P]	Fn F6
F17	Fn [Q]	Fn F7
F18	Fn [R]	Fn F8
F19	Fn [S]	Fn F9
F20	Fn [T]	Fn F10
PF	Fn [A]	F1
PF2	Fn [B]	F2
PF3	Fn [C]	F3
PF4	Fn [D]	F4

5020 Caps Lock

To type all alphabetic characters as uppercase letters, either press ⇧ before typing each letter or enable the **Caps Lock** feature.

To enable Caps Lock:
Press ⇧ until a tone is emitted, or press ⇧ ⇧. The **Caps Lock** icon will appear in the Notification Tray. **Caps Lock** remains enabled until you disable it.

To type a lowercase letter while Caps Lock is enabled:
Press ⇧ ⇧ and an alphabetic character key. For example, press ⇧ ⇧ 6 to type a lowercase letter "f."

To disable Caps Lock:
Press ⇧ until a tone is emitted, or press ⇧ ⇧. The **Caps Lock** icon will disappear from the Notification Tray.

5020 Transmission Mode

To toggle between Line Edit (block) and Character mode, press ⇧ 7 on the 55-key and 43-key keyboards.

5020 Auto-Login Restart

To enter Auto-Login Restart, press ⇧ ⇥ or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

5020 Control Keys

Following are the control keys for the 55-key and 43-key keyboards.

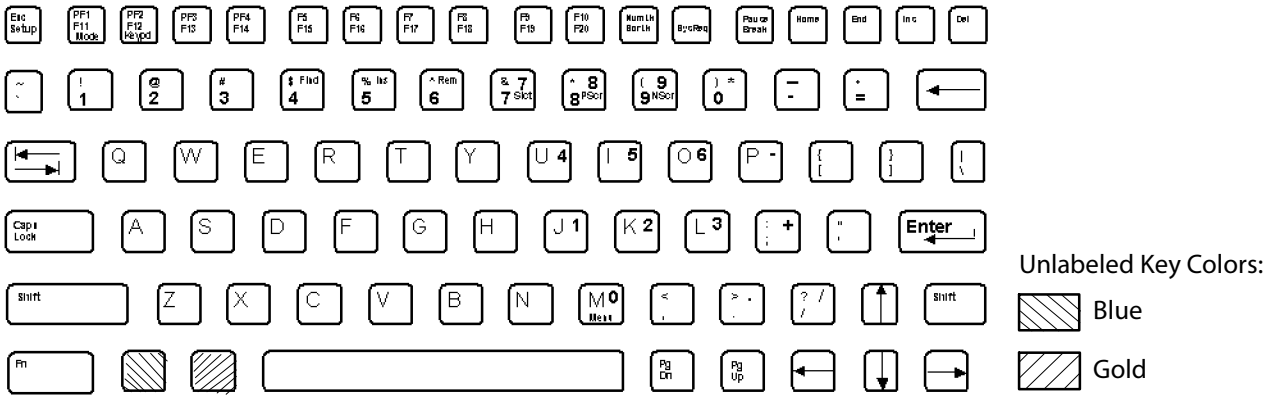
To Enter	Press the Keys
DEL (delete)	⌫
ESC (escape)	Esc
FS (file separator)	None
GS (group separator)	None
RS (record separator)	None
US (unit separator)	None

5020 VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	⇧ ⇧
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

5055 Data Collection PC

For help with using the keyboard, refer to the *5055 Data Collection PC User's Guide* (P/N 961-054-017).



This illustration shows the keyboard for the 5055 Data Collection PC.

Characters on the Keyboard

The special characters and functions printed on the overlay are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[Shift]	Press [**Shift**] plus a letter to type the letter in uppercase.
[Blue]	The blue (Ctrl) key puts the keyboard into blue shift mode. Press [**Blue**] plus a keyboard key to do an operation printed in blue, or to send a control character.
[Gold]	The gold (Alt) key puts the keyboard into gold shift mode. Press [**Gold**] plus a keyboard key to do an operation printed in gold.
[NumLock]	The green (number lock) key puts the keyboard into [NumLock] mode. Press [**NumLock**] plus a keyboard key to type a number or character printed in green.

Note: The following keys are not operational for the keyboard: **Fn**, **Setup**, **SysReq**, **Pause**, **Home**, **End**, **Ins**, **ScrLk**, **PgDn**, and **PgUp**.

5055 Cursor Keys

To Enter	Press the Keys
Window/viewport up	[Blue] [↑]
Window/viewport down	[Blue] [↓]
Window/viewport right	[Blue] [→]
Window/viewport left	[Blue] [←]

5055 Paging Keys

To Enter	Press the keys
Page up	[Gold] [↑]
Page down	[Gold] [↓]
Page right	[Gold] [→]
Page left	[Gold] [←]

5055 Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	[A]	A	[Shift] [A]
b	[B]	B	[Shift] [B]
c	[C]	C	[Shift] [C]
d	[D]	D	[Shift] [D]
e	[E]	E	[Shift] [E]
f	[F]	F	[Shift] [F]
g	[G]	G	[Shift] [G]
h	[H]	H	[Shift] [H]
i	[I]	I	[Shift] [I]
j	[J]	J	[Shift] [J]
k	[K]	K	[Shift] [K]
l	[L]	L	[Shift] [L]
m	[M]	M	[Shift] [M]
n	[N]	N	[Shift] [N]
o	[O]	O	[Shift] [O]
p	[P]	P	[Shift] [P]
q	[Q]	Q	[Shift] [Q]
r	[R]	R	[Shift] [R]
s	[S]	S	[Shift] [S]
t	[T]	T	[Shift] [T]
u	[U]	U	[Shift] [U]
v	[V]	V	[Shift] [V]
w	[W]	W	[Shift] [W]
x	[X]	X	[Shift] [X]
y	[Y]	Y	[Shift] [Y]
z	[Z]	Z	[Shift] [Z]
0–9	[0]–[9]		
Symbols	Symbol key, or [Shift] plus corresponding key.		

5055 Function Keys

To Enter	Press the Keys
Back Tab	|←
Ctrl	[Blue]
Delete	←
Forward Tab	→|
Lock	[Caps Lock]
Return	[Enter]
Shift	[Shift]
Space bar	[Space bar]

5055 Editing Keys

To Enter	Press the Keys
Find	[Gold]+[4]
Insert here	[Gold]+[5]
Next screen	[Gold]+[9]
Prev screen	[Gold]+[8]
Remove	[Gold]+[6]
Select	[Gold]+[7]

5055 Auxiliary Keys

To Enter	Press the Keys
0	[Gold]+[PF2]+[0]
1	[Gold]+[PF2]+[1]
2	[Gold]+[PF2]+[2]
3	[Gold]+[PF2]+[3]
4	[Gold]+[PF2]+[4]
5	[Gold]+[PF2]+[5]
6	[Gold]+[PF2]+[6]
7	[Gold]+[PF2]+[7]
8	[Gold]+[PF2]+[8]
9	[Gold]+[PF2]+[9]
- (hyphen)	[Gold]+[PF2]+[-]
, (comma)	[Gold]+[PF2]+[M]
. (period)	[Gold]+[PF2]+[.]
Enter	[Gold]+[PF2]+[Enter]
PF1	[PF1]
PF2	[PF2]
PF3	[PF3]
PF4	[PF4]

5055 Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break) function.

To Enter	Press the Keys
F5 (Break)	[F5]
F6	[F6]
F7	[F7]
F8	[F8]
F9	[F9]
F10	[F10]
F11	[Blue] [PF1]
F12	[Blue] [PF2]
F13	[Blue] [PF3]
F14	[Blue] [PF4]
F15	[Blue] [F5]
F16	[Blue] [F6]
F17	[Blue] [F7]
F18	[Blue] [F8]
F19	[Blue] [F9]
F20	[Blue] [F10]

5055 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press **[Gold] [PF1]** on the external keyboard.

5055 Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

5055 Control Keys

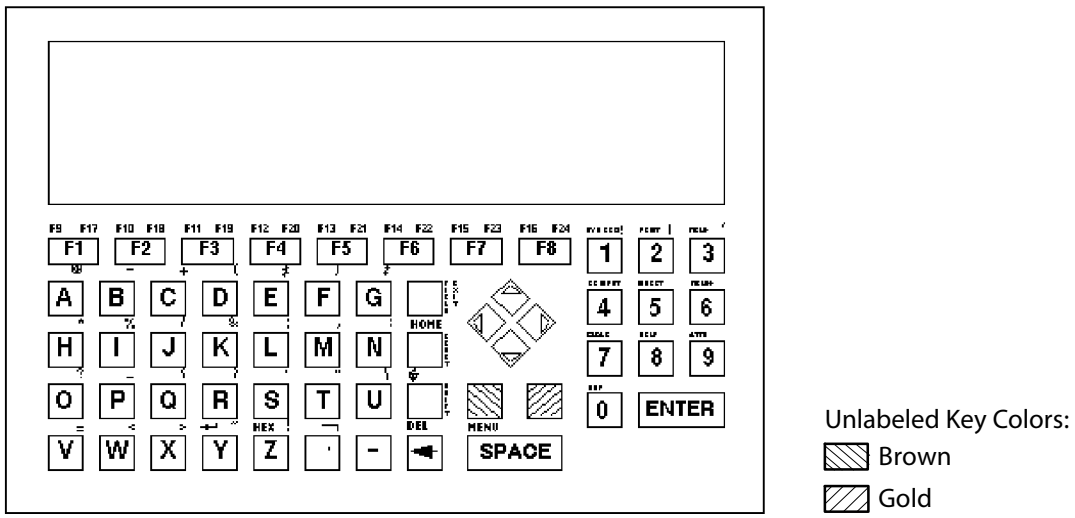
To Enter	Press the Keys
SOH	[Blue] [A]
STX	[Blue] [B]
ETX	[Blue] [C]
EOT	[Blue] [D]
ENQ	[Blue] [E]
ACK	[Blue] [F]
BEL	[Blue] [G]
BS	[Blue] [H]
HT	[Blue] [I]
LF	[Blue] [J]
VT	[Blue] [K]
FF	[Blue] [L]
CR	[Blue] [M]
SO	[Blue] [N]
SI	[Blue] [O]
DLE	[Blue] [P]
DC1, X-ON	[Blue] [Q]
DC2	[Blue] [R]
DC3, X-OFF	[Blue] [S]
DC4	[Blue] [T]
NAK	[Blue] [U]
SYN	[Blue] [V]
ETB	[Blue] [W]
CAN	[Blue] [X]
EM	[Blue] [Y]
SUB	[Blue] [Z]
ESC	[ESC]
FS	[Blue] [1]
GS	[Blue] [2]
RS	[Blue] [3]
US	[Blue] [4]
DEL	[Del]

5055 VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	[Gold] [M]
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

59XX Terminal

For help with using the keyboard, refer to the *5900 Series User's Guide* (P/N: 961-047-121).



This illustration shows the keyboard for the 59XX Terminal.

Characters on the Keyboard

The special characters and functions printed on the overlay are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[Brown]	The brown key puts the keyboard into brown shift mode. Press [**Brown**] plus a keyboard key to type a special character or do operations printed in brown.
[Gold]	The gold key puts the keyboard into gold shift mode.

59XX Cursor Keys

To Enter	Press the Keys
Window/viewport up	[Brown] [▲]
Window/viewport down	[Brown] [▼]
Window/viewport right	[Brown] [▶]
Window/viewport left	[Brown] [◀]

59XX Paging Keys

To Enter	Press the Keys
Page up	[Gold] [▲]
Page down	[Gold] [▼]
Page right	[Gold] [▶]
Page left	[Gold] [◀]

59XX Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	[A]	A	[Shift] [A]
b	[B]	B	[Shift] [B]
c	[C]	C	[Shift] [C]
d	[D]	D	[Shift] [D]
e	[E]	E	[Shift] [E]
f	[F]	F	[Shift] [F]
g	[G]	G	[Shift] [G]
h	[H]	H	[Shift] [H]
i	[I]	I	[Shift] [I]
j	[J]	J	[Shift] [J]
k	[K]	K	[Shift] [K]
l	[L]	L	[Shift] [L]
m	[M]	M	[Shift] [M]
n	[N]	N	[Shift] [N]
o	[O]	O	[Shift] [O]
p	[P]	P	[Shift] [P]
q	[Q]	Q	[Shift] [Q]
r	[R]	R	[Shift] [R]
s	[S]	S	[Shift] [S]
t	[T]	T	[Shift] [T]
u	[U]	U	[Shift] [U]
v	[V]	V	[Shift] [V]
w	[W]	W	[Shift] [W]
x	[X]	X	[Shift] [X]
y	[Y]	Y	[Shift] [Y]
z	[Z]	Z	[Shift] [Z]
0–9	[0]–[9]		
Symbols	[Gold] *or* [Brown], plus corresponding key		

59XX Function Keys

To Enter	Press the Keys
Ctrl	[Gold]
Delete	[←]
Lock	Not supported.
Return	[ENTER]
Shift	[Shift]
Space bar	[SPACE]
Tab	[Tab]

59XX Editing Keys

To Enter	Press the Keys
Find	[Brown] [4]
Insert here	[Brown] [5]
Next screen	[Brown] [3]
Prev screen	[Brown] [2]
Remove	[Brown] [6]
Select	[Brown] [1]

59XX Auxiliary Keys

To Enter	Press the Keys
0	[KEYPD] [0]
1	[KEYPD] [1]
2	[KEYPD] [2]
3	[KEYPD] [3]
4	[KEYPD] [4]
5	[KEYPD] [5]
6	[KEYPD] [6]
7	[KEYPD] [7]
8	[KEYPD] [8]
9	[KEYPD] [9]
- (hyphen)	[KEYPD] [-]
, (comma)	[KEYPD] [M]
. (period)	[KEYPD] [.]
Enter	[KEYPD] [ENTER]
PF1	[F1]
PF2	[F2]
PF3	[F3]
PF4	[F4]

59XX Top-Row Function Keys

To Enter	Press the Keys
F5 (Break)	[Brown] [E]
F6	[F6]
F7	[F7]
F8	[F8]
F9	[Brown] [F1]
F10	[Brown] [F2]
F11	[Brown] [F3]
F12	[Brown] [F4]
F13	[Brown] [F5]
F14	[Brown] [F6]
F15	[Brown] [F7]
F16	[Brown] [F8]
F17	[Gold] [F1]
F18	[Gold] [F2]
F19	[Gold] [F3]
F20	[Gold] [F4]

59XX Transmission Mode

To toggle between Line Edit (block) and Character modes, press [**Gold**] [**F5**].

59XX Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

59XX Control Keys

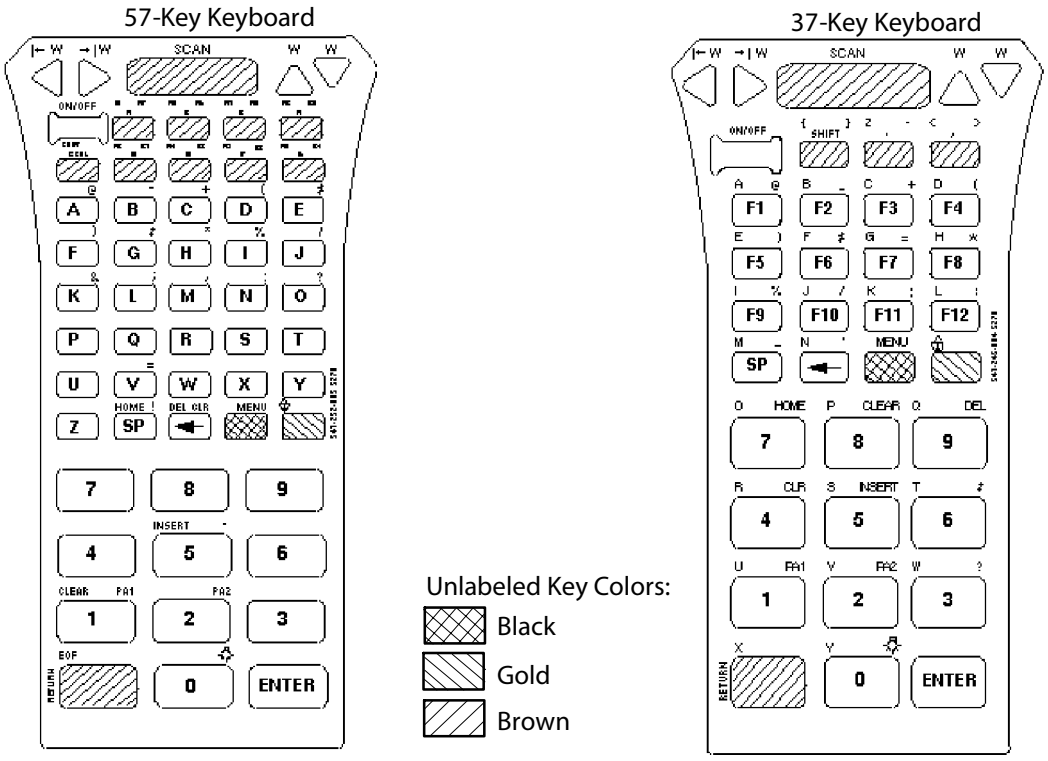
To Enter	Press the Keys
NUL(null)	[Ctrl] [2]
DEL (delete)	[Ctrl] [8]
ESC (escape)	[Ctrl] [3]
FS (file separator)	[Ctrl] [4]
GS (group separator)	[Ctrl] [5]
RS (record separator)	[Ctrl] [6]
US (unit separator)	[Ctrl] [7]

59XX VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	[Brown] [SPACE]
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

17XX Terminal

For help with using the keyboard, refer to the *RT17XX Radio Data Terminal User's Guide* (P/N: 961-047-068).



This illustration shows both the 57-key (left) and the 37-key (right) keyboards for the 17XX Terminal.

Characters on the Keyboards

The special characters and functions printed on the overlay are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[Black]	The black key puts the keyboard into black shift mode. Press [**Black**] plus a keyboard key to type a special character or do an operation printed in black on the overlay.
[Gold]	The gold key puts the keyboard into gold shift mode. Press [**Gold**] plus a keyboard key to type a special character or do an operation printed in gold on the overlay.
[Brown]	The brown key puts the keyboard into keypad mode.

Note: If you press an unlabeled key like the key to the left of the Brown [**F5**] key, or a shift key (black, gold, brown) plus a number or letter (such as [**Black**] [**A**], the terminal emits a beep and flushes the type ahead buffer.

37-Key Keyboard

The 37-key keyboard has standard numeric and [**ENTER**] keys, plus application-defined function keys. It does not have alphabetic keys in its primary plane. Because a terminal with a 37-key keyboard does not have alphabetic keys in its primary plane, do these procedures when using firmware and downloading software:

- To access password-protected menus, press [**Gold**], [**Black**], [**F12**], [**F11**], then type "52401" for the password; or press [**Black**], [**F3**], [**Black**], then type "52401" for the password.
- To initiate the COLD START? menu option, press [**F10**] for "yes."
- To download software, hold down [**F1**] as you power up the terminal to go into download mode. This is similar to holding down [**I**] on the standard 57-key keyboard.

The following chart shows how to type letters on the 37-key keyboard:

To Enter	Press the Keys	To Enter	Press the Keys
a	[Shift] [F1]	A	[Black] [F1]
b	[Shift] [F2]	B	[Black] [F2]
c	[Shift] [F3]	C	[Black] [F3]
d	[Shift] [F4]	D	[Black] [F4]
e	[Shift] [F5]	E	[Black] [F5]
f	[Shift] [F6]	F	[Black] [F6]
g	[Shift] [F7]	G	[Black] [F7]
h	[Shift] [F8]	H	[Black] [F8]
i	[Shift] [F9]	I	[Black] [F9]
j	[Shift] [F10]	J	[Black] [F10]
k	[Shift] [F11]	K	[Black] [F11]
l	[Shift] [F12]	L	[Black] [F12]
m	[Shift] [SP]	M	[Black] [SP]
n	[Shift] [←]	N	[Black] [←]
o	[Shift] [7]	O	[Black] [7]
p	[Shift] [8]	P	[Black] [8]
q	[Shift] [9]	Q	[Black] [9]
r	[Shift] [4]	R	[Black] [4]
s	[Shift] [5]	S	[Black] [5]
t	[Shift] [6]	T	[Black] [6]
u	[Shift] [1]	U	[Black] [1]
v	[Shift] [2]	V	[Black] [2]
w	[Shift] [3]	W	[Black] [3]
x	[Shift] [RETURN]	X	[Black] [RETURN]
y	[Shift] [0]	Y	[Black] [0]
z	[Shift] [.]	Z	[Black] [.]

17XX Cursor Keys

To Enter	Press the Keys
Window/viewport up	[Gold] [▲]
Window/viewport down	[Gold] [▼]
Window/viewport right	[Gold] [▶]
Window/viewport left	[Gold] [◀]

17XX Paging Keys

To Enter	Press the Keys
Page up	[Black] [▲]
Page down	[Black] [▼]
Page right	[Black] [▶]
Page left	[Black] [◀]

17XX Standard Keys

To Enter	Press the Keys
Numbers	[0]–[9]
Symbols	[Gold] *or* [Black], plus the corresponding key.

17XX Function Keys

	Press the Keys	
To Enter	**57-key Keyboard**	**37-key Keyboard**
Ctrl	[Gold] [8]	[Gold] [8]
Delete	[Black] [←]	Not supported.
Delete *or* Backspace	[←]	**[←]**
Lock	[Black] [Gold]	[Black] [Gold]
Return	[ENTER]	[ENTER]
Shift	[Gold] [7]	[Shift]
Space bar	[SP]	[SP]
Tab	[Gold] [9]	[Gold] [9]

17XX Editing Keys

To Enter	Press the Keys
Find	[Gold] [4]
Insert here	[Gold] [5]
Next screen	[Gold] [3]
Prev screen	[Gold] [2]
Remove	[Gold] [6]
Select	[Gold] [1]

17XX Auxiliary Keys

	Press the Keys	
To Enter	**57-key Keyboard**	**37-key Keyboard**
0	[KEYPAD] [0]	[KEYPAD] [0]
1	[KEYPAD] [1]	[KEYPAD] [1]
2	[KEYPAD] [2]	[KEYPAD] [2]
3	[KEYPAD] [3]	[KEYPAD] [3]
4	[KEYPAD] [4]	[KEYPAD] [4]
5	[KEYPAD] [5]	[KEYPAD] [5]
6	[KEYPAD] [6]	[KEYPAD] [6]
7	[KEYPAD] [7]	[KEYPAD] [7]
8	[KEYPAD] [8]	[KEYPAD] [8]
9	[KEYPAD] [9]	[KEYPAD] [9]
- (hyphen)	[KEYPAD] [Gold] [B]	[KEYPAD] [Gold] [F2]
, (comma)	[KEYPAD] [Gold] [M]	[KEYPAD] [,]
. (period)	[KEYPAD] [Black] [U]	[KEYPAD] [.]
Enter	[KEYPAD] [ENTER]	[KEYPAD] [ENTER]
PF1	[PF1]	[F1]
PF2	[PF2]	[F2]
PF3	[PF3]	[F3]
PF4	[PF4]	[F4]

17XX Top-Row Function Keys

Note: The **F5** (Break) function does not work with Intermec Application Servers.

	Press the Keys	
To Enter	**57-key Keyboard**	**37-key Keyboard**
F5 (Break)	[F5]	[F5]
F6	[F6]	[F6]
F7	[F7]	[F7]
F8	[F8]	[F8]
F9	[Black] [PF1]	[F9]
F10	[Black] [PF2]	[F10]
F11	[Black] [PF3]	[F11]
F12	[Black] [PF4]	[F12]
F13	[Black] [F5]	Not supported.
F14	[Black] [F6]	Not supported.
F15	[Black] [F7]	Not supported.
F16	[Black] [F8]	Not supported.
F17	[Gold] [PF1]	Not supported.
F18	[Gold] [PF2]	Not supported.
F19	[Gold] [PF3]	Not supported.
F20	[Gold] [PF4]	Not supported.

17XX Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press the following keys.

- 57-key keyboard: [**Black**] [**Y**]
- 37-key keyboard: [**Gold**] [7]

17XX Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

17XX Control Keys

To Enter	Press the Keys
DEL (delete)	[Gold] [8] [8]
ESC (escape)	[Gold] [8] [3]
FS (file separator)	[Gold] [8] [4]
GS (group separator)	[Gold] [8] [5]
RS (record separator)	[Gold] [8] [6]
US (unit separator)	[Gold] [8] [7]

Use the control keys on the 37-key keyboard when the keyboard is in SHIFT LOCK mode. To put the keyboard into SHIFT LOCK mode, press [**Black**] [**Gold**]. Then press the following key sequences.

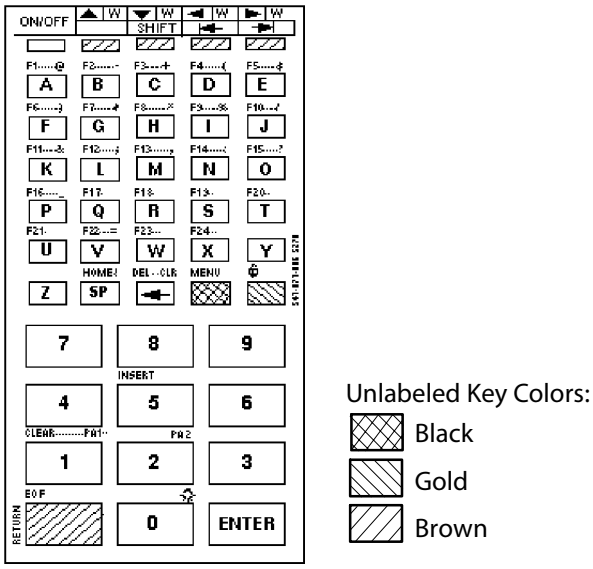
To Do	Press the Keys (37-key Keyboard)
CTRL A	[Gold] [8] [F1]
CTRL B	[Gold] [8] [F2]
CTRL C	[Gold] [8] [F3]
CTRL D	[Gold] [8] [F4]
CTRL E	[Gold] [8] [F5]
CTRL F	[Gold] [8] [F6]
CTRL G	[Gold] [8] [F7]
CTRL H	[Gold] [8] [F8]
CTRL I	[Gold] [8] [F9]
CTRL J	[Gold] [8] [F10]
CTRL K	[Gold] [8] [F11]
CTRL L	[Gold] [8] [F12]
CTRL m	[Gold] [8] [SP]
CTRL N	[Gold] [8] [←]
CTRL o	[Gold] [8] [7]
CTRL p	[Gold] [8] [8]
CTRL q	[Gold] [8] [9]
CTRL r	[Gold] [8] [4]
CTRL s	[Gold] [8] [5]
CTRL t	[Gold] [8] [6]
CTRL u	[Gold] [8] [1]
CTRL v	[Gold] [8] [2]
CTRL w	[Gold] [8] [3]
CTRL X	[Gold] [8] [KEYPAD]
CTRL Y	[Gold] [8] [0]
CTRL Z	[Gold] [8] [.]

17XX VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	[Gold] [Black]
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

11XX Terminal

For help in using the keyboard, see the *1100 Series Data Terminal User's Guide* (P/N 961-047-069).



This illustrations shows the keyboard for the 11XX Terminal.

Characters on the Keyboard

The special characters and functions printed on the overlay are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[Black]	The black key puts the keyboard into black shift mode. Press [**Black**] plus a keyboard key to type a special character or do an operation printed in black on the overlay. To lock the keyboard into shift mode, press [**Black**] [**Gold**]. To unlock the keyboard, press [**Black**] [**Gold**] again.
[Gold]	The gold key puts the keyboard into gold shift mode. Press [**Gold**] plus a keyboard key to type a special character or do an operation printed in gold on the overlay.
[Brown]	The brown key puts the keyboard into keypad mode.

11XX Cursor Keys

To Enter	Press the Keys
Window/viewport up	[Gold] [▲]
Window/viewport down	[Gold] [▼]
Window/viewport right	[Gold] [▶]
Window/viewport left	[Gold] [◀]

11XX Paging Keys

To Enter	Press the Keys
Page up	[Black] [▲]
Page down	[Black] [▼]
Page right	[Black] [▶]
Page left	[Black] [◀]

11XX Standard Keys

To Enter	Press the Keys	To Enter	Press the Keys
a	[A]	A	[Gold] [7] [A]
b	[B]	B	[Gold] [7] [B]
c	[C]	C	[Gold] [7] [C]
d	[D]	D	[Gold] [7] [D]
e	[E]	E	[Gold] [7] [E]
f	[F]	F	[Gold] [7] [F]
g	[G]	G	[Gold] [7] [G]
h	[H]	H	[Gold] [7] [H]
i	[I]	I	[Gold] [7] [I]
j	[J]	J	[Gold] [7] [J]
k	[K]	K	[Gold] [7] [K]
l	[L]	L	[Gold] [7] [L]
m	[M]	M	[Gold] [7] [M]
n	[N]	N	[Gold] [7] [N]
o	[O]	O	[Gold] [7] [O]
p	[P]	P	[Gold] [7] [P]
q	[Q]	Q	[Gold] [7] [Q]
r	[R]	R	[Gold] [7] [R]
s	[S]	S	[Gold] [7] [S]
t	[T]	T	[Gold] [7] [T]
u	[U]	U	[Gold] [7] [U]
v	[V]	V	[Gold] [7] [V]
w	[W]	W	[Gold] [7] [W]
x	[X]	X	[Gold] [7] [X]
y	[Y]	Y	[Gold] [7] [Y]
z	[Z]	Z	[Gold] [7] [Z]
0–9	[0]–[9]		
Symbols	[Gold] *or* [Black], plus the corresponding key.		

11XX Function Keys

To Enter	Press the Keys
Backspace	[←]
Ctrl	[Gold] [8]
Delete	[Black] [←]
Lock	[Black] [Gold]
Return	[ENTER]
Shift	[Gold] [7]
Space bar	[SP]
Tab	[Gold] [9]

11XX Editing Keys

To Enter	Press the Keys
Find	[Gold] [4]
Insert here	[Gold] [5]
Next screen	[Gold] [3]
Prev screen	[Gold] [2]
Remove	[Gold] [6]
Select	[Gold] [1]

11XX Auxiliary Keys

To Enter	Press the Keys
0	[KEYPAD] [0]
1	[KEYPAD] [1]
2	[KEYPAD] [2]
3	[KEYPAD] [3]
4	[KEYPAD] [4]
5	[KEYPAD] [5]
6	[KEYPAD] [6]
7	[KEYPAD] [7]
8	[KEYPAD] [8]
9	[KEYPAD] [9]
- (hyphen)	[KEYPAD] [Gold] [B]
, (comma)	[KEYPAD] [Gold] [M]
. (period)	[KEYPAD] [Black] [U]
Enter	[KEYPAD] [ENTER]
PF1	[Black] [A]
PF2	[Black] [B]
PF3	[Black] [C]
PF4	[Black] [D]

11XX Top-Row Function Keys

Note: Intermec Application Servers do not support the **F5** (Break) function.

To Enter	Press the Keys
F5 (Break)	[Black] [E]
F6	[Black] [F]
F7	[Black] [G]
F8	[Black] [H]
F9	[Black] [I]
F10	[Black] [J]
F11	[Black] [K]
F12	[Black] [L]
F13	[Black] [M]
F14	[Black] [N]
F15	[Black] [O]
F16	[Black] [P]
F17	[Black] [Q]
F18	[Black] [R]
F19	[Black] [S]
F20	[Black] [T]

11XX Transmission Mode

To toggle between Line Edit (block) and Character modes, press [**Black**] [**Y**].

11XX Auto-Login Restart

To enter Auto-Login Restart, scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

11XX Control Keys

To Enter	Press the Keys
DEL (delete)	[Gold] [8] [8]
ESC (escape)	[Gold] [8] [3]
FS (file separator)	[Gold] [8] [4]
GS (group separator)	[Gold] [8] [5]
RS (record separator)	[Gold] [8] [6]
US (unit separator)	[Gold] [8] [7]

11XX VT/ANSI Additional Functions

To Enter	Press the Keys or Use
Access TE configuration menus	[Gold] [Black]
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

700 Series Mobile Computer

For help with using the 700 Series Computer, refer to the *700 Series Monochrome Mobile Computer User's Manual* (P/N 961-054-032) or the *700 Series Color Mobile Computer User's Manual* (P/N: 961-054-031).

700 Series Software Input Panels

With the Software Input Panels (SIPs), you can change the color of up to ten keys, given four color choices (including the original gray. To change the color of the keys *(only up to 10 keys)*:

1. Hold the LEFT Shift key down until it reverses back to normal.
2. Hold the RIGHT Shift key down until it reverses back to normal.
3. Select the letter that represents the color to which to switch.
4. Select from the three colors listed in the dialog box, or select the option to return all of the affected keys back to gray.

Main Keyboard

Shifted Keyboard

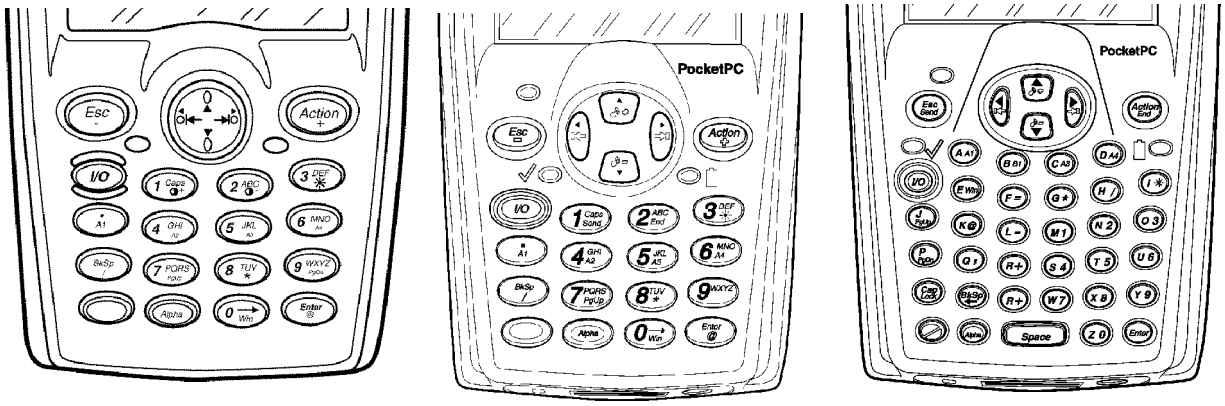
Function Keyboard

Uppercase keys with numbers

Lowercase keys with shifted characters

The illustration above shows the Software Input Panels (SIPs) for the VT/ANSI application.
- *Tap the **Mn** [Mn] key off the Shifted keyboard to get to the TE 2000 Setup Menus.*
- *Tap the **Shift** [Shift] key to toggle between the Main and Shifted keyboards.*
- *Tap the toggle key [↘] to toggle between the Function and Main keyboards.*
- *Tap the **Cap** [Cap] key to use uppercase keys with numbers.*
- *Tap the **Cap** [Cap] key, then the **Shift** [Shift] key to use lowercase keys with shifted characters.*

700 Series Keypads



This illustration shows a 700 Series Monochrome Mobile Computer (left), a 700 Series Color Mobile Computer with a numeric keypad (middle), and a 700 Series Color Mobile Computer with an alphanumeric keypad (right).

Note: The following key sequences are based on the SIP keyboards unless otherwise noted. Sequences provided are based on the assumption that you are starting with the Main Keyboard.

700 Series Cursor Keys

To Enter	Tap the SIP Keys
Window/viewport up	
Window/viewport down	
Window/viewport right	
Window/viewport left	

700 Series Paging Keys

To Enter	Tap the SIP Keys
Page up	
Page down	
Page right	
Page left	

700 Series Standard Keys

Note: See the *700 Series Mobile Computer User's Manual* for information how to enter alpha characters using the 700 Series Computer keypads. Keep in mind the Alpha key (Alpha or Alpha) and the Caps key (1 Caps Send or Cap Lock) are toggle keys — these remain on until pressed again to turn them off.

700 Series Alphanumeric Characters

To Enter	Press the Numeric Keys	Press the Alphanumeric Keys	Tap the SIP Keys
a	Alpha 2 ABC End	Alpha A A1	[a]
b	Alpha 2 ABC End 2 ABC End	Alpha B A2	[b]
c	Alpha 2 ABC End 2 ABC End 2 ABC End	Alpha C A3	[c]
d	Alpha 3 DEF ✳	Alpha D A4	[d]
e	Alpha 3 DEF ✳ 3 DEF ✳	Alpha E Win	[e]
f	Alpha 3 DEF ✳ 3 DEF ✳ 3 DEF ✳	Alpha F =	[f]
g	Alpha 4 GHI A2	Alpha G *	[g]
h	Alpha 4 GHI A2 4 GHI A2	Alpha H /	[h]
i	Alpha 4 GHI A2 4 GHI A2 4 GHI A2	Alpha I ✳	[i]
j	Alpha 5 JKL A3	Alpha J PgUp	[j]
k	Alpha 5 JKL A3 5 JKL A3	Alpha K @	[k]
l	Alpha 5 JKL A3 5 JKL A3 5 JKL A3	Alpha L -	[l]
m	Alpha 6 MNO A4	Alpha M 1	[m]
n	Alpha 6 MNO A4 6 MNO A4	Alpha N 2	[n]
o	Alpha 6 MNO A4 6 MNO A4 6 MNO A4	Alpha O 3	[o]
p	Alpha 7 PQRS PgUp	Alpha P PgDn	[p]
q	Alpha 7 PQRS PgUp 7 PQRS PgUp	Alpha Q ,	[q]
r	Alpha 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp	Alpha R +	[r]
s	Alpha 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp	Alpha S 4	[s]
t	Alpha 8 TUV	Alpha T 5	[t]
u	Alpha 8 TUV 8 TUV	Alpha U 6	[u]
v	Alpha 8 TUV 8 TUV 8 TUV	Alpha V .	[v]
w	Alpha 9 WXYZ	Alpha W 7	[w]
x	Alpha 9 WXYZ 9 WXYZ	Alpha X 8	[x]
y	Alpha 9 WXYZ 9 WXYZ 9 WXYZ	Alpha Y 9	[y]
z	Alpha 9 WXYZ 9 WXYZ 9 WXYZ 9 WXYZ	Alpha Z 0	[z]

700 Series Alphanumeric Characters (continued)

To Enter	Press the Numeric Keys	Press the Alphanumeric Keys	Tap the SIP Keys
A	Alpha 1 Caps Send 2 ABC End	Alpha Cap Lock A A1	Shift [A]
B	Alpha 1 Caps Send 2 ABC End 2 ABC End	Alpha Cap Lock B A2	Shift [B]
C	Alpha 1 Caps Send 2 ABC End 2 ABC End 2 ABC End	Alpha Cap Lock C A3	Shift [C]
D	Alpha 1 Caps Send 3 DEF ✳	Alpha Cap Lock D A4	Shift [D]
E	Alpha 1 Caps Send 3 DEF ✳ 3 DEF ✳	Alpha Cap Lock E Win	Shift [E]
F	Alpha 1 Caps Send 3 DEF ✳ 3 DEF ✳ 3 DEF ✳	Alpha Cap Lock F =	Shift [F]
G	Alpha 1 Caps Send 4 GHI A2	Alpha Cap Lock G *	Shift [G]
H	Alpha 1 Caps Send 4 GHI A2 4 GHI A2	Alpha Cap Lock H /	Shift [H]
I	Alpha 1 Caps Send 4 GHI A2 4 GHI A2 4 GHI A2	Alpha Cap Lock I ✳	Shift [I]
J	Alpha 1 Caps Send 5 JKL A3	Alpha Cap Lock J PgUp	Shift [J]
K	Alpha 1 Caps Send 5 JKL A3 5 JKL A3	Alpha Cap Lock K @	Shift [K]
L	Alpha 1 Caps Send 5 JKL A3 5 JKL A3 5 JKL A3	Alpha Cap Lock L -	Shift [L]
M	Alpha 1 Caps Send 6 MNO A4	Alpha Cap Lock M 1	Shift [M]
N	Alpha 1 Caps Send 6 MNO A4 6 MNO A4	Alpha Cap Lock N 2	Shift [N]
O	Alpha 1 Caps Send 6 MNO A4 6 MNO A4 6 MNO A4	Alpha Cap Lock O 3	Shift [O]
P	Alpha 1 Caps Send 7 PQRS PgUp	Alpha Cap Lock P PgDn	Shift [P]
Q	Alpha 1 Caps Send 7 PQRS PgUp 7 PQRS PgUp	Alpha Cap Lock Q ,	Shift [Q]
R	Alpha 1 Caps Send 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp	Alpha Cap Lock R +	Shift [R]
S	Alpha 1 Caps Send 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp 7 PQRS PgUp	Alpha Cap Lock S 4	Shift [S]
T	Alpha 1 Caps Send 8 TUV	Alpha Cap Lock T 5	Shift [T]
U	Alpha 1 Caps Send 8 TUV 8 TUV	Alpha Cap Lock U 6	Shift [U]
V	Alpha 1 Caps Send 8 TUV 8 TUV 8 TUV	Alpha Cap Lock V .	Shift [V]
W	Alpha 1 Caps Send 9 WXYZ	Alpha Cap Lock W 7	Shift [W]
X	Alpha 1 Caps Send 9 WXYZ 9 WXYZ	Alpha Cap Lock X 8	Shift [X]
Y	Alpha 1 Caps Send 9 WXYZ 9 WXYZ 9 WXYZ	Alpha Cap Lock Y 9	Shift [Y]
Z	Alpha 1 Caps Send 9 WXYZ 9 WXYZ 9 WXYZ 9 WXYZ	Alpha Cap Lock Z 0	Shift [Z]
0 – 9	0 Win – 9 WXYZ	Z 0 – Y 9	[0] – [9]
Symbols	Symbol key, or Shift plus corresponding key.		

700 Series Function Keys

To Enter	Tap the SIP Keys
Back Tab	Shift B.T.
Ctrl	Ctrl
Delete	Shift Del
Forward Tab	Tab
Lock	Cap
Return	Enter
Shift	Shift
Space bar	Space

700 Series Editing Keys

To Enter	Tap the SIP Keys
Find	↘ Find
Insert here	↘ Insert
Next screen	↘ NextSc
Prev screen	↘ PrevSc
Remove	↘ Remove
Select	↘ Select

700 Series Auxiliary Keys

To Enter	Tap the SIP Keys
- (hyphen)	[–]
, (comma)	[,]
. (period)	[.]
_ (underscore)	Shift [–]
Enter	Enter

Note: Intermec Application Servers do not support the **F5** (Break) function.

Note: For the **[F11]–[F20]** keys, press either the uppercase sequence or the lowercase sequence (separated by the "or" conjunction), but *not* both. Keep in mind the Alpha key (Alpha or Alpha) and the Caps key (1 Caps Send or Cap Lock) are toggle keys — these remain on until pressed again to turn them off.

To Enter	Press the Numeric Keys	Press the Alphanumeric Keys	Tap the SIP Keys
PF1	Action 1 Caps Send	Action End M1	↘ F1
PF2	Action 2 ABC End	Action End N2	↘ F2
PF3	Action 3 DEF ✳	Action End O3	↘ F3
PF4	Action 4 GHI A2	Action End S4	↘ F4
F5	Action 5 JKL A3	Action End T5	↘ F5
F6	Action 6 MNO A4	Action End U6	↘ F6
F7	Action 7 PQRS PgUp	Action End W7	↘ F7
F8	Action 8 TUV	Action End X8	↘ F8
F9	Action 9 WXYZ	Action End Y9	↘ F9
F10	Action 0 Win	Action End Z0	↘ F10
F11	Action Alpha 1 Caps Send 2 ABC End or Action Alpha 2 ABC End	Action End Alpha Cap Lock A A1 or Action End Alpha A A1	↘ F11
F12	Action Alpha 1 Caps Send 2 ABC End 2 ABC End or Action Alpha 2 ABC End 2 ABC End	Action End Alpha Cap Lock B A2 or Action End Alpha B A2	↘ F12
F13	Action Alpha 1 Caps Send 2 ABC End 2 ABC End 2 ABC End or Action Alpha 2 ABC End 2 ABC End 2 ABC End	Action End Alpha Cap Lock C A3 or Action End Alpha C A3	↘ F13
F14	Action Alpha 1 Caps Send 3 DEF ✳ or Action Alpha 3 DEF ✳	Action End Alpha Cap Lock D A4 or Action End Alpha D A4	↘ F14
F15	Action Alpha 1 Caps Send 3 DEF ✳ 3 DEF ✳ or Action Alpha 3 DEF ✳ 3 DEF ✳	Action End Alpha Cap Lock E Win or Action End Alpha E Win	↘ F15
F16	Action Alpha 1 Caps Send 3 DEF ✳ 3 DEF ✳ 3 DEF ✳ or Action Alpha 3 DEF ✳ 3 DEF ✳ 3 DEF ✳	Action End Alpha Cap Lock F = or Action End Alpha F =	↘ F16
F17	Action Alpha 1 Caps Send 4 GHI A2 or Action Alpha 4 GHI A2	Action End Alpha Cap Lock G ★ or Action End Alpha G ★	↘ F17
F18	Action Alpha 1 Caps Send 4 GHI A2 4 GHI A2 or Action Alpha 4 GHI A2 4 GHI A2	Action End Alpha Cap Lock H / or Action End Alpha H /	↘ F18
F19	Action Alpha 1 Caps Send 4 GHI A2 4 GHI A2 4 GHI A2 or Action Alpha 4 GHI A2 4 GHI A2 4 GHI A2	Action End Alpha Cap Lock I ☼ or Action End Alpha I ☼	↘ F19
F20	Action Alpha 1 Caps Send 5 JKL A3 or Action Alpha 5 JKL A3	Action End Alpha Cap Lock J PgUp or Action End Alpha J PgUp	↘ F20

700 Series Auto-Login Restart

To enter Auto-Login Restart, tap the SIP ⍼ Autolog keys or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

700 Series Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press ⍼ Mode from the SIP keyboards.

700 Series Control Keys

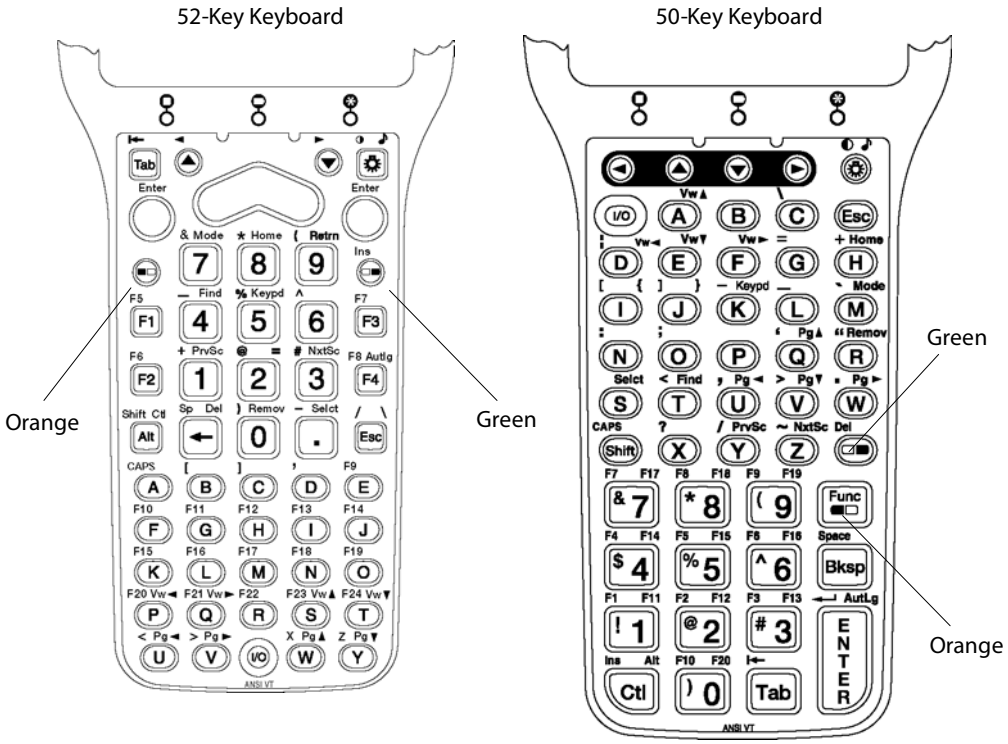
To Enter	Tap the SIP Keys
SOH	Ctrl [A]
STX	Ctrl [B]
ETX	Ctrl [C]
EOT	Ctrl [D]
ENQ	Ctrl [E]
ACK	Ctrl [F]
BEL	Ctrl [G]
BS	Ctrl [H]
HT	Ctrl [I]
LF	Ctrl [J]
VT	Ctrl [K]
FF	Ctrl [L]
CR	Ctrl [M]
SO	Ctrl [N]
SI	Ctrl [O]
DLE	Ctrl [P]
DC1, X-ON	Ctrl [Q]
DC2	Ctrl [R]
DC3, X-OFF	Ctrl [S]
DC4	Ctrl [T]
NAK	Ctrl [U]
SYN	Ctrl [V]
ETB	Ctrl [W]
CAN	Ctrl [X]
EM	Ctrl [Y]
SUB	Ctrl [Z]
ESC	Reset
FS	Ctrl [1]
GS	Ctrl [2]
RS	Ctrl [3]
US	Ctrl [4]
DEL	Shift Del

700 Series VT/ANSI Additional Functions

To Enter	Tap the SIP Keys or Use
Access TE configuration menus	Shift Mn or double-tap the upper-right corner of the display.
Toggle between Application mode and Numeric Keypad mode	DECKPAM/DECPNM *(See "Terminal Modes" in Chapter 6, "Programming," for an explanation.)*

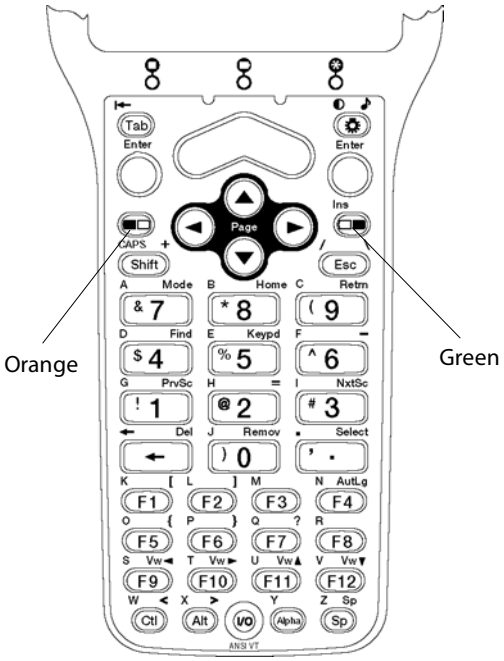
CK30 Handheld Computer

Your CK30 has a 52-key, a 50-key, or a 42-key keyboard.



This illustration shows the CK30 52-Key Keyboard on the left and the 50-key keyboard on the right.

For help with using the CK30, refer to the *CK30 Handheld Computer User's Manual* (P/N 073528).



This illustration shows the CK30 42-Key Keyboard.

Characters on the Keyboards

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are:

[Green]	Press ⊐■ plus a key to type a character or do an operation printed in green on the overlay.
[Orange]	Press ■⊐ plus a key to type a character or do an operation printed in orange on the overlay.

CK30 Cursor Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
Window/viewport up	⊐■ [S]	⊐■ [A]	⊐■ [F11]
Window/viewport down	⊐■ [T]	⊐■ [E]	⊐■ [F12]
Window/viewport right	⊐■ [R]	⊐■ [F]	⊐■ [F10]
Window/viewport left	⊐■ [P]	⊐■ [D]	⊐■ [F9]

CK30 Paging Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
Page up	⊐■ [W]	⊐■ ▲	⊐■ ▲
Page down	⊐■ [Y]	⊐■ ▼	⊐■ ▼
Page right	⊐■ [V]	⊐■ ▶	⊐■ ▶
Page left	⊐■ [U]	⊐■ ◀	⊐■ ◀

CK30 Standard Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
0–9	[0] through [9]	[0] through [9]	[0] through [9]
Symbols	■⊐ plus corresponding key	[Shift] plus corresponding key	[Shift] plus corresponding key

CK30 Function Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
Backspace	←	[Bksp]	←
Caps Lock	■⊐ [A]	[Func] [Shift]	■⊐ [Shift]
Ctrl	⊐■ [Alt]	[Ctl]	[Ctl]
Delete	⊐■ ←	[Func] ⊐■	⊐■ ←
Forward Tab	[Tab]	[Tab]	[Tab]
Return	[Enter]	[Enter]	[Enter]
Shift	⊐■ [Alt]	[Shift]	[Shift]
Space bar	■⊐ ←	[Func] [Bksp]	[Sp]

CK30 Editing Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
Find	⊐■ [4]	⊐■ [T]	⊐■ [4]
Insert here	■⊐, ⊐■	[Func] [Ctl]	■⊐, ⊐■
Next screen	⊐■ [3]	⊐■ [Z]	⊐■ [3]
Prev screen	⊐■ [1]	⊐■ [Y]	⊐■ [1]
Remove	⊐■ [0]	⊐■ [R]	⊐■ [0]
Select	⊐■ [.] (period)	⊐■ [S]	⊐■ [.] (period)

CK30 Top-Row Function Keys

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
F1	[F1]	[Func] [1]	[F1]
F2	[F2]	[Func] [2]	[F2]
F3	[F3]	[Func] [3]	[F3]
F4	[F4]	[Func] [4]	[F4]
F5	◖▭ [F1]	[Func] [5]	[F5]
F6	◖▭ [F2]	[Func] [6]	[F6]
F7	◖▭ [F3]	[Func] [7]	[F7]
F8	◖▭ [F4]	[Func] [8]	[F8]
F9	◖▭ [E]	[Func] [9]	[F9]
F10	◖▭ [F]	[Func] [0]	[F10]
F11	◖▭ [G]	▭◗ [1]	[F11]
F12	◖▭ [H]	▭◗ [2]	[F12]
F13	◖▭ [I]	▭◗ [3]	Not Applicable (N/A)
F14	◖▭ [J]	▭◗ [4]	N/A
F15	◖▭ [K]	▭◗ [5]	N/A
F16	◖▭ [L]	▭◗ [6]	N/A
F17	◖▭ [M]	▭◗ [7]	N/A
F18	◖▭ [N]	▭◗ [8]	N/A
F19	◖▭ [O]	▭◗ [9]	N/A
F20	◖▭ [P]	▭◗ [0]	N/A

CK30 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press ▭◗ [7] on the 52-key and 42-key keyboards; or press ▭◗ [M] on the 50-key keyboard.

CK30 Auto-Login Restart

To enter Auto-Login Restart, press ▭◗ [**F4**] on the 52-key and 42-key keyboards; press ▭◗ [**Enter**] on the 50-key keyboard, or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

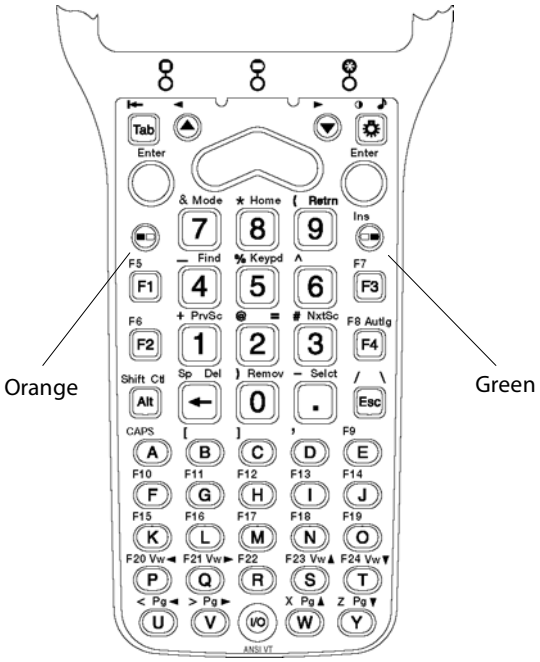
%ALRS

CK30 VT/ANSI Additional Functions

	Press the Keys		
To Enter	**52-Key Keyboard**	**50-Key Keyboard**	**42-Key Keyboard**
Access TE configuration menus	[Alt] [M]	[Ctl] [M]	[Alt] [F3]
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. For more information, see Chapter 4, "*Using the Terminal Emulation Menus*."		

CK31 Handheld Computer

Your CK31 has a 52-key keyboard. For help with using the CK31, refer to the *CK31 Handheld Computer User's Manual* (P/N ??????).



This illustration shows the CK31 52-Key Keyboard.

Characters on the Keyboards

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are:

[Green]	Press ⊐■ plus a key to type a character or do an operation printed in green on the overlay.
[Orange]	Press ■⊐ plus a key to type a character or do an operation printed in orange on the overlay.

CK31 Cursor Keys

To Enter	Press the Keys
Window/viewport up	⊐■ [S]
Window/viewport down	⊐■ [T]
Window/viewport right	⊐■ [R]
Window/viewport left	⊐■ [P]

CK31 Paging Keys

To Enter	Press the Keys
Page up	⊐■ [W]
Page down	⊐■ [Y]
Page right	⊐■ [V]
Page left	⊐■ [U]

CK31 Standard Keys

To Enter	Press the Keys
0–9	[0] through [9]
Symbols	■⊏ plus corresponding key

CK31 Function Keys

To Enter	Press the Keys
Backspace	←
Caps Lock	■⊏ [A]
Ctrl	⊐■ [Alt]
Delete	⊐■ ←
Forward Tab	[Tab]
Return	[Enter]
Shift	⊐■ [Alt]
Space bar	■⊏ ←

CK31 Editing Keys

To Enter	Press the Keys
Find	⊐■ [4]
Insert here	■⊏, ⊐■
Next screen	⊐■ [3]
Prev screen	⊐■ [1]
Remove	⊐■ [0]
Select	⊐■ [.] (period)

CK31 Top-Row Function Keys

To Enter	Press the Keys
F1	[F1]
F2	[F2]
F3	[F3]
F4	[F4]
F5	◀⊃ [F1]
F6	◀⊃ [F2]
F7	◀⊃ [F3]
F8	◀⊃ [F4]
F9	◀⊃ [E]
F10	◀⊃ [F]
F11	◀⊃ [G]
F12	◀⊃ [H]
F13	◀⊃ [I]
F14	◀⊃ [J]
F15	◀⊃ [K]
F16	◀⊃ [L]
F17	◀⊃ [M]
F18	◀⊃ [N]
F19	◀⊃ [O]
F20	◀⊃ [P]

CK31 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press ⊃▶ [7] on the 52-key keyboard.

CK31 Auto-Login Restart

To enter Auto-Login Restart, press ⊃▶ [F4] on the 52-key keyboard or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

CK31 VT/ANSI Additional Functions

To Enter	Press the Keys
Access TE configuration menus	[Alt] [M]
Toggle between Application mode and Numeric Keypad mode	No keys available. Use TE configuration menus or set from the host. For information, see Chapter 4, "*Using the Terminal Emulation Menus*."

CV60 Vehicle Mount Computer

For help with using the CV60 Vehicle Mount Computer, refer to the *CV60 Vehicle Mount Computer User's Guide* (P/N 961-054-033).

Characters on the Keyboards

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are:

[Blue]	Press [**Blue**] plus a key to type a character or do an operation printed in blue on the overlay.
[Gold]	Press [**Gold**] plus a key to type a character or do an operation printed in gold on the overlay.

CV60 Software Input Panels

Software Input Panels (SIPs) are based on the 700 Series SIPs (page 81), with additional features. You can change the color of up to ten keys, given four color choices (including the original gray. To change the color of the keys *(only up to 10 keys)*:

1. Hold the LEFT Shift key down until it reverses back to normal.
2. Hold the RIGHT Shift key down until it reverses back to normal.
3. Select the letter that represents the color to which to switch.
4. Select from the three colors listed in the dialog box, or select the option to return all of the affected keys back to gray.

You can change the size of the SIP to one-times, two-times or three-times the length and width of the original size. Thus, each SIP can be 240x80, 480x160, or 720x240 pixels (wide by tall). To change the size of the keys::

1. Hold the Left Shift Key down until it reverses back to normal.
2. Press and hold the "-" key until the Size Selection dialog appears.
3. Of the three options, select the sized keyboard of your choice.

Main Keyboard

Shifted Keyboard

Function Keyboard

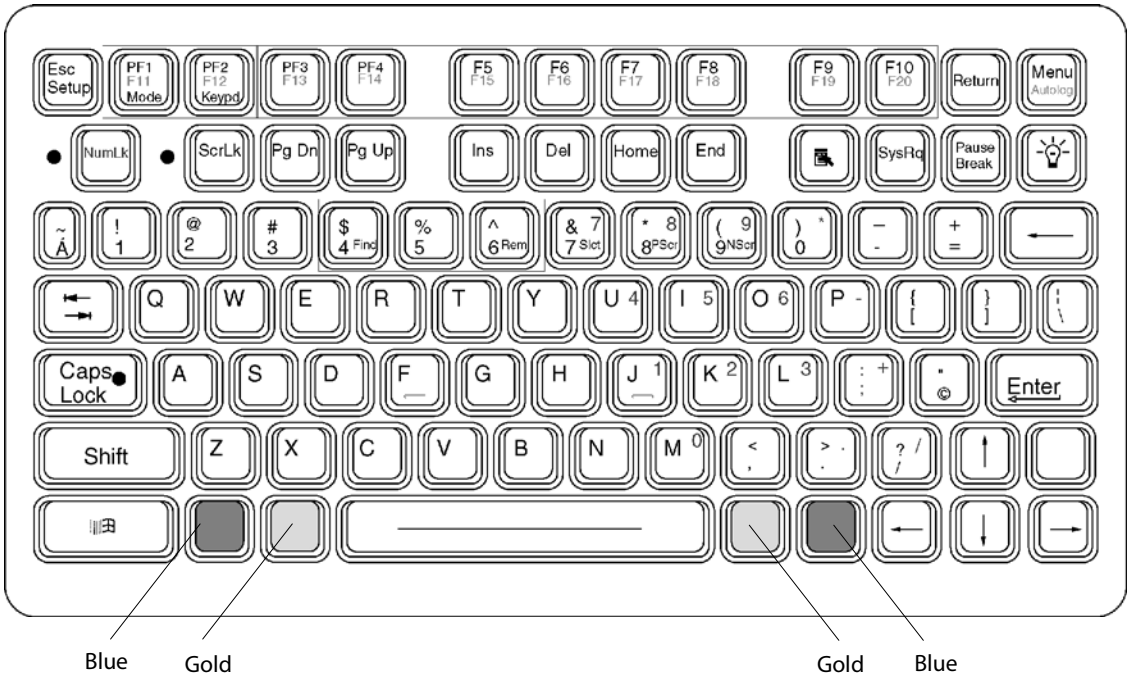
Uppercase keys with numbers

Lowercase keys with shifted characters

The illustration above shows the Software Input Panels (SIPs) for the VT/ANSI application.
- *Tap the **Mn** [Mn] key off the Shifted keyboard to get to the TE 2000 Setup Menus.*
- *Tap the **Shift** [Shift] key to toggle between the Main and Shifted keyboards.*
- *Tap the toggle key [⌥] to toggle between the Function and Main keyboards.*
- *Tap the **Cap** [Cap] key to use uppercase keys with numbers.*
- *Tap the **Cap** [Cap] key, then the **Shift** [Shift] key to use lowercase keys with shifted characters.*

CV60 Keyboard

Note: You must use the following CV60 VT/ANSI keyboard (P/N: 850-551-002) with the TE applications.



This illustration shows the keyboard for the CV60 Vehicle Mount Computer.

Note: The following key sequences are based on the SIP keyboards unless otherwise noted. Sequences provided are based on the assumption that you are starting with the Main Keyboard.

CV60 Cursor Keys

To Enter	Press the Alphanumeric Keys	Tap the SIP Keys
Window/viewport up	Blue ▢, ↑	
Window/viewport down	Blue ▢, ↓	
Window/viewport right	Blue ▢, →	
Window/viewport left	Blue ▢, ←	

CV60 Paging Keys

To Enter	Press the Alphanumeric Keys	Tap the SIP Keys
Page up	Yellow ▢, ↑	⌞ ⤒
Page down	Yellow ▢, ↓	⌞ ⤓
Page right	Yellow ▢, →	⌞ ⇥
Page left	Yellow ▢, ←	⌞ ⇤

CV60 Standard Keys

To Enter	Press the Alphanumeric Keys	Tap the SIP Keys
0–9	[0] through [9]	[0] through [9]
Symbols	[Shift] plus corresponding key	Shift plus corresponding key

CV60 Function Keys

To Enter	Press the Alphanumeric Keys	Tap the SIP Keys
Backspace	|←	[←BS]
Caps Lock	[Caps Lock]	Cap
Ctrl	Yellow ▢	Ctrl
Delete	[Del]	Del
Forward Tab	→|	Tab
Return	[Enter]	Enter
Shift	[Shift]	Shift
Space bar	[Space bar]	Space

CV60 Editing Keys

To Enter	Press the Keys	Tap the SIP Keys
Find	Yellow ▢, [4]	⌞ Find
Insert here	[Ins]	⌞ Insert
Next screen	Yellow ▢, [9]	⌞ NextSc
Prev screen	Yellow ▢, [8]	⌞ PrevSc
Remove	Yellow ▢, [6]	⌞ Remove
Select	Yellow ▢, [7]	⌞ Select

CV60 Top-Row Function Keys

To Enter	Press the Keys	Tap the SIP Keys
F1	[F1]	⇘ F1
F2	[F2]	⇘ F2
F3	[F3]	⇘ F3
F4	[F4]	⇘ F4
F5	[F5]	⇘ F5
F6	[F6]	⇘ F6
F7	[F7]	⇘ F7
F8	[F8]	⇘ F8
F9	[F9]	⇘ F9
F10	[F10]	⇘ F10
F11	Blue ▢, [F1]	⇘ F11
F12	Blue ▢, [F2]	⇘ F12
F13	Blue ▢, [F3]	⇘ F13
F14	Blue ▢, [F4]	⇘ F14
F15	Blue ▢, [F5]	⇘ F15
F16	Blue ▢, [F6]	⇘ F16
F17	Blue ▢, [F7]	⇘ F17
F18	Blue ▢, [F8]	⇘ F18
F19	Blue ▢, [F9]	⇘ F19
F20	Blue ▢, [F10]	⇘ F20

CV60 Auto-Login Restart

To enter Auto-Login Restart, press Blue ▢, [**Menu**] on the alphanumeric keyboard, tap the SIP ⇘ Autolog keys on the SIP keyboards, or scan the following bar code (also in Appendix A, "*Bar Code Scanning*").

Auto-Login Restart

%ALRS

CV60 Transmission Mode

To toggle between Line Edit (block) mode and Character mode, press Yellow ▢, [**F1**] on the alphanumeric keyboard or press ⇘ Mode from the SIP keyboards.

CV60 VT/ANSI Additional Functions

To Enter	Press the Applicable Keys
Access TE configuration menus	[Shift] [M] or [Menu] on the alphanumeric keyboard, Shift Mn on the SIP keyboards, or double-tap the upper-right corner of the display.
Toggle between Application mode and Numeric Keypad mode	No keys available. Use the TE configuration menus or set from the host. For more information, see Chapter 4, "*Using the Terminal Emulation Menus*."

4 Using the Terminal Emulation Menus

This chapter lists ALL TE parameters. If a certain parameter does not apply to your terminal, the parameter does *not* appear in the TE configuration menus.

The CFGLIT.DAT file specifies the text of the TE configuration menus. This chapter assumes you are using the default settings in CFGLIT.DAT. To customize CFGLIT.DAT, see Chapter 5, "*Customizing Your Configuration*."

Note: *For 700 Series, CK30, CK31, and CV60 Terminals with TE 2000 application versions 8.00 or greater,* if a CONFIG.DAT file is present on your terminal, its settings are backed up in a CONFIG.OLD file, then written into a TE_SETTINGS.INI file. If the CONFIG.DAT file is not on your terminal, all settings are written to the TE_SETTINGS.INI file.

Function Keys

These paragraphs describe how to navigate through the TE configuration menus.

Enter Key

Press the terminal [**Enter**] key to return to a previous TE configuration menu. Press [**Enter**] several times to return to the Main Menu from a sub-menu. This key also accepts the displayed or keyed input.

Terminals	Related [Enter] Keys
2415, 2425, 2455, 2475, 248X	⏜ or ⏜ keys
2435A	ENTER key *(57-key keyboard)* enter ↵ key *(48-key keyboard)* ENTER key *(39-key function numeric keyboard)*
6400	[**ENT**] keys
5020	⏜ or ⏜ keys
5055	**<Enter>** via external keyboard
59XX	[**ENTER**] key
17XX, 11XX	[**ENTER**] keys

Shift Keys

Use shift keys to put the keyboard in the desired shift mode. These shifted key functions are shown on the keyboard overlays in Chapter 3, "*Using the Terminal's Keyboard*."

- *For 6400, 5055*
  Yellow and Blue shift keys are required. For the 5055 PC, the Yellow shift key substitutes the **<Alt>** key and the Blue shift key substitutes the **<Ctrl>** key on the external keyboard.
- *For 17XX, 11XX*
  Gold and Black shift keys are required.

Y ("Yes") Key

Several displays provide a warning that a certain action can cause your terminal to lose data stored in memory. Press the Y ("yes") key to proceed as instructed. Press another key to exit the menu without executing your original choice.

Up and Down Arrows

For 6400, 5055, 11XX, the up and down arrow keys are defined by the host computer.

For 59XX, the up and down arrow keys can be made to function more efficiently, in many cases, by pressing the **FUNC** or **ALT** key, then pressing the desired arrow key.

Use these keys to:

- Adjust the length and frequency of the audible buzzer, key click, and error tone.
- Set the display screen size (the number of rows displayed and characters per row) and contrast.

Number Keys [0] through [9]

Many menus have numbered options. Press the corresponding numeric key to make a selection.

Note: For the 700 Series, CK31, and CV60 Terminals, you may tap an option to make a selection.

Once you make a selection and you remain at that menu screen, the option is highlighted, but you can select additional options. To deselect an enabled option, press the number corresponding to that option.

Pressing a number may bring up a submenu. Use the submenu to further modify the choice you made in the parent menu. After the modifications, you may return to the parent menu to make additional selections. (This depends on the menu and function.) Also, you may press a numeric key to exit a menu or cold start the terminal. These situations are covered later in this chapter.

Various menus require entering a number, but do not necessarily have simple choices such as 1, 2, 3, 4, etc. Instead, you may have to enter a number from a range of numbers, such as 0–32.

These instances are detailed in the text that applies to those menus, or in the menu displays.

Note: There are situations where pressing [**6**] causes the terminal to exit from a submenu or to reboot.

Display Annunciators

For 6400, 5055, 59XX, 17XX, 11XX, annunciators show the current status or operation in progress. Some of the more common annunciators are as follows:

Note: The following symbols appear larger than actual size on your terminal display. All individual letter annunciators are five pixels in height, except **T** (temperature) and **B** (bad battery) which are seven pixels.

Display Position 0

Radio *(6400, 5055)*
The radio is transmitting data to the base station.

Display Position 1

If the radio icon is displayed in position 0, then position 1 shows the status of the radio transmission (either receiving, sending, communication loss, or message waiting). If there is no radio icon shown in position 0, then this position is blank and position 1 shows active session number 1 or 2.

Message
A message is received and has not been read.

Specific for 6400, 5055, 59XX Terminals

Sending
Radio is sending data to the base station.

Receiving
Radio is receiving data from the base station. This annunciator appears only when the information is for this particular computer's address.

Communication Loss
No communication with the host computer has occurred for at least 60 seconds. The radio computer may be out of radio range, the base station may not have power, or communications from the host computer to the base station may not be properly set up.

Specific for 17XX, 11XX Terminals

Transmitting data
The terminal is transmitting data to the host computer.

Receiving data
The terminal is receiving data.

Communication Loss
The terminal cannot communicate with the host computer. The terminal may be out of radio range, the base radio may not have power, or communication from the host to the base may not be properly set up.

Display Position 2

x **Input Inhibited**
The keyboard has accepted enough information for the current input field. If the "key ahead" feature is on, the terminal stores the keystrokes made after "input inhibited" appears. The host may also inhibit (lockout) the keyboard upon certain errors or when sending additional information to your computer.

^ **Insert Mode**
Characters are inserted, not overwritten.

C **Character Mode**
The terminal is operating in character mode.

B **Line Edit (Block) Mode**
The terminal is operating in block mode.

K **Keypad Mode**
Keypad is active.

e **Local Edit Mode**
This mode is available only in the VT/ANSI emulation.

Display Position 3

▲ **Alphabet Character Shift Mode** *(59XX, 17XX, 11XX, Green for 6400, 5055)*
The keyboard is in the alphabet character shift mode — any alphabet character keystrokes are entered as uppercase characters.

◄ **Shift Mode** *(Blue for 6400, 5055; Black for 11XX, 17XX; varies for 59XX)*
The keyboard is in a colored shift mode — keystrokes enter the symbol or perform the function shown on the overlay to the upper *left* of the key.

► **Shift Mode** *(Yellow or Gold for 6400, 5055, 11XX, 17XX; varies for 59XX)*
The keyboard is in a colored shift mode — keystrokes enter the symbol or perform the function shown on the overlay to the upper *right* of the key.

Display Position 4

A **Alpha Lock** *(6400)*
This symbol is used only for the 6400 Computer 41-key keyboard model.

c **Battery is charging** *(17XX, 11XX)*
The terminal is connected to a charging source. This does *not* necessarily mean the terminal is charging since this is dependent on battery state, temperature, and other conditions.

Display Position 5

E **Error** *(17XX)*
The terminal is connected to a charging source, but charging is *not* possible.

Display Position 6

B **Bad Battery** *(17XX)*
The battery pack you are currently using is bad.

T **Temperature** *(17XX)*
The terminal is currently out of the battery charging temperature range, which is 5° to 40° C.

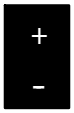
Display Positions 1 through 3

SCAN **Laser scanner in use** *(17XX, 11XX)*
Observe caution labels on laser scanners.

Display Positions 4 and 5

CL **Caps Lock** *(5055)*
If [**Caps Lock**] is pressed (activated) on the 5055 external keyboard, the terminal types all capital letters regardless of how the text is entered.

NL **Num Lock** *(5055)*
If [**Num Lock**] is activated on the 5055 external keyboard, the terminal enters numbers as pressed via the right-hand pad on the keyboard.



Display Positions 4 through 6

Low battery condition *(17XX, 11XX)*
A Low Battery indication is very important to the operation of the terminal, letting you know that your terminal stops operating shortly. Your terminal should continue to operate 30 minutes to 2 hours depending on how you use it. Data stored in RAM is saved for approximately 30 days. However, you should avoid testing this limit.

Your terminal retains its RAM data storage for up to 5 minutes with the battery pack removed. It is always a good idea to replace the battery pack with a fresh recharged pack immediately after removing the discharged pack. Without battery power your terminal does not operate, and your display is blank.

XX/YY

Display Positions 4 through 8

Current Row/Column Position *(59XX)*
Shows the current location of the cursor, with "XX" as the row position and "YY" as the column position. For example, if the cursor is at row 5, column 12, the annunciators shows "05/12" in positions 4–8.

Display Positions 5 through 8

Battery Pack Gas Gauge Icons *(6400)*
These battery icons represent the charge level in your main battery pack.

Four icons (positions 5–8) indicates more than 76% charge level
Three icons (positions 5, 6, and 7) indicates between 51–75%
Two icons (positions 5 and 6) indicates between 26–50%
One icon (position 5) indicates between 21–25%

When the terminal gets below 20%, the icons are replaced by Ls and after the charge level is less than 10% your terminal emits a series of beeps.

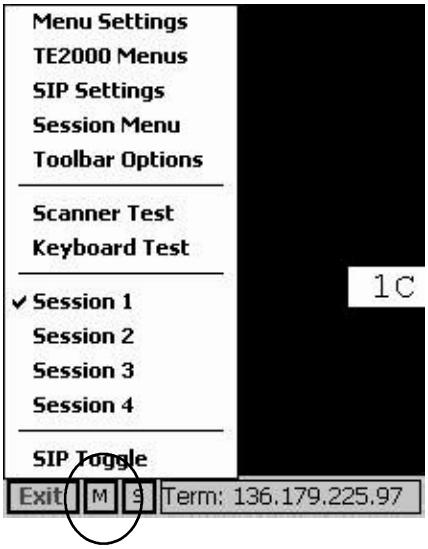
Four Ls indicates 16–20% charge level
Three Ls indicates 11–15%. At the 15% charge level, your terminal beeps once. The sound duration and frequency are at levels you have set for your terminal.
Two Ls indicates 6–10%. At the 10% and 7% charge levels, your terminal beeps once. The sound duration and frequency are at levels you have set for your terminal.
One L indicates 0–5%. At this charge level, your terminal beeps three times at its current setting level for both duration and frequency.

Note: If you have the beeper turned **off**, you will not hear any of the low battery beep warnings.

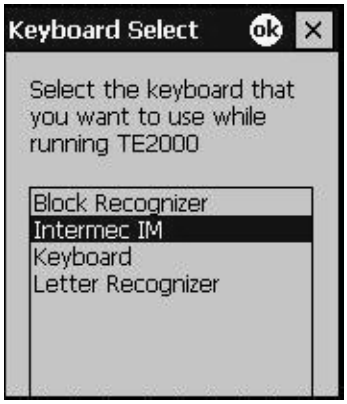
The battery pack icons on your terminal display reflect the same status as the LEDs on the battery pack. However, there may be a one minute delay for updating the icons on the display when the battery pack is replaced.

Configuration Menus *(700 Series, CK31, CV60)*

When a user taps the **Menu Settings** button *("M" circled in this illustration)* on the toolbar, the following menu appears:

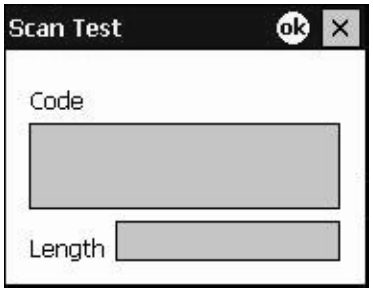


- Select **Menu Settings** to configure the contents of this menu. Enter a password, the default being *cr52401.* See page 173 for more information.
- Select **TE2000 Menus** to access the TE2000 Main Menu. Information about this is described later in this chapter.
- Select **SIP Settings** to select which Software Input Panel (SIP) you want to use with the TE 2000 application:

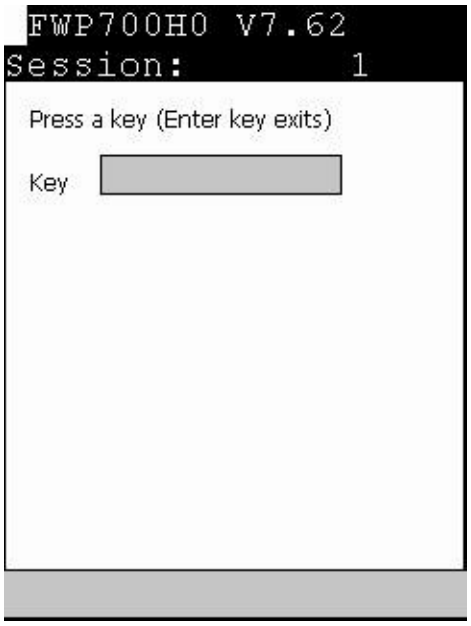


- Select **Session Menu** to change the current session. See page 191 for information.
- Select **Toolbar Options** to configure the options that appear in the toolbar on the terminal. See page 174 for more information.

- Select **Scanner Test** to scan bar codes and view the bar code read and its length. The first character of the bar code is the bar code type character. Select **ok** or press **Enter** to exit this test.



- Select **Keyboard Test** to view the hex value of the pressed key and the actual key value. Press **Enter** to exit this test.



- Select any of the **Session 1** through **Session 4** to go to that session.
- Select **SIP Toggle** to enable or disable the SIP keyboard.

Configuring TE Parameters

This chapter contains the TE configuration menus for the following terminals: 2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, and CV60 unless otherwise noted.

Additional information is available for each of the following:

Note: Screens are shown with all of the available options.
- If an option is **not** assigned to a specific terminal, then that option is available for all of the terminals addressed in this publication.
- If an option **is** specific towards a terminal, this option does not appear on the display, or is blank, for all other terminals.

Key Sequence to Open Main Menu

To configure TE parameters on your respective terminal, at the initialization screens or anywhere in a TE session, access the Main Menu pressing the appropriate key sequence:

Terminal	Key Sequence
2415	(f) (F1) *(55-key keyboard)* (f) (5) *(37-key keyboard)*
2425	[f] (F1)
2435A	▭ ▭ *(57-key keyboard/ 39-key function numeric keyboard)* Green ▢, Orange ▢ *(48-key keyboard)*
2455, 2475, 248X	[f] [F1]
6400	[Gold] [Blue]
5020	▭ ▭
5055	[Blue] [M] *or* [Alt] [M]
59XX	[Brown] [Space]
17XX, 11XX	[Gold] [Black]
700 Series	Tap twice on the upper-right corner of the display; or via the Software Input Panel (SIP) keyboard, tap [Shift] [Mn].
CK30	[Alt] [M] *(52-key keyboard)* ▭ [Ctl] [M] *(50-key keyboard)* [Alt] ▭ [F3] *(42-key keyboard)*
CK31	Tap twice on the upper-right corner of the display; or via the external keyboard, press [Alt] [M].
CV60	Tap twice on the upper-right corner of the display; or via the external keyboard, press [Alt] [M].

Note: You can also scan this bar code label to access the Main Menu.

TE configuration menus

%TECFG

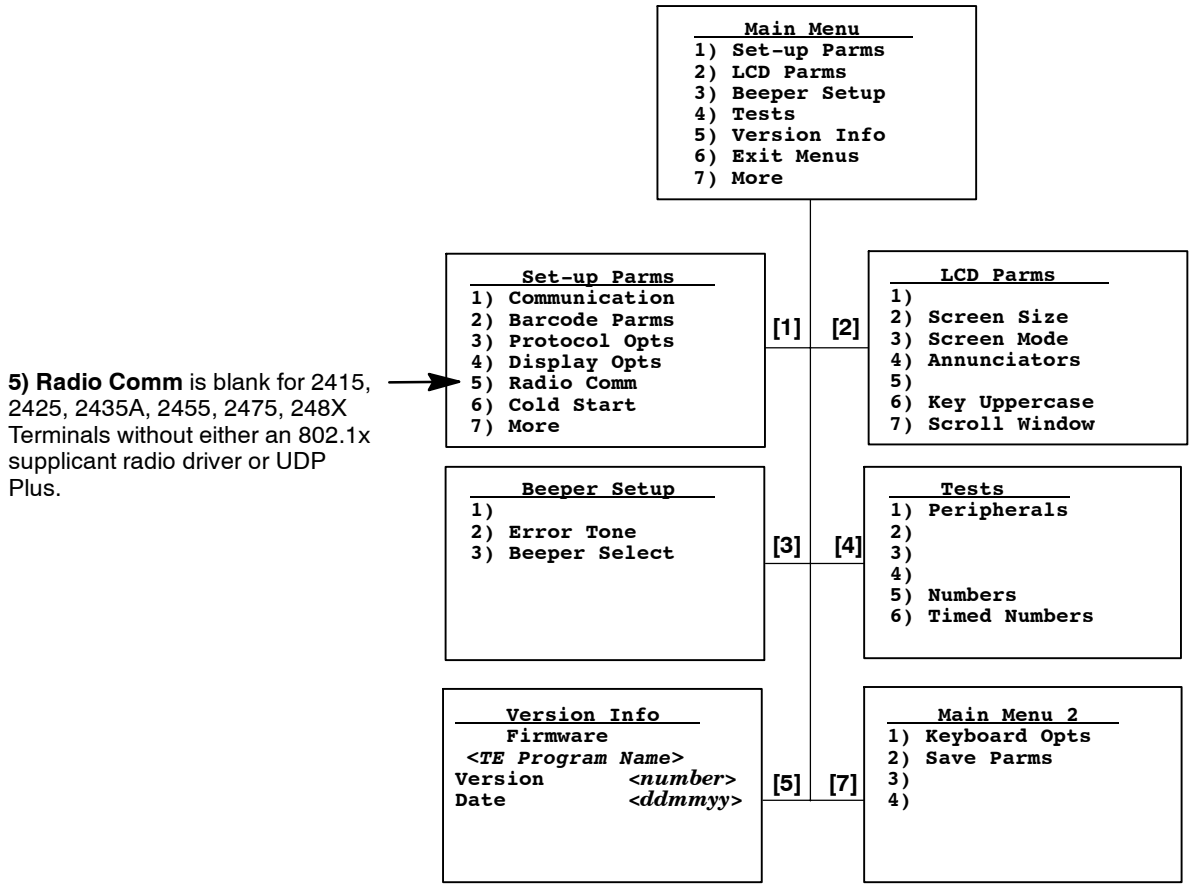
Opening the Main Menu

The Main Menu is the first screen displayed when you open the computer menus. All other menus are accessed from the Main Menu. At the initialization screens or anywhere in a TE session, press the appropriate keys to access the Main Menu *(defined within each terminal's specific information)*. After the Main Menu appears, enter a number (1–7) to make a selection.

2415, 2425, 2435A, 2455, 2475, 248X Menus

The following menus pertain to the 2415, 2425, 2435A, 2455, 2475, and 248X Terminals.

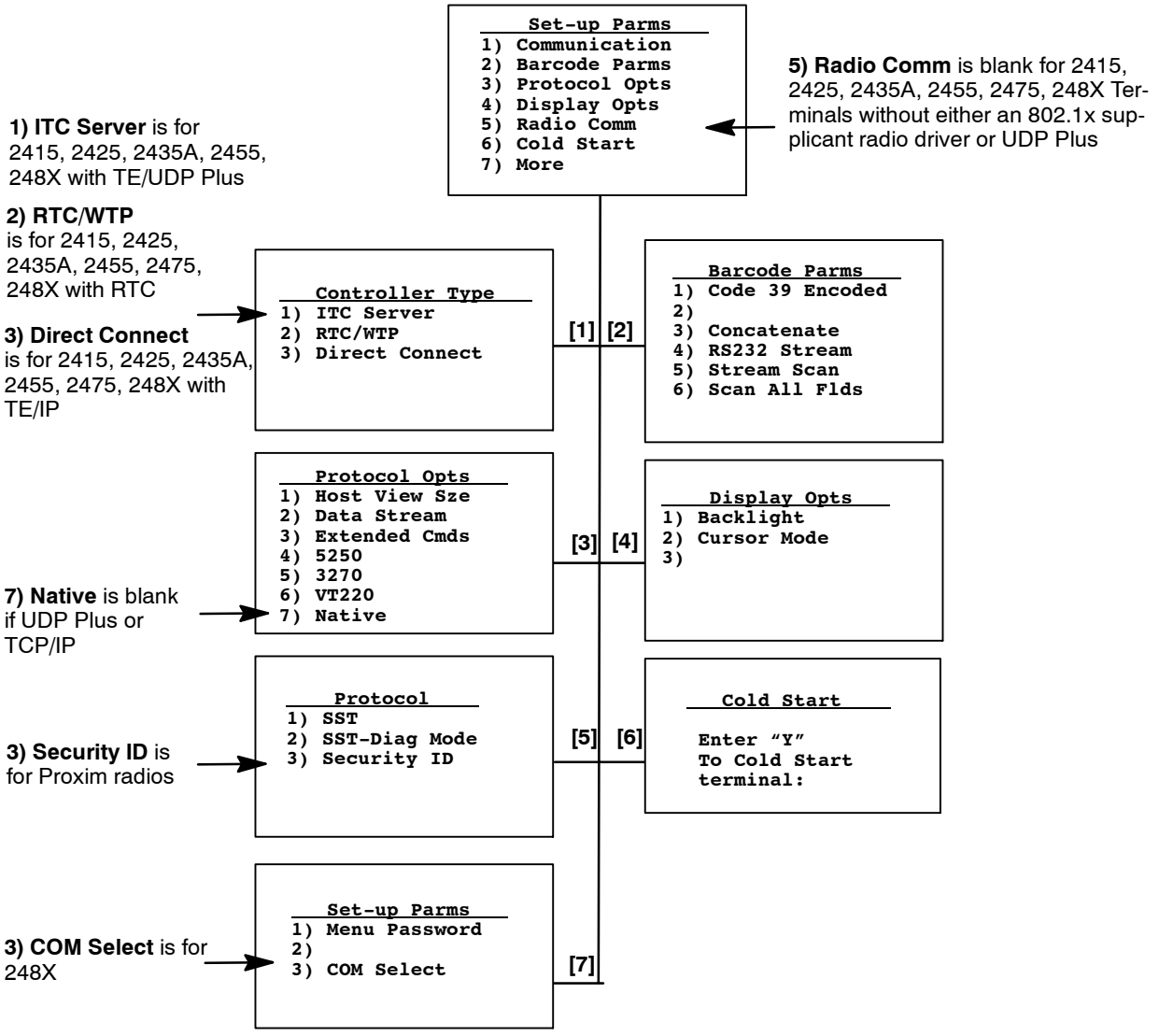
To return to the Main Menu, press [**Enter**] several times, then select **6) Exit Menus**, to return to the operating system.



1) Set-up Parms *(2415, 2425, 2435A, 2455, 2475, 248X)*

This is password-protected to prevent unauthorized users from changing parameters. You can customize the parameter's CONFIG.DAT setup file to change the password. See Chapter 5, "*Customizing Your Configuration.*"

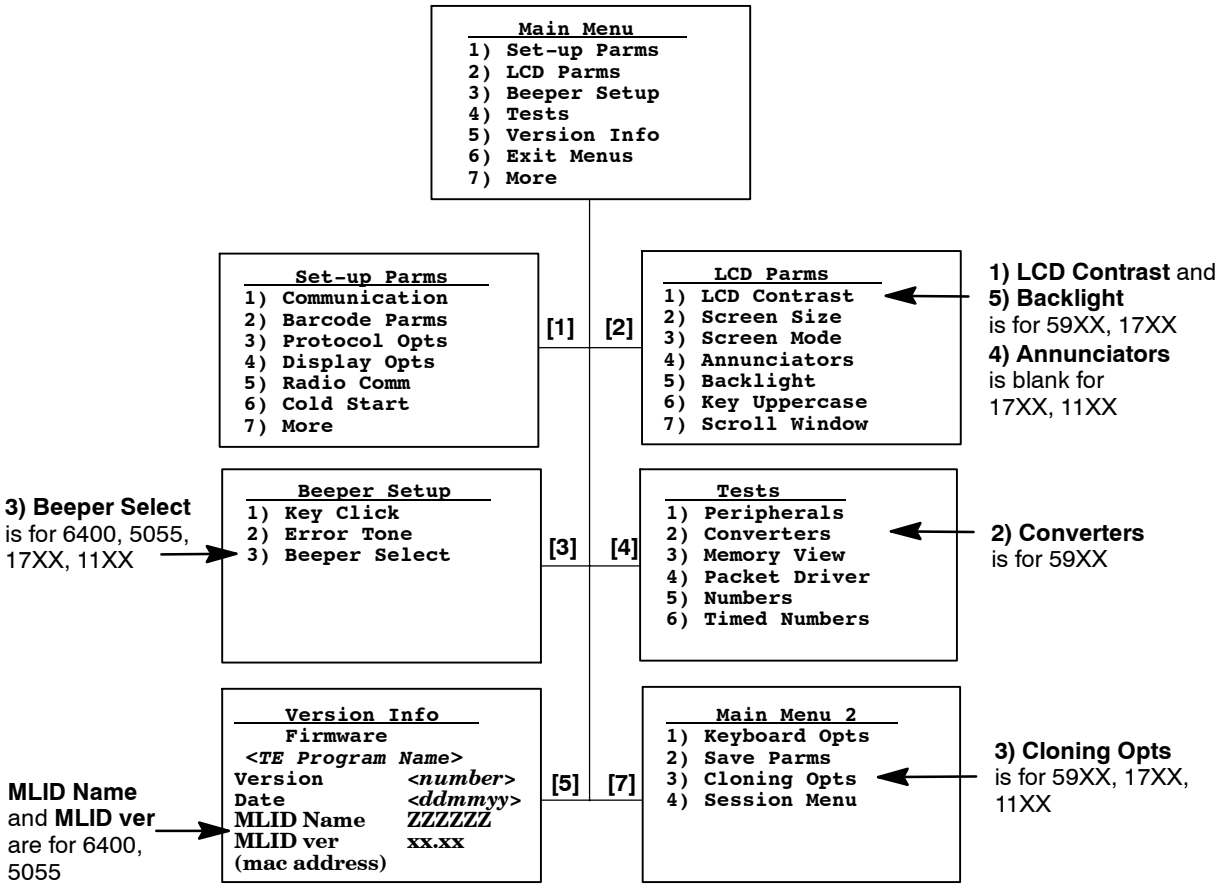
Changed parameters apply to the current session. If more than one session is available, use the 7) **More** > 2) **Save Parms** > 4) **Session Menu** to verify or change the current session *before* going to the next session. To open the **1) Set-up Parms** menu, press [**1**], [**Enter**], then type "cr52401" at the prompt to access the following menus.



6400, 5055, 59XX, 17XX, 11XX Menus

The following menus pertain to the 6400, 5055, 59XX, 17XX, and 11XX Terminals.

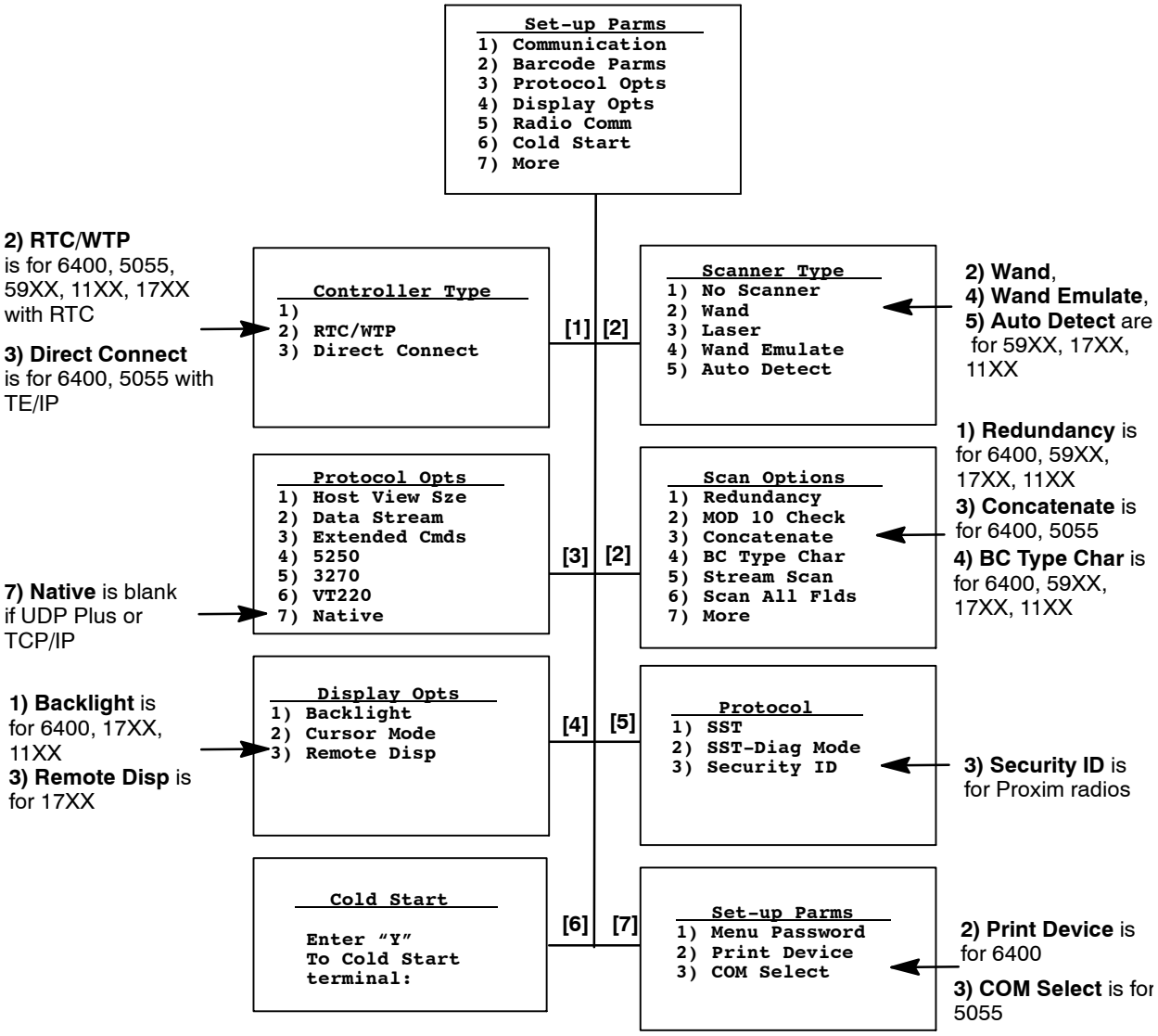
To return to the Main Menu, press [**Enter**] several times, then select **6) Exit Menus**, to return to the operating system.



1) Set-up Parms (6400, 5055, 59XX, 17XX, 11XX)

This is password-protected to prevent unauthorized users from changing parameters. You can customize the parameter's CONFIG.DAT setup file to change the password. See Chapter 5, "*Customizing Your Configuration.*"

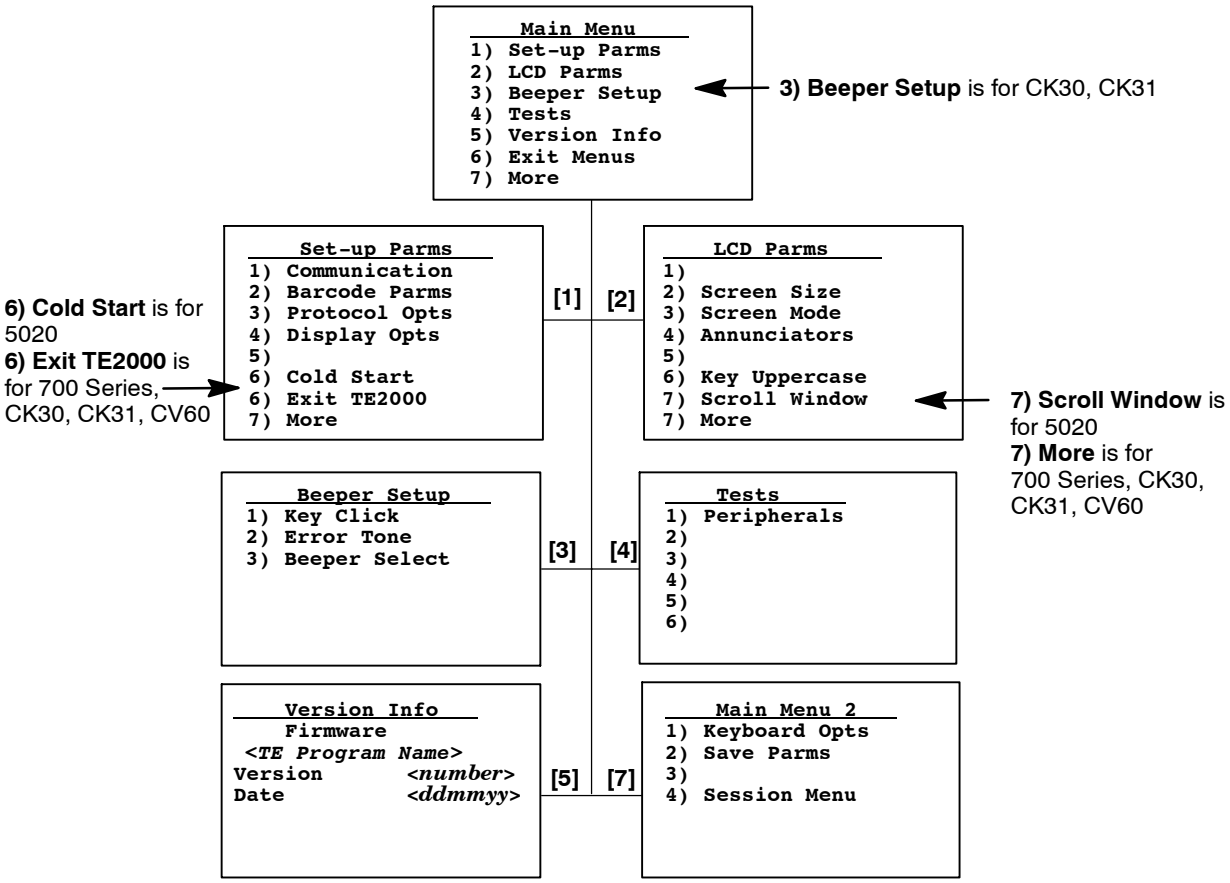
Changed parameters apply to the current session. If more than one session is available, use the 7) **More** > 2) **Save Parms** > 4) **Session Menu** to verify or change the current session *before* going to the next session. To open the 1) **Set-up Parms** menu, press [1], [**Enter**], then type "cr52401" at the prompt to access the following menus.



5020, 700 Series, CK30, CK31, CV60 Menus

The following menus pertain to the 5020, 700 Series, CK30, CK31, and CV60 Terminals.

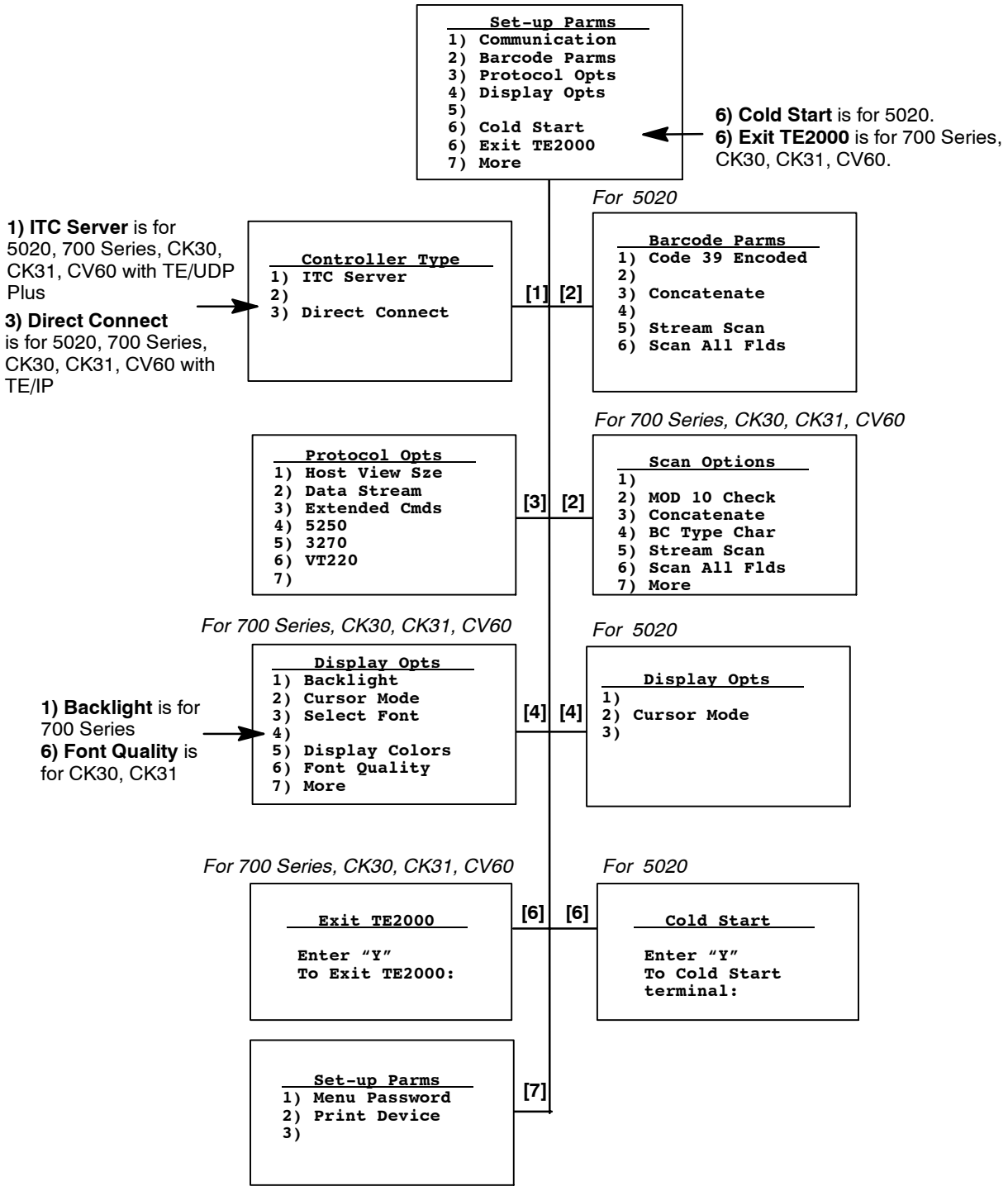
To return to the Main Menu, press [**Enter**] several times, then select **6) Exit Menus**, to return to the operating system.



1) Set-up Parms *(5020, 700 Series, CK30, CK31, CV60)*

This is password-protected to prevent unauthorized users from changing parameters. *For 5020 Terminals and 700 Series, CK30, CV60 Terminals with TE 2000 application versions older than 8.00*, you can customize the parameter in the CONFIG.DAT setup file to change the password. *For 700 Series, CK30, CK31, and CV60 Terminals with TE 2000 application version 8.00 or greater*, you can customize the parameter in the TE_SETTINGS.INI setup file. See Chapter 5, "*Customizing Your Configuration.*"

Changed parameters apply to the current session. If more than one session is available, use the 7) **More** > **2) Save Parms** > **4) Session Menu** to verify or change the current session *before* going to the next session. To open the **1) Set-up Parms** menu, press [**1**], [**Enter**], then type "cr52401" at the prompt to access the menus on the next page.


Set-up Parms
1) Communication
2) Barcode Parms
3) Protocol Opts
4) Display Opts
5)
6) Cold Start
6) Exit TE2000
7) More
6) Cold Start is for 5020.
6) Exit TE2000 is for 700 Series, CK30, CK31, CV60.
For 5020
1) ITC Server is for 5020, 700 Series, CK30, CK31, CV60 with TE/UDP Plus
3) Direct Connect is for 5020, 700 Series, CK30, CK31, CV60 with TE/IP
Controller Type
1) ITC Server
2)
3) Direct Connect
[1] [2]
Barcode Parms
1) Code 39 Encoded
2)
3) Concatenate
4)
5) Stream Scan
6) Scan All Flds
For 700 Series, CK30, CK31, CV60
Protocol Opts
1) Host View Sze
2) Data Stream
3) Extended Cmds
4) 5250
5) 3270
6) VT220
7)
[3] [2]
Scan Options
1)
2) MOD 10 Check
3) Concatenate
4) BC Type Char
5) Stream Scan
6) Scan All Flds
7) More
For 700 Series, CK30, CK31, CV60
For 5020
1) Backlight is for 700 Series
6) Font Quality is for CK30, CK31
Display Opts
1) Backlight
2) Cursor Mode
3) Select Font
4)
5) Display Colors
6) Font Quality
7) More
[4] [4]
Display Opts
1)
2) Cursor Mode
3)
For 700 Series, CK30, CK31, CV60
For 5020
Exit TE2000
Enter "Y"
To Exit TE2000:
[6] [6]
Cold Start
Enter "Y"
To Cold Start
terminal:
Set-up Parms
1) Menu Password
2) Print Device
3)
[7]

1) Set-up Parameters

The following setup parameter information pertains to all terminals unless otherwise noted.

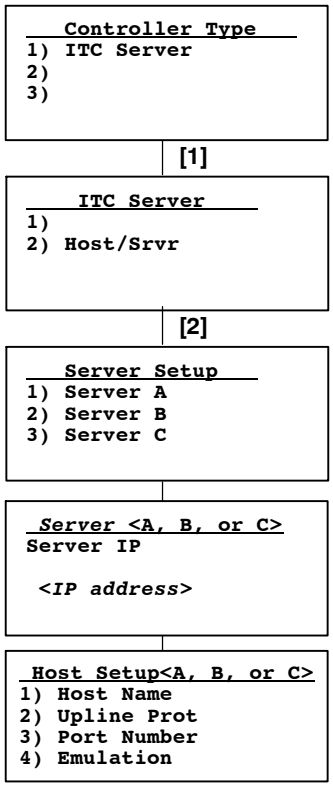
1) Communication

The communication option for the terminals are broken down as follows:

- *2415, 2425, 2435A, 2455, 2475, 248X, 5020, 700 Series, CK30, CK31, CV60 with UDP Plus*
  1) ITC Server via the next paragraph.
- *2415, 2425, 2435A, 2455, 2475, 248X with RTC*
  2) RTC/WTP on page 122.
- *6400, 5055, 59XX, 17XX, 11XX with RTC*
  2) RTC/WTP on page 124.
- *6400, 5055 with TCP/IP*
  3) Direct Connect on page 126.
- *2415, 2425, 2435A, 2455, 2475, 248X, 5020 with TCP/IP, 700 Series, CK30, CK31, CV60*
  3) Direct Connect on page 128.

1) ITC Server (2415, 2425, 2435A, 2455, 2475, 248X, 5020 with TE/UDP Plus, CK30, CK31, CV60)

ITC (Intermec Technologies Corporation) Server options are as follows. To set the options, select **1) ITC Server**, **2) Host/Srvr**, then the **Server Setup** option (Server A, B, or C).



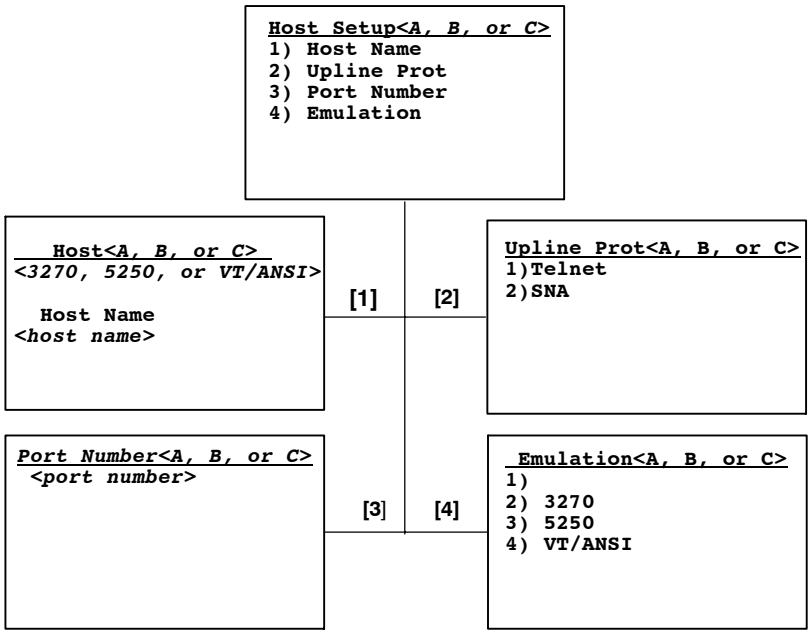
Server IP <A, B, or C>

The Server <A> IP address is read from either the CONFIG.DAT or TE_SETTINGS.INI file (if one is saved) or the TE 2000 application on the terminal. When an IP address is entered, it is written to the terminal's copy of the TE 2000 application for the next boot.

If using the Server <B> or Server <C> option as a fallback Intermec® Application Server, enter the server's IP address or DNS name. The boot sequence continues to try Server <A>, <B>, then <C> in this order by filling the firmware controller slot with the IP values entered for each server.

Host Setup <A, B, or C>

Menu options are as follows:



1) Host Name

The host name can be 64 or fewer characters in length. Enter spaces or punctuation where needed. *Note that the TE 2000 application performs an auto-enter when the 64th character is entered.* It is case-sensitive and must match a host name in the list of available hosts defined on the Intermec Application Server, or remain blank. The name can also be the IP address of the host to which you want to connect. Enter the IP address as four decimal numbers separated by periods.

If a terminal was linked with a host name on the Intermec Application Server, or a default host was configured on this Intermec Application Server, you do not need to enter a host name on this screen.

The terminal displays a list of available hosts if these conditions are met. The user can then select the host from the list.

- The Intermec Application Server contains multiple hosts.
- The terminal is not linked with a host name on the Intermec Application Server.
- The host name is blank.

2) Upline Prot

When enabled, upline protocol options do the following:

- **Telnet** *(Default)*
  Forces the Intermec Application Server to create a Telnet connection to the host.
- **SNA**
  Forces the Intermec Application Server to create an SNA connection to the host.

3) Port Number

This option overrides the port number set for the upline if you have entered a host name and selected Telnet as your upline protocol. *Default port number is 23.* The maximum port number is 65535.

4) Emulation

Use this option to tell the terminal each host computer type.
Default is VT/ANSI.

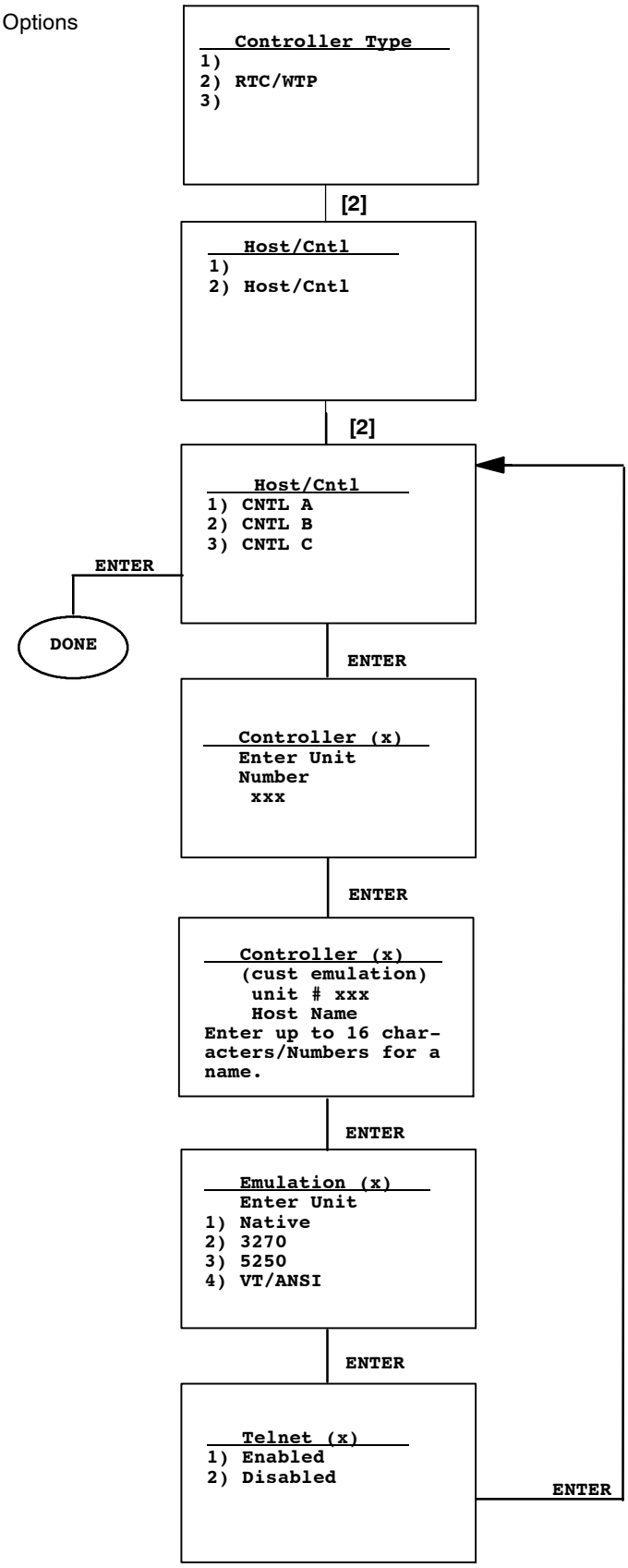
Note: You can also set the type through the **2) Data Stream** option on the **3) Protocol Opts** menu.

2) RTC/WTP (2415, 2425, 2435A, 2455, 2475, 248X)

Use **2) RTC/WTP** to set, view, or change the terminal ID. This number allows the host computer to identify individual terminals in the radio data network. Each terminal must have a unique number in the same network. Use the numeric keys on the terminal keyboard to modify its ID. Enter a number between 0–126, then press [**Enter**] to go to **2) Host/Cntl** menus.

The **1) Radio Setup** and **2) Host/Cntl** menus are shown on the following pages. Pending on which option you are exercising you will either advance to the WTP Stack settings or the TCP/IP Stack settings. **1) Radio Setup** is done in the firmware with the RTC stack.

WTP Stack Options



2) RTC/WTP (6400, 5055, 59XX, 17XX, 11XX)

Use 2) **RTC/WTP** to set, view, or change the terminal ID. This number allows the host computer to identify individual terminals in the radio data network. Each terminal must have a unique number in the same network.

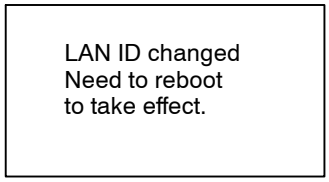
The 1) **Radio Setup** and 2) **Host/Cntl** menus are shown on the following pages. Pending on which option you are exercising you will either advance to the WTP Stack settings or the TCP/IP Stack settings.

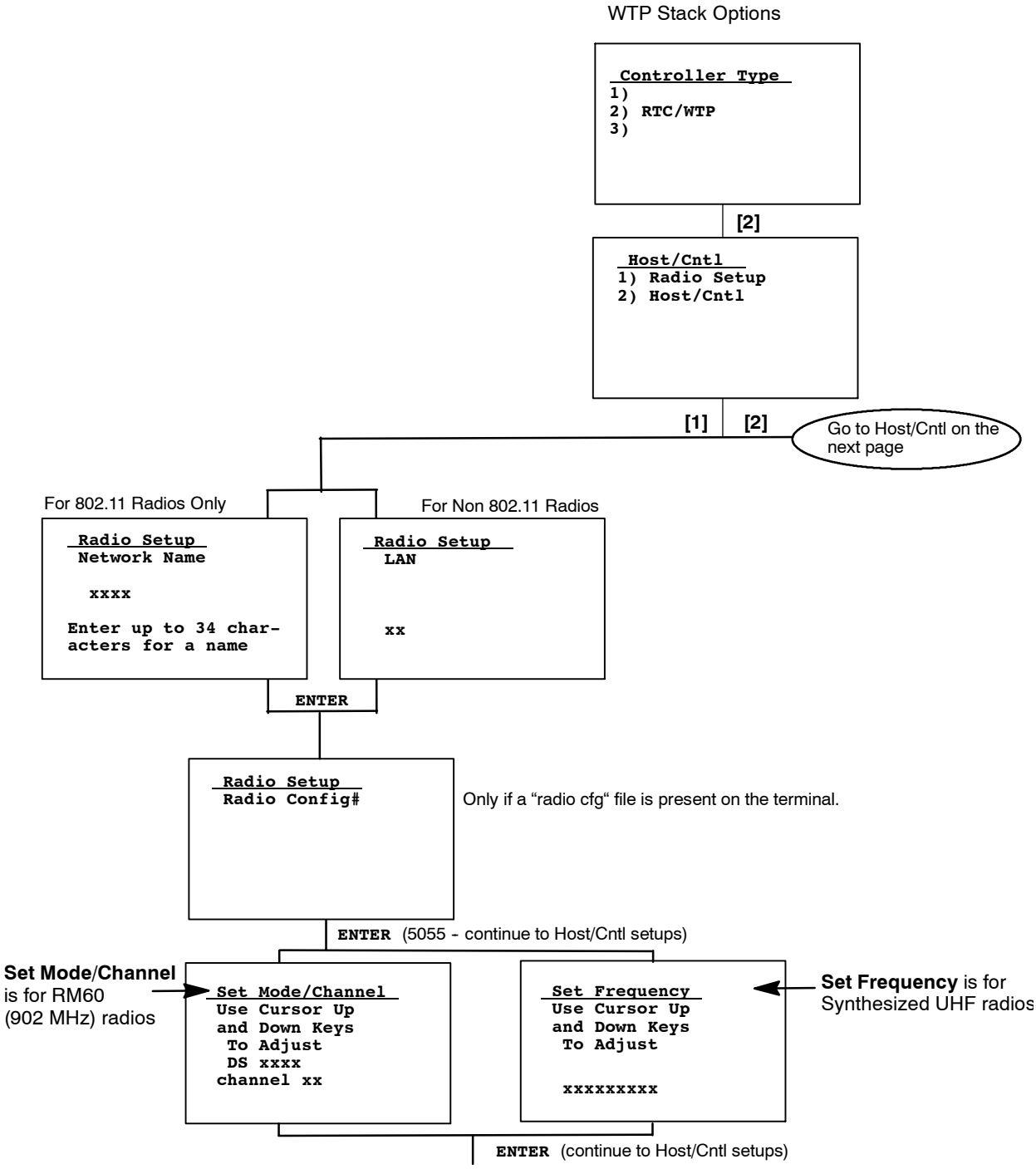
WTP Settings

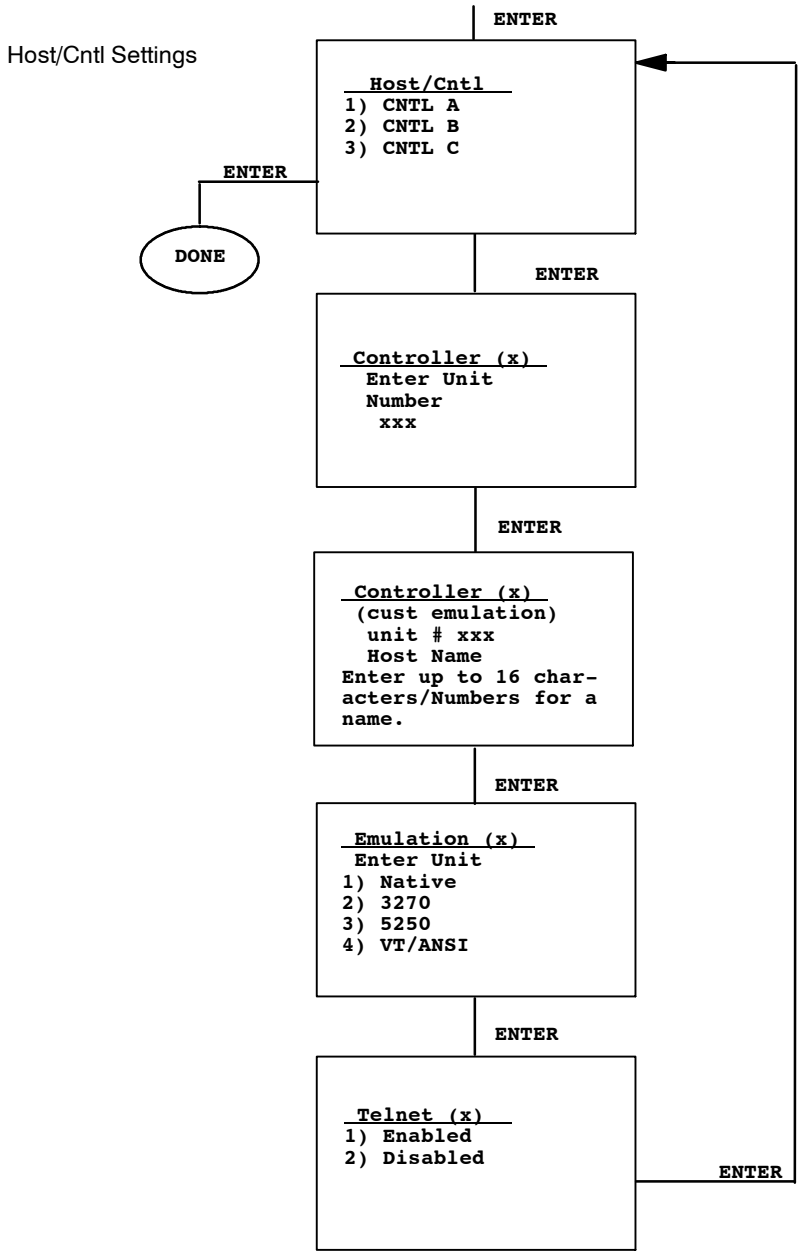
Use the numeric keys on the terminal keyboard or 5055 external keyboard to modify its ID. Enter a number between 0–126, then press [**Enter**] to go to the 2) **Host/Cntl** menus.

The LAN ID number can be 0–255 depending on the radio being used. With the RM60/70 radio, the number can be 0–255; with the RM80/90 radio, the range is 0–15. Your terminal only communicates with equipment using the same ID number that you assigned to your LAN.

If you enter a LAN ID number different from what is configured in the NET.CFG file you get the following message. If this happens, the system modifies NET.CFG, which is used by WTPPKT.EXE on initializing the terminal.




WTP Stack Options
Controller Type
1)
2) RTC/WTP
3)
[2]
Host/Cntl
1) Radio Setup
2) Host/Cntl
[1]
[2]
Go to Host/Cntl on the next page
For 802.11 Radios Only
For Non 802.11 Radios
Radio Setup
Network Name
xxxx
Enter up to 34 char-acters for a name
Radio Setup
LAN
xx
ENTER
Radio Setup
Radio Config#
Only if a "radio cfg" file is present on the terminal.
ENTER (5055 - continue to Host/Cntl setups)
Set Mode/Channel is for RM60 (902 MHz) radios
Set Mode/Channel
Use Cursor Up
and Down Keys
To Adjust
DS xxxx
channel xx
Set Frequency
Use Cursor Up
and Down Keys
To Adjust
xxxxxxxxx
Set Frequency is for Synthesized UHF radios
ENTER (continue to Host/Cntl setups)



3) Direct Connect (6400, 5055)

The first option if exercising TCP/IP stack is **1) Radio Setup**. Once selected, enter your network name or LAN ID.

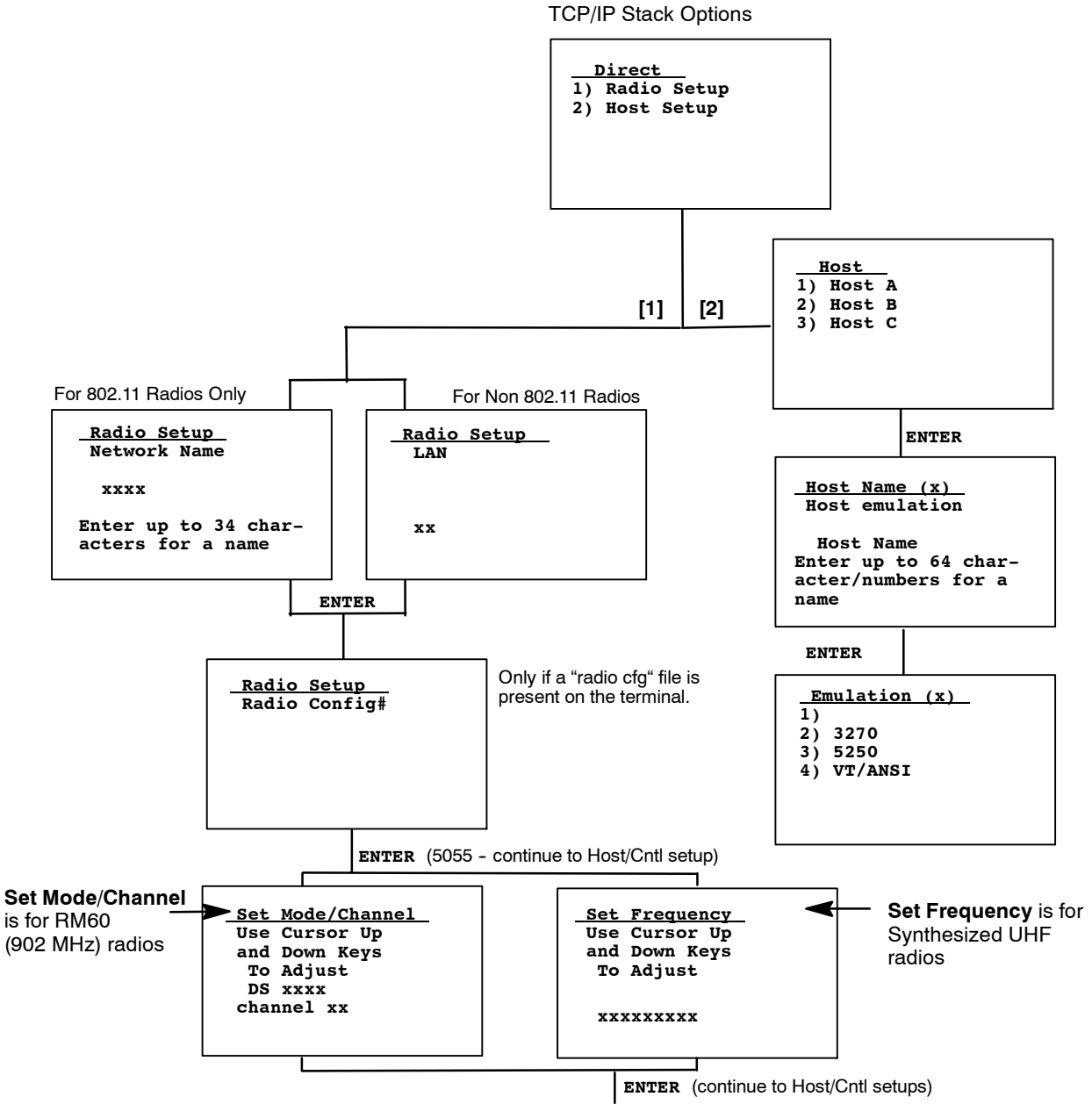
If using a 902 MHz radio module, use the up and down arrows to pick the Direct Sequence (DS) and Channel configuration. If using a Synthesized UHF radio, select possible frequencies for your radio module from the list.

The **2) Host/Cntl** option changes the host setting to designate up to three host computers for each 6400 Computer or 5055 PC. Each host is assigned a separate priority level (1, 2, or 3). When powered on, the 6400 Computer or 5055 PC seeks host A. If host A is not available, then the unit seeks host B; if host B is unavailable, the unit then logs onto host C.

When designating additional hosts for the 6400 Computer or 5055 PC, you must:

- Tell the 6400 Computer or 5055 PC the host type of each host computer: (3270, 5250, or VT/ANSI).
- Tell the 6400 Computer or 5055 PC the name of each host.

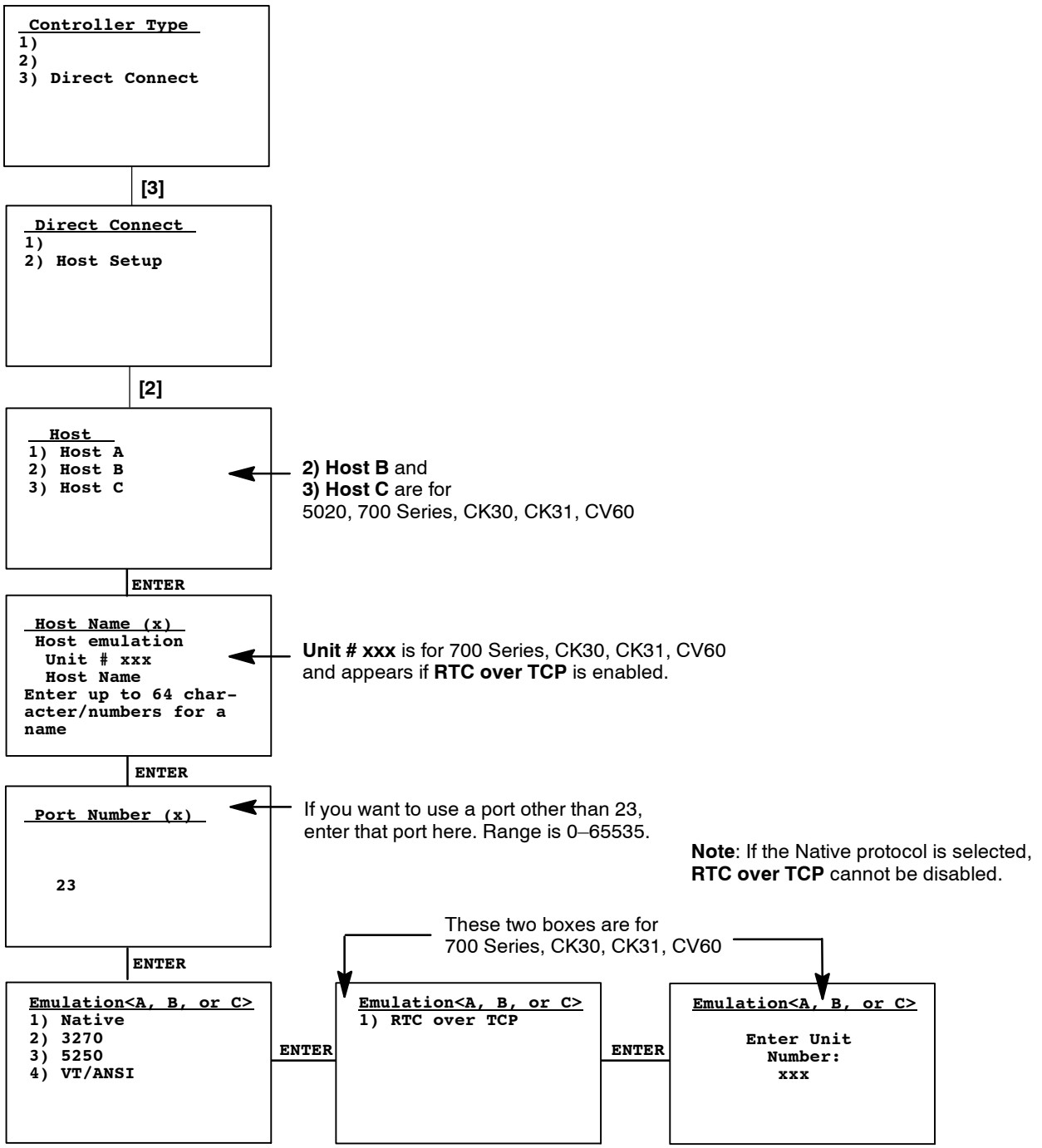
Note: Selections in these menus apply only to the current session. Use **4) Session Menu** to verify or change the current session.



3) Direct Connect (2415, 2425, 2435A, 2455, 2475, 248X, 5020, 700 Series, CK30, CK31, CK60 with TE/IP)

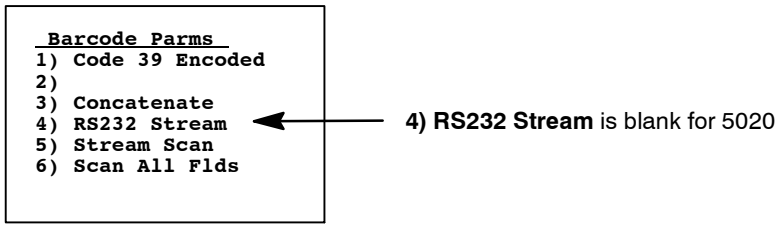
To set these options, select **3) Direct Connect**, **2) Host Setup**, then **1) Host A**. Use the **Emulation** (**A**) option to tell the terminal the type of each host computer. *Default is VT/ANSI.*

Note: You can also set the emulation type through the **2) Data Stream** option on the **3) Protocol Opts** menu.



2) Barcode Parms (2415, 2425, 2435A, 2455, 2475, 248X, 5020)

The **2) Barcode Parms** (parameters) menus designate whether you are using a bar code scanner and scan options.



1) Code 39 Encoded

By default, **1) Code39 Encoded** is disabled. When you enable this option, the key press sequences for Encoded Code 39 are used. For more information, see Appendix A, "*Bar Code Scanning*."

3) Concatenate

Each bar code read is added to the end of the previous bar code read until the 2415, 2425, 2435A, 2455, 2475, 248X, or 5020 Terminal meets a condition forcing transmission to the host.

When this option is OFF, each bar code read is placed at the beginning of the current input field. After a bar code is placed in a field, any subsequent read replaces the first read.

Note: If you access the TE configuration menus when **4) RS232 Stream** is enabled, all RS-232 data received during this time is lost. Only the data arriving from the COM1 port on the hand-held terminal is received.

4) RS232 Stream (blank for 5020)

If this option is enabled, the terminal watches the RS-232 port for activity in which the terminal reads in the RS-232 data and sends it to the host. This enables support for fixed-station scanners or scales that send only RS-232 data without having the host send an extended command to enable the RS-232 port. *Default for **4) RS232 Stream** is disabled.* For information about setting scanner options when this is enabled, see Chapter 2, "*Using Terminal Emulation Applications*."

5) Stream Scan

If the scanned bar code is too big for the input field, the overflow information appears in the next field and continues until the entire bar code is entered. When this option is OFF, and the scanned bar code is too big for the input field, the overflow information is dropped.

6) Scan All Flds (Fields)

When this option is selected, the scanner is enabled when the cursor is in an input field. When this option is OFF, the host computer must enable the scanner for each input field that requires scanned data.

2) Barcode Parms (6400, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, CV60)

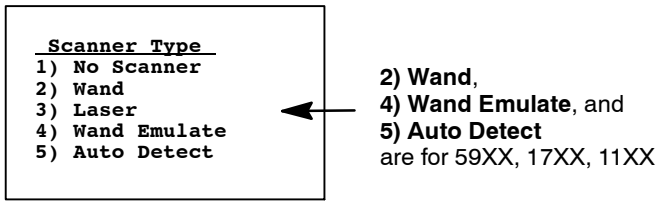
Selecting **2) Barcode Parms** displays either the **Scanner Type** menu or the **Scan Options** menu, pending on your terminal:

- *For the 6400, 5055, 59XX, 17XX, 11XX Terminals,*
  Selecting **2) Barcode Parms** displays the **Scanner Type** menu.
- *For the 700 Series, CK30, CK31, CV60 Terminals,*
  Selecting **2) Barcode Parms** displays the **Scan Options** menu.

Scanner Type (6400, 5055, 59XX, 17XX, 11XX)

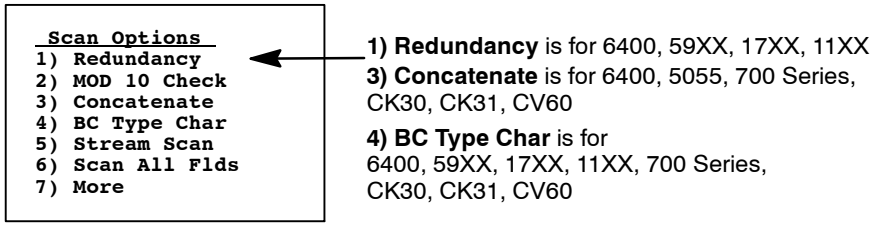
Use the **Scanner Type** menu to designate the type of bar code scanner. To make a selection, press the numeric key corresponding to the desired option, then press [**Enter**] to access the **Scan Options** menu.

Note: If **1) No Scanner** is chosen, you can set the remaining scanner and bar code options. Then, if a scanner is used at a later time, you only designate the scanner type. Selected options are highlighted on the display. Press a key corresponding to that option to deselect a selected option.



Scan Options

Use the **Scan Options** menu to assign scan options, enable bar code symbologies to use *(the terminal can only decode the enabled symbologies)*, and set options for each enabled bar code symbology, such as the bar code lengths. Press [**Enter**] to advance to other **Scan Options** menus.



1) Redundancy (6400, 59XX, 17XX, 11XX)

This option requires two identical scans of a bar code, one right after another, before the terminal accepts the scan as valid.

2) Mod 10 Check
When you select this option, a check digit is added at the end of the bar code after a good read for transmission to the host. The host can then validate the transmitted data using the check. This feature is not needed with modem transmission protocols.

The bar code number is divided by 10, until the number (or modulus) is less than 10. If the modulus subtracted from 10 (remainder) is equal to zero, then the bar code number is valid.

3) Concatenate (6400, 5055, 700 Series, CK30, CK31, CV60)
Each bar code read is added to the end of the previous bar code read until the 6400, 5055, 700 Series, CK30, CK31, or CV60 Terminal meets a condition forcing transmission to the host.

When this option is OFF, each bar code read is placed at the beginning of the current input field. After a bar code is placed in a field, any subsequent read replaces the first read.

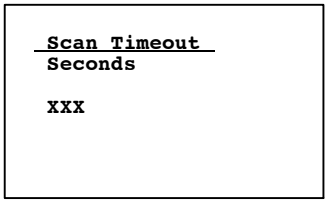
4) BC Type Char (6400, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, CV60)
This adds a character associated with the bar code type at the beginning of the scanned bar code. *See page 382 for bar code type characters.*

5) Stream Scan
If the scanned bar code is too big for the input field, the overflow information appears in the next field and continues until the entire bar code is entered. When this option is OFF, and the scanned bar code is too big for the input field, the overflow information is dropped.

6) Scan All Flds
When this option is selected, the scanner is enabled when the cursor is in an input field. When this option is OFF, the host computer must enable the scanner for each input field that requires scanned data.

7) More
This brings you additional scanning options that adjust scanning timeout and characters sent before and after the scanned data.

- **1) Scan Timeout** *(59XX, 17XX, 11XX)*
  Use this option to adjust the scanning timeout period from 1 to 200 seconds. When using a proximity-detect scanner, you can shorten the timeout period to speed up scanning while also reducing the duration of errant scans. With a long-range scanner, you may want to increase the timeout period to ensure sufficient aiming time.



- 2) **Scan PreChar** and 3) **Scan PostChar**
  Enter a hexadecimal value from 00–FF for the character to be sent preceding the scanned data or after the scanned data. The value of 20h means that pre- or post-characters are not sent.
- 4) **ParmsBySession** *(5020, 700 Series, CK30, CK31, CV60)*
  When enabled, the symbology parameters under **1) Set-up Parms** > **2) Barcode Parms** configure Windows CE terminal scanning devices on a per-session basis.

  When disabled *(default)*, the **2) Barcode Parms** option is ignored. The TE 2000 application does not configure symbology parameters for Windows CE terminal scanning devices. The settings selected via the Windows CE System Data Collection applet are used for both TE 2000 sessions. You can configure the symbology parameters under **1) Set-up Parms** > **2) Barcode Parms** , however these are not used.
- 5) **Use Wedge Mode** *(700 Series, CK30, CK31, CV60)*
  This causes the TE 2000 application to use the system Scanners and Symbologies settings. All scanned data will come into the TE 2000 application from the system Virtual Wedge per the Virtual Wedge settings as if the scanned bar code characters were typed into the keyboard.

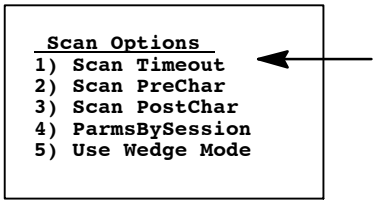
  When Use Wedge Mode is enabled, none of the TE 2000 menu options for scanning will function, such as the following:

  - Auto Tab Scan, Aut Entr Scn, BRT Auto Enter, ANY Auto Enter, Scan PreChar, Scan PostChar, symbology enable, disable, mix-max or fixed lengths, drop leading, or trailing characters.

  Scanner data will not be inhibited when in a non-scannable field in TE 2000 3270 or TE 2000 5250.

  When Use Wedge Mode is enabled, all of the system Scanners and Symbologies capabilities will be available. This means that all of the symbology options and grid options for special edits can be used.

  Use Wedge Mode can be enabled in TE_SETTINGS.INI by session but only the setting for Session 1 will be used. The Session 1 setting will be propogated across all sessions. If you enable Use Wedge Mode in TE 2000 menus and then save the parameters, you will see the TE_SETTINGS.INI contains the same Use Wedge Mode value for all sessions.



1) Scan Timeout is for 59XX, 17XX, 11XX

4) ParmsBySession is for 5020, 700 Series, CK30, CK31, CV60

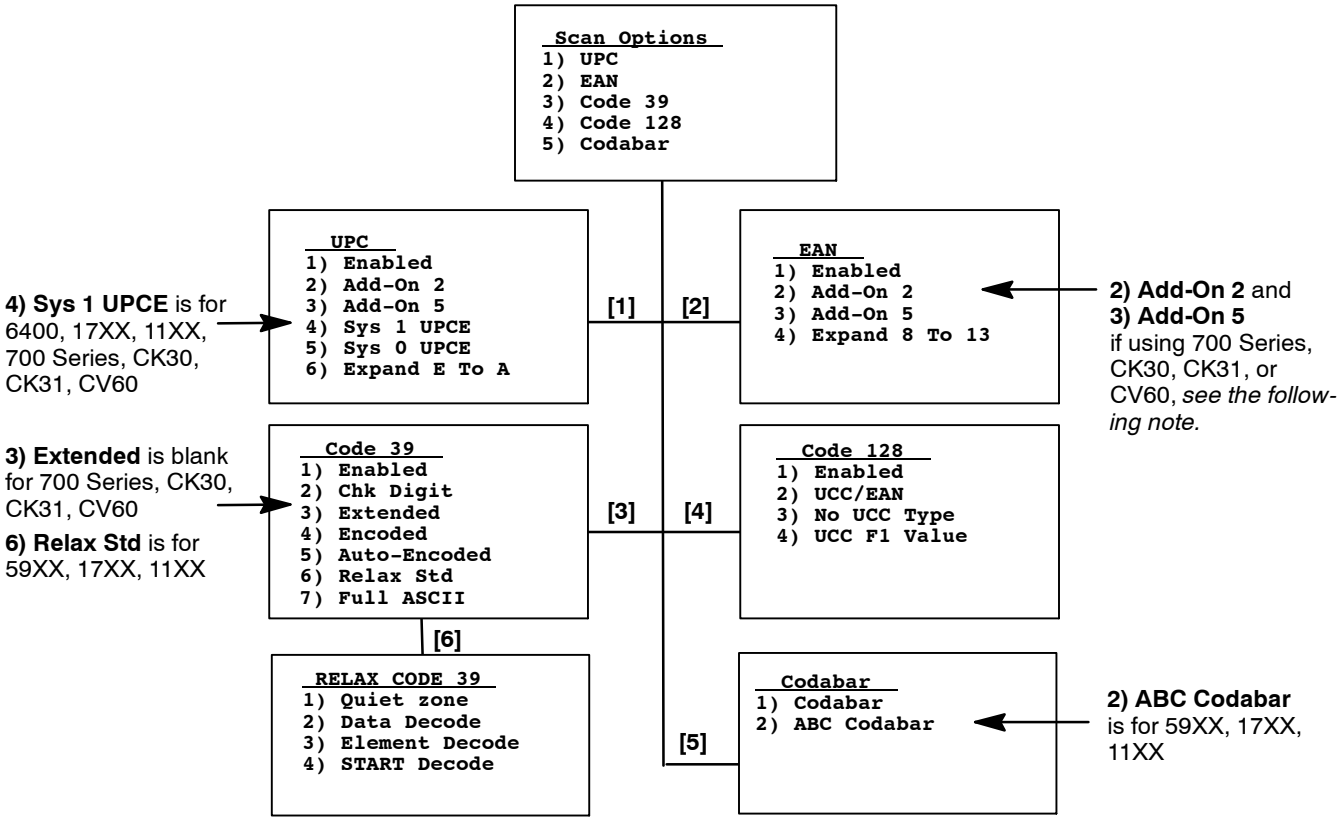
5) Use Wedge Mode is for 700 Series, CK30, CK31, CV60

Scan Options to Enable Bar Codes

There are menus of options to enable (or disable) various bar code symbologies. To enable a bar code, press the numeric key corresponding to the number of the bar code symbology (shown on menu), then press [**Enter**].

After enabling a particular bar code, options may have to be selected for the bar code. After selecting the desired options, set the length requirements (such as minimum and maximum length, fixed lengths, leading and trailing character options, etc.).

Once the length requirements are set, the terminal returns to the same Scan Options menu. Choose another bar code symbology from that menu or press [**Enter**] to advance to the next Scan Options menu.



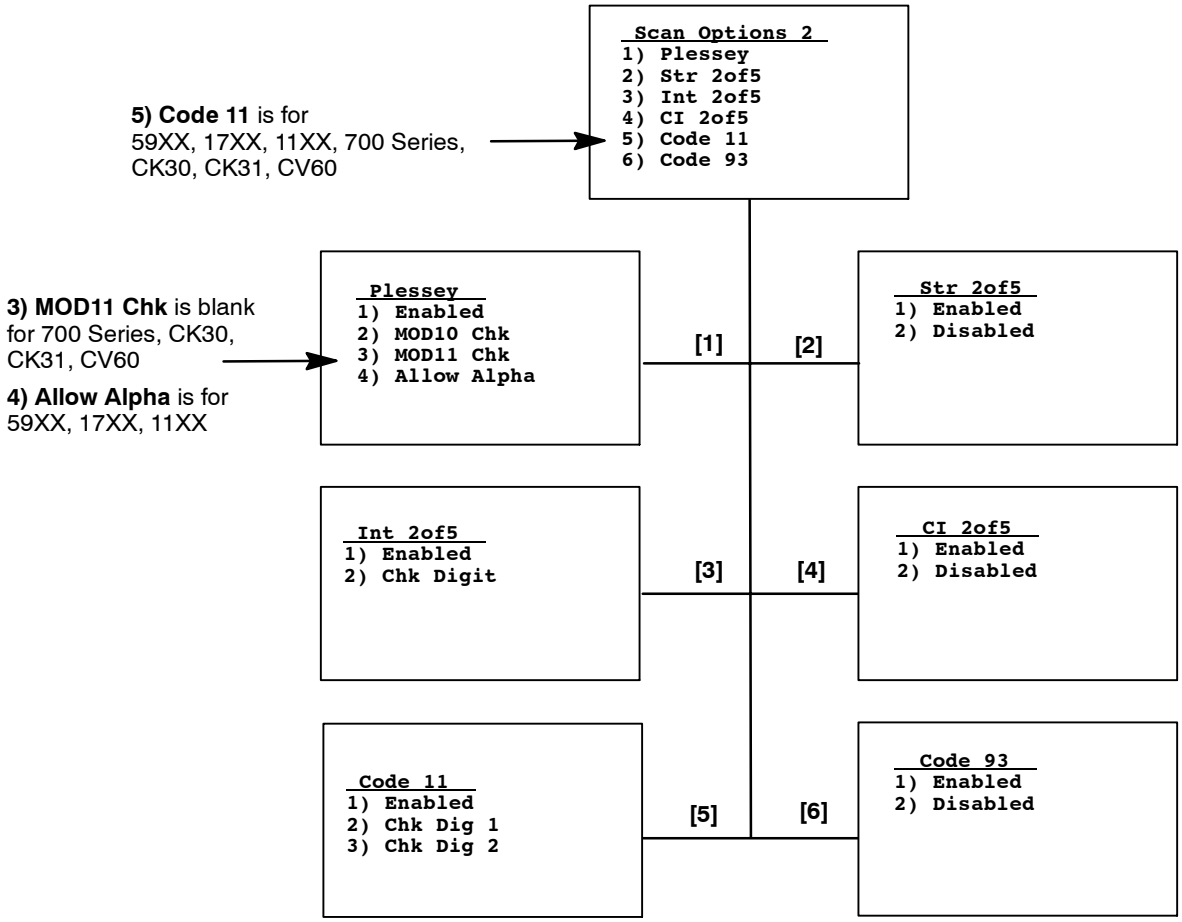
Note: *For 700 Series, CK30, CK31, CV60 Terminals,* this implementation of the TE 2000 application processes EAN 8 and UPC E bar codes in the same manner. The type character for EAN 8 with Add-On 2 or Add-On 5 will decode as UPC E with Add-On 2 or Add-On 5, respectively. The bar code type character will also indicate UPC E with Add-On 2 or Add-On 5, respectively. Consequently, the drop leading and trailing UPC options will be used when an EAN 8 with Add-On 2 or Add-On 5 is decoded.

Scan Options 2 (Additional Bar Codes)

This menu offers additional bar code selections. After enabling a bar code symbology, various options, including length can be set.

When all options are set, the display returns to the Scan Options 2 menu. This menu and the bar code symbologies to be enabled are shown below.

When all needed bar code symbologies are enabled, press [**Enter**] to return to the Scan Options menu. Press [**Enter**] again to back out and return to the **1) Set-up Parms** menu.



Lengths Options

The Lengths Options menus determine the maximum and minimum length for a specific bar code symbology. Setting the length of enabled bar codes helps the terminal determine if a scanned bar code is valid and improves response time. The length options must be set for each enabled bar code. *Enter this information in the order listed.*

1. Key in the maximum length (0–99), then press [Enter]. *For 700 Series, CK30, CK31, CV60 Terminals, set this as high as you intend to set the minimum length.*
2. Key in the minimum length (0–99), then press [**Enter**].
3. Fixed-length entries override the maximum and minimum length entries (minimum and maximum are used for chosen codes). If fixed lengths are not needed for the enabled bar code, enter zero (0).

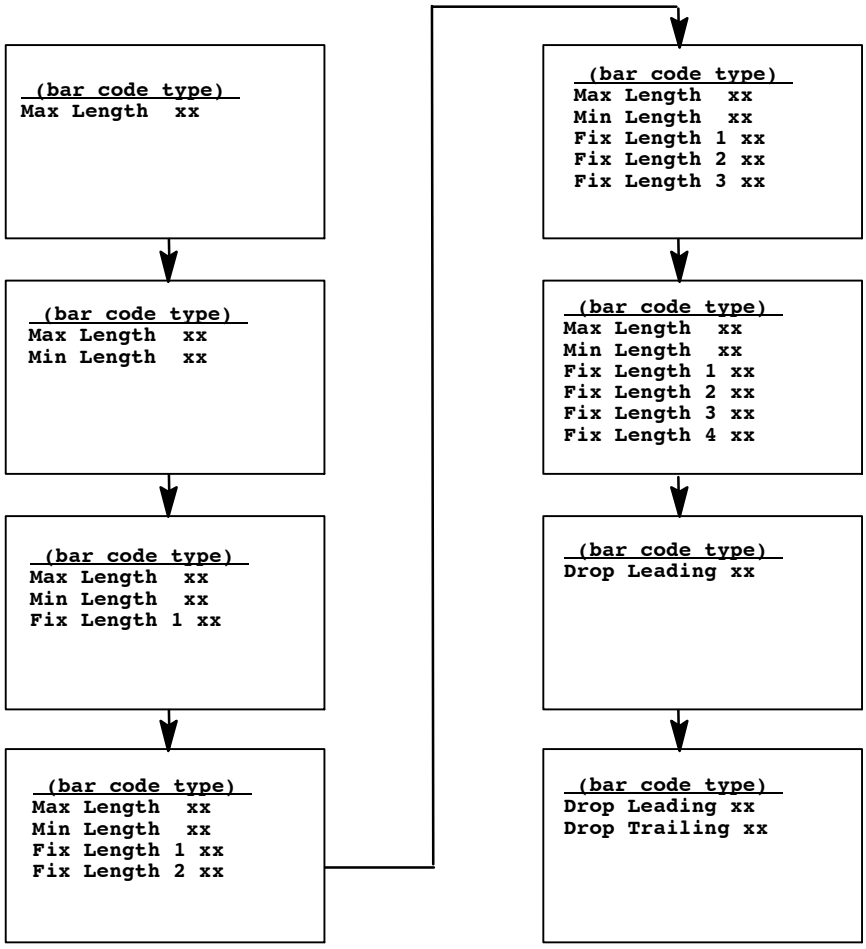
   Enter the fixed length (0–99), then press [**Enter**]. Up to four prompts to set another fixed length will appear. Enter zero (0) for the unused fixed lengths. *Note that I 2 of 5 only supports fixed lengths 1 and 2. Entries in 3 and 4 are ignored.*
4. Enter the number of characters (0–15) to drop from the front (leading) edge of the scanned bar code, then press [**Enter**].
5. Enter the number of characters (0–15) to drop from the rear (trailing) edge of the scanned bar code, then press [**Enter**].

700 Series, CK30, CK31, CV60 Exceptions

The following exceptions apply only to 700 Series, CK30, CK31, and CV60 Terminals:

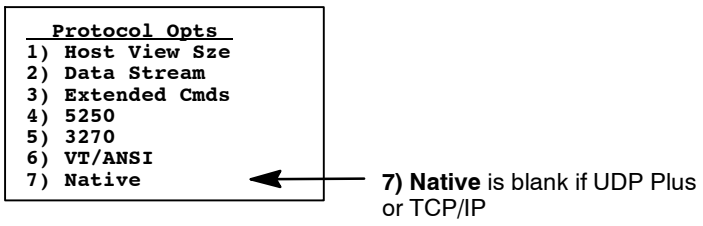
- Codabar, Str 2of5, Int 2of5, and CI 2of5 bar code symbologies set the length, if fixed-length 1 is non-zero, to three fixed-length entries equal to the first three fixed-lengths (fourth fixed-length is ignored). Otherwise, the length is set to greater than or equal to the minimum length.
- Code 39, Code 128, Code 93, and Plessey set the length to any length greater than or equal to the minimum length.
- UPC/EAN and Code 11 lengths are not used — ANY is allowed.
- Codabar options will not decode less than two data characters (four characters including Start and Stop).
- CI 2of5 options override Str 2of5 options, if both CI 2of5 and Str 2of5 are selected.
- EAN Add-on settings override UPC add-on settings, if both UPC and EAN options are selected.
- If “Sys 1 UPCE” or “Sys 0 UPCE” is selected, then both UPCE number system 0 and 1 are enabled.
- Code 11 does not support “No check digits.” Select either 1 check digit (Chk Dig 1) or 2 check digits (Chk Dig 2) according to your bar codes. If neither check digit option is selected, then 2 check digits will be used as a default.

After all of the length options are set for the enabled bar code, the display returns to either the Scan Options menu or the Scan Options 2 menu *(pending on from which menu the bar code was enabled)*.



3) Protocol Opts

Use the 3) **Protocol Opts** menu to designate the type of terminal emulation the host supports. You can also use it to designate additional commands and command sets.



1) Host View Sze

The **1) Host View Sze** option tells the terminal the format of display information sent from the host. The display viewing size equals 1920 (the number of rows times the number of columns). The exception is with 5250 Terminal Emulation which has an additional row for error messages and therefore has 2000 characters.

The default setting for Native Terminal Emulation is 120 columns by 16 rows (equals 1920). The default for VT/ANSI Terminal Emulation is 80 columns by 24 rows (equals 1920). The default for 5250 Terminal Emulation is 80 columns by 24 rows (25 with error messages).

The default for 3270 Terminal Emulation depends on what the original setting was before changing to the 3270 Terminal Emulation. Remember that the total characters must equal 1920 (number of rows by the number of columns) unless using 5250 Terminal Emulation with error messages.

Enter a number between 1–80 to change the width. Press [Enter] to return to the **3) Protocol Opts** menu. "xx" is the width.

```
Host View Sze

  Width

  xx
```

2) Data Stream

Enter the number corresponding to the type of host computer to specify the data stream used. Press [**Enter**] to return to the **3) Protocol Opts** menu.

```
  Data Stream
1) Native
2) 3270
3) 5250
4) VT/ANSI
```

1) Native is blank if UDP Plus or TCP/IP

Note: For 2415, 2425, 2435A, 2455, 2475, 248X, 5020, 700 Series, CK30, CK31, and CV60 Terminals, you can also set the emulation type through the **1) ITC Server** or **3) Direct Connect** options.

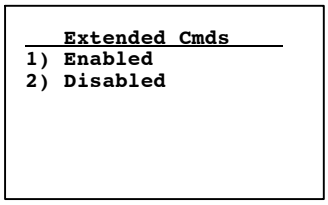
For information about 3270, 5250, or Native TE, see these manuals:

- *TE 2000 3270 Terminal Emulation Programmer's Guide* (P/N 977-055-003)
- *TE 2000 5250 Terminal Emulation Programmer's Guide* (P/N 977-055-004)
- *Native Terminal Emulation Programmer's Guide* (P/N: 977-055-006)

3) Extended Cmds (Commands)

Use 3) **Extended Cmds** to enable or disable extended commands. By default, extended commands are disabled. For more information about extended commands, see Chapter 7, "*Extended Commands*."

When this option is *enabled*, the host computer can change or use RS-232 communications (such as printers), bar code options, display screen and font size, and error tone features of the unit. Press [**1**] to enable or press [**2**] to disable the extended command list. Press [**Enter**] to return to the 3) **Protocol Opts** menu.



4) 5250 (Options)

The 4) **5250** menu enables the following features *if the 5250 communication protocol is used.* Press the appropriate number to enable an option, then press [**Enter**] to return to the 3) **Protocol Opts** menu.

1) Beep On Error

Causes the buzzer to emit when an error condition occurs; does not lock up the keyboard.

2) Auto Tab Scan

Causes the cursor to automatically tab forward to the next input field when a good scan is obtained.

3) Telnet (blank for 5020, 700 Series, CK30, CK31, CV60)

Handles the Telnet option negotiations to establish a session with an appropriate telnet server.

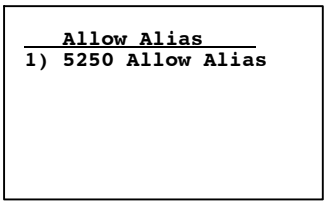
Note: 3) **Telnet** is not changeable if TCP/IP is used.

4) Device Name
Enters a physical name for a device. This is 1–10 characters with allowable values of A–Z, a–z, 0–9, the pound symbol (#), the dollar sign ($), the ampersand (@), and an underscore (_). *5250E RFC 1572 Support.*

Note: The first character of **4) Device Name** cannot start with a number (0–9).

The following screen displays after a physical name is entered.

- **1) 5250 Allow Alias**
  If this is enabled, and your current device name returns an error in use, then the terminal attempts to append a "$" (dollar sign) to the end of your device name to initiate a session to your host. When disabled, the device name is resent to the host for the host to send a FIN packet to the terminal, causing the terminal to reboot. This continues until the device name is no longer in use.



5) Allow NAWS (Negotiate About Window Size)
When enabled, the terminal will support Telnet option 31 if prompted. When disabled, this option will return a "won't do" message.

6) Skip FldExit
When this option is enabled, a field that would generate an error code of "0020" (field exit required) when [**Enter**] was pressed now sends the field data.

The legacy TE application would send the entire field so a "7" entered into a 3-character blank-filled field would transmit as "7~~b~~~~b~~", a "12" would transmit as "12~~b~~". The TE 2000 application strips the field fill characters so "7" will transmit as a "7", "12" will transmit as a "12" and so forth.

Note A "~~b~~" indicates a one-byte space.

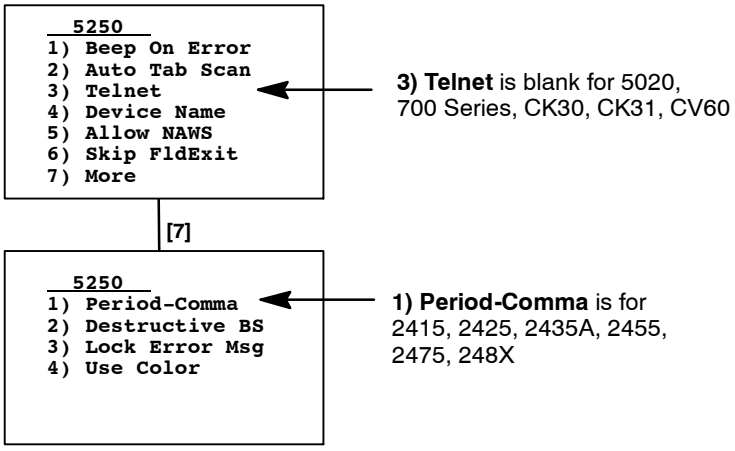
7) More
Select 7) **More** to modify the function of the period key or backspace key.

- **1) Period–Comma** *(2415, 2425, 2435A, 2455, 2475, 248X)*
  Select **1) Period–Comma** to change the period key (.) to a comma.
- **2) Destructive BS** (backspace)
  Press [**2**] to use the backspace key to remove (delete) any previously-keyed data characters. When disabled, the backspace key goes back one character, but does not delete that character.

- **3) Lock Error Msg**
  The TE 2000 cursor modes ensure that the cursor location of the screen and its surrounding data is visible. The 5250 error message line is typically not visible because the error message line 24 is too far away from the cursor location. Enabling this option causes a 5250 Write Error Code command error message to be visible by placing the cursor on the error message line. When the RESET key is pressed, the cursor is restored to where it would have been if this option was not enabled (the location specified by a 5250 Insert Cursor command) and the cursor mode option then causes that area of the screen to be visible.

  Disabling this option causes normal behaviour for the 5250 Write Error Code command error message. The Write Error Code command error message is displayed on the error message line of the screen and the cursor is placed at the location specified by the host Insert Cursor command. The cursor mode then causes the cursor area of the screen to be visible.
- **4) Use Color**
  When enabled, the TE 2000 5250 application emulates single byte IBM-5292-2 and double byte IBM-5555-C01 terminals. Monochrome was and still emulates single byte IBM-5291-1 and double byte IBM-5555-B01 terminals.

  The 5250 Column Separator attribute is emulated using the ExtraLight font attribute which may not be noticeable on some terminals.



5) 3270 (Options)

The **5) 3270** menu enables the following features *if the 3270 communication protocol is used.* Press the appropriate number to enable an option, then press [**Enter**] to return to the **3) Protocol Opts** menu.

1) Keybrd Unlock

Unlocks the keyboard after the [**PA1**], [**PA2**], or [**CLEAR**] keys are pressed. (Normally the keyboard remains locked, until unlocked or the terminal is reset by the host, after any of these keys are pressed.) When using Token Ring on your host, the tab key also unlocks the keyboard.

2) Auto Tab Scan
Causes the cursor to tab forward to the next input field when a good scan is obtained.

Note: 2) **Auto Tab Scan** cannot be enabled at the same time as 3) **Auto Entr Scan**.

3) Auto Entr Scan
Actuates the **<Enter>** function when a good scan is obtained.

Note: 3) **Auto Entr Scan** cannot be enabled at the same time as 2) **Auto Tab Scan**.

4) Emulate 3210 (6400, 5055, 59XX, 17XX, 11XX)
The Intermec 3210 emulation option allows the 3270 keyboard to emulate an RT3210 Hand-Held Computer, performing the same functions. For full 3210 compatibility, disable buffering the keyboard, set cursor to lazy mode, and set the LCD Parms to Key Uppercase.

5) Telnet (blank for 5020, 700 Series, CK30, CK31, CV60)
Handles telnet option negotiations to establish a session with an appropriate telnet server.

Note: 5) **Telnet** cannot be changed if you are using TCP/IP.

6) Origin Set
When enabled, resets the screen origin when an exclamation mark is found in the data stream.

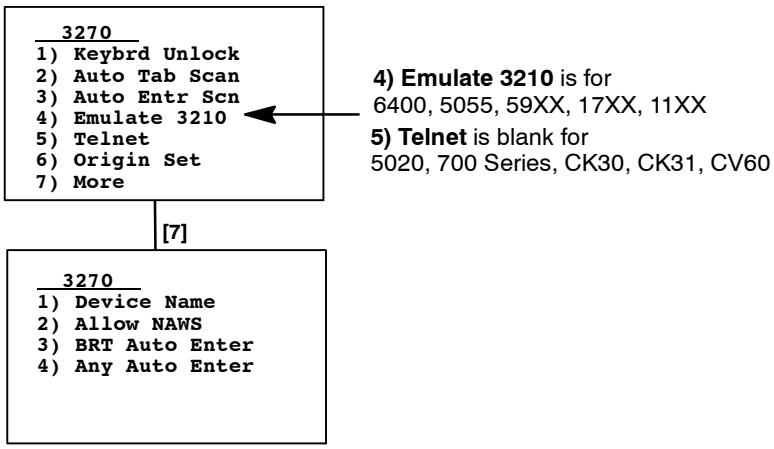
7) More
Select 7) **More** for additional features.

- 1) **Device Name**
  Enters a physical name for a device. This is 1–10 characters with allowable values of A–Z, a–z, 0–9, the pound symbol (#), the dollar sign ($), the ampersand (@), and an underscore (_). *3270E RFC 2355 Support.*

Note: The first character of 1) **Device Name** cannot start with a number (0–9).

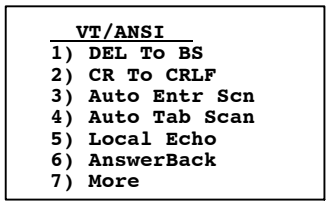
- 2) **Allow NAWS** (Negotiate About Window Size)
  When enabled, the terminal will support Telnet option 31 if prompted. When disabled, this option will return a "won't do" message.
- 3) **BRT** (bright) **Auto Enter**
  When enabled, if the last field on a screen has the reverse video attribute set, then when that field is exactly filled, the terminal will automatically send the data for this screen back to the host with an "Enter AID" code. If disabled, the screen will wait for the user to hit the **AID** key prior to sending data back to the host. *Default is disabled.*

- 4) **Any Auto Enter**
  When enabled, an automatic "enter" occurs when a reverse video attribute field is filled by keying or scanning data. Any extra scanned data is discarded. If disabled, the screen will wait for the user to hit the **AID** key prior to sending data back to the host. *Default is disabled.*



6) VT/ANSI

The **6) VT/ANSI** menu enables the following features *if the VT/ANSI communication protocol is used.*



1) DEL to BS (Delete to Backspace)
Causes the [**CLEAR**] key to delete the character to the left of the cursor position, and moves the cursor back one space. When this option is not enabled, the [**CLEAR**] key deletes the character at the cursors position. *Default is disabled.*

2) CR to CRLF (Carriage Return to Carriage Return/Line Feed)
Causes **<Enter>** to perform a carriage return and a line feed. When this option is not enabled, **<Enter>** performs a carriage return only. *Default is disabled.*

3) Auto Entr Scn (Auto Enter Scan)
Actuates the **<Enter>** function whenever a good scan is obtained. *Default is enabled for version 6.60 or greater, otherwise the default is disabled.*

Note: 3) **Auto Entr Scn** cannot be enabled at the same time as 4) **Auto Tab Scan**.

4) Auto Tab Scan

Causes the terminal to automatically tab to the next input field when a good scan is obtained. *Default is disabled.*

Note: 4) **Auto Tab Scan** cannot be enabled at the same time as **3) Auto Entr Scan**.

5) Local Echo

Allows characters to be displayed from terminal memory but not from host memory. *Default is disabled.*

6) AnswerBack

Enables you to enter a character string that is sent to the host in response to an inquiry (hexadecimal 05). The range is 0–30. *Default is null string for 2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX Terminals and the terminal's serial number for 700 Series, CK30, CK31, CV60 Terminals.*

```
AnswerBack

Message
```

If you enter any of the following control characters, it is sent out. *Note that control strings count as one character.*

<ACK>	<DC2>	<EOT>	<GS>	<SI>	<US>
<BEL>	<DC3>	<ESC>	<HT>	<SO>	<VT>
<BS>	<DC4>	<ETB>	<LF>	<SOH>	
<CAN>	<DLE>	<ETC>	<NAK>	<STX>	
<CR>	<EM>	<FF>	<NUL>	<SUB>	
<DC1>	<ENQ>	<FS>	<RS>	<SYN>	

7) More

Calls up the following **VT/ANSI More Options** screen.

```
VT/ANSI More Options
1) Screen Lock
2) DiscreteBells
3) UserKey Locked
4) RS232 Setup
5) VT220 Mode
6) Lock Mode
7) More
```

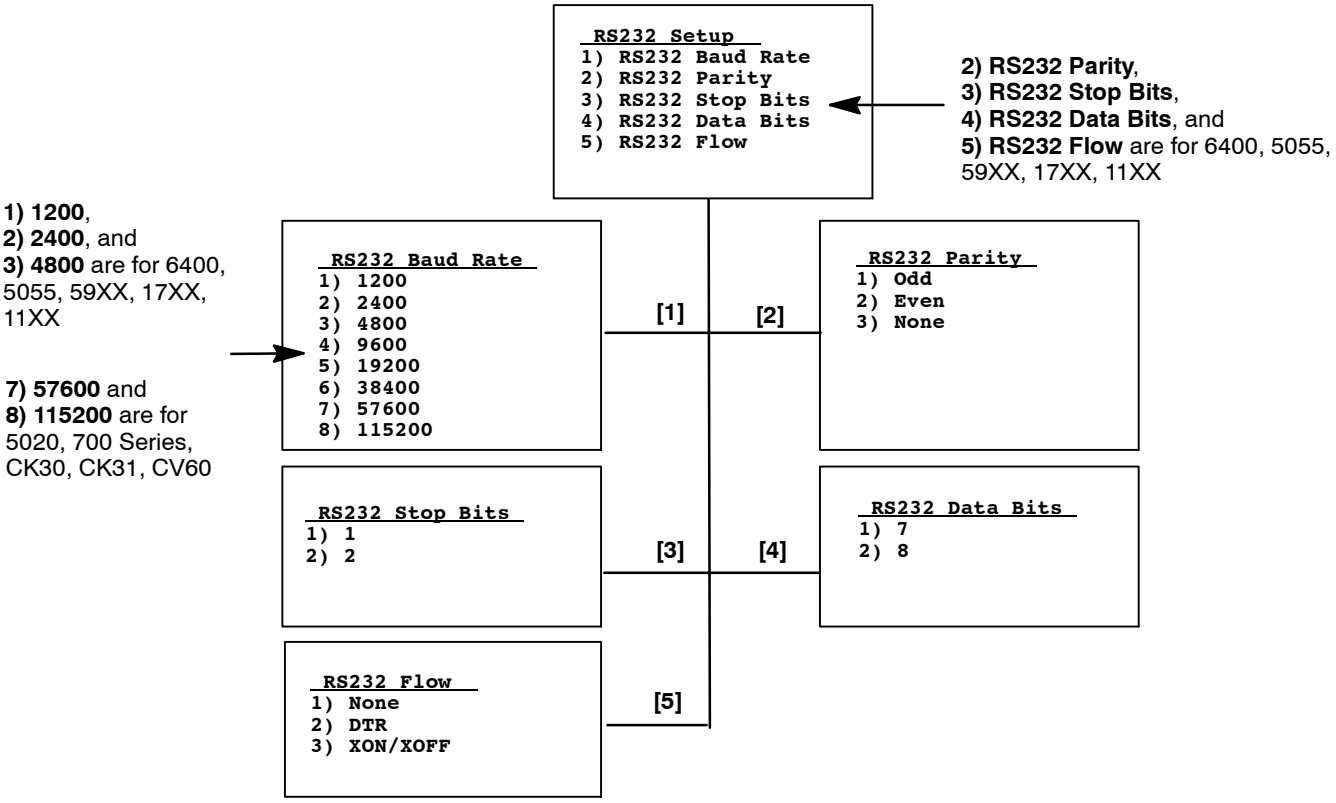
2) DiscreteBells is for 6400, 5055, 59XX, 17XX, 11XX

4) RS232 Setup is for 6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, CV60

- **1) Screen Lock**
  Sets and locks the screen to a specified size. Any characters outside this screen size are ignored by the hand-held unit. *Default is disabled.*

- **2) DiscreteBells** *(6400, 5055, 59XX, 17XX, 11XX)*
  If enabled, the terminal beeps for each bell character the host sends. If disabled, the unit ignores the bell characters if it is already beeping. *Default is disabled.*
- **3) UserKey Locked**
  If set, the host ignores a host command defining the Function keys. *Default is disabled.*
- **4) RS232 Setup** *(6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, CV60)*
  When using the media copy command, use this option to set up the communications port, then press [**Enter**] to return to **3) Protocol Opts**.
  - **1) RS232 Baud Rate**
    Select 1200, 2400, 4800 *(6400, 5055, 59XX, 17XX, 11XX)*, 9600, 19200, 38400,
    57600, or 115200 *(5020, 700 Series, CK30, CK31, CV60)*.
    Default is 9600.
  - **2) RS232 Parity** *(6400, 5055, 59XX, 17XX, 11XX)*
    Select from Odd, Even, or None. Default is None.
  - **3) RS232 Stop Bits** *(6400, 5055, 59XX, 17XX, 11XX)*
    Select either 1- or 2-bits. Default is 1.
  - **4) RS232 Data Bits** *(6400, 5055, 59XX, 17XX, 11XX)*
    Select either 7- or 8-bit. Default is 8.

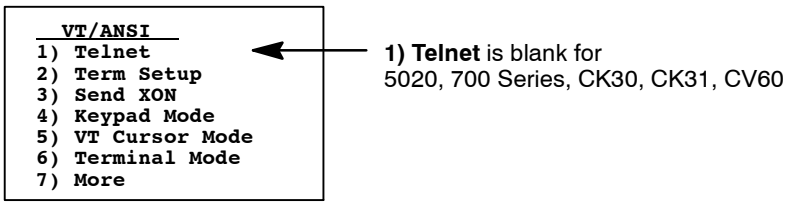
- 5) **RS232 Flow** *(6400, 5055, 59XX, 17XX, 11XX)*
  Select from None, DTR, or XON/XOFF. Default is None.



- 5) **VT220 Mode**
  Selects operating in character or block mode. Select a choice, then press [**Enter**] to return to the **3) Protocol Opts** menu.
  - 1) **Char** *(Default)*
    Sets the mode to Character mode. The terminal sends each character as it is pressed.
  - 2) **Block**
    Sets the mode to Line Edit (block) mode. The terminal sends a block of characters when a terminating key is pressed.
  - 3) **Transmit BS**
    When enabled, pressing the backspace key sends a backspace to the host for the host to echo back to the terminal. When disabled, the backspace key is handled locally on the terminal by doing a destructive backspace to the printed data characters on the display.

```
  VT220 Mode
1) Char
2) Block
3) Transmit BS
```

- 6) **Lock Mode**
  Use the Mode key on the terminal's keyboard or keypad to toggle between Line Edit (block) mode and Character mode. Use the Lock Mode option to disable the Mode key in the VT/ANSI data stream. *By default, Lock mode is disabled.*
- 7) **More**
  Selects the telnet option for the VT/ANSI data stream.



  - 1) **Telnet** *(blank for 5020, 700 Series, CK30, CK31, CV60)*
    Handles telnet option negotiations to establish a session with an appropriate telnet server. *Note this cannot be changed if using TCP/IP.*

- 2) **Term Setup**
  Selects the compliance level of the emulated terminal. *Default is VT340 to support all commands.* Make a selection, then press [**Enter**] to return to the **3) Protocol Opts** menu.

```
  Term Setup
1) ANSI
2) VT100
3) VT220
4) VT320
5) VT340
6) IBM 330X
```

- 3) **Send XON**
  Default is enabled which indicates that when an RIS is received from the host, the XON character is returned after compliance of this command. *Default is enabled.*
- 4) **Keypad Mode**
  Determines what is returned to the host when keys are pressed. *Default is **2) Numeric**.*
  - 1) **Application**
    Generates application ESC sequences for the key code. For help, refer to your VT manual.
  - 2) **Numeric**
    Generates ANSI cursor control ESC sequences that correspond to what appears on the face of the keys.

```
  Keypad Mode
1) Application
2) Numeric
```

- 5) **VT Cursor Mode**
  Determines what is returned to the host when cursor keys are hit. *Default is **2) Cursor**.*
  - 1) **Application**
    Generates application ESC sequences for the key code. For help, refer to your VT manual.
  - 2) **Cursor**
    Generates ANSI cursor control ESC sequences that correspond to what appears on the face of the cursor key.

```
 VT Cursor Mode
1) Application
2) Cursor
```

- 6) **Terminal Mode** *(VT220/320 only)*
  Sets the terminal mode to 7-bit or 8-bit. This option sets the mode VT-series terminals used to exchange escape sequences, control commands, and status reports with an application. *Default is **1) 7-Bit**.*

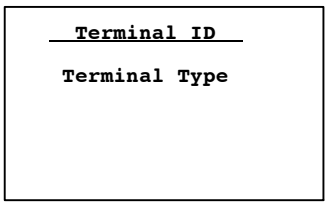
```
 Terminal Mode
1) 7-Bit
2) 8-Bit
```

- 7) **More**
  Below are the additional options:

```
  VT/ANSI
1) Use PC Char Set
2) Allow NAWS
3) Terminal ID
4) Auto Wrap
5) Allow LineMode
6) Do Gold Key
7) More
```

  - 1) **Use PC Char Set**
    Select this option to default the font character to the terminal's character set instead of a DEC terminal character set.
  - 2) **Allow NAWS** (Negotiate About Window Size)
    When enabled, the terminal supports Telnet option 31 if prompted. When disabled, this option returns a "won't do" message.

- 3) **Terminal ID**
  This enables the entry of a character string sent back to the host in response to IAC SB terminal type SE. The range is 0 through 30, with null string as the default. If set to null, then ANSI, VT100, VT220, VT320, or VT340 is returned as selected.



- 4) **Auto Wrap**
  If enabled, graphic display characters received when the cursor is at the right margin appear on the next line. The screen scrolls up if the cursor is at the end of the scrolling region.

  If disabled (default), graphic characters received when the cursor is at the right margin replace previously displayed characters.

- 5) **Allow LineMode**
  When enabled, the terminal prompts to negotiate to the default LineMode RFC 1184. When disabled, the terminal does not negotiate to LineMode RFC 1184.

- 6) **Do Gold Key**
  When enabled, the [**F1**] key acts as the gold key on a VT/ANSI terminal. This sends the [**F1**] key value, which then "hides" the next key pressed, but puts its value into a buffer to send to the host (default).

  When disabled, the [**F1**] key acts as a function key.

Note: The gold key action is only invoked when the terminal is executing in block mode.

- 7) **More**
  Select this for more menu options:

  1) Do UTF8
  Select this option to enable UTF-8 encoding as defined by RFC 2279. If the character is between 0 and 0x7f, then nothing changes. If the character is between 0xc0 and 0xfd, then convert the character to a displayable character using the following formula where *x* is the first character in the string and *y* is the second character.

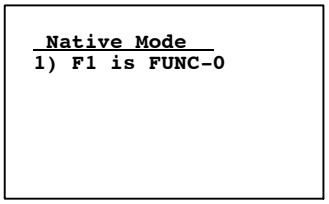
  ```
  (x - 0xc0) *2**6 + (y - 0x80)
  ```

  If disabled (default), then characters are translated regularly as defined by the current gl, gr character sets selected.

Note: 7) **Native** is enabled by default to preserve backwards compatibility.

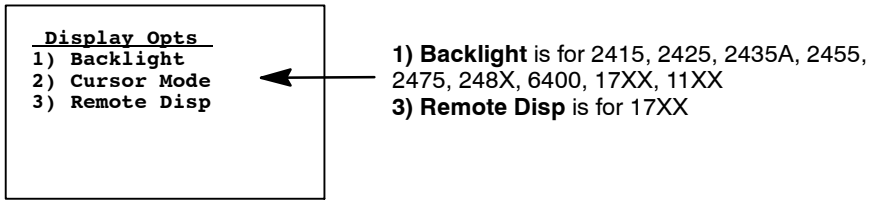
7) Native (2415, 2425, 2435A, 2455, 2475, 248X, 6400, and 5055 with WTP, 59XX, 17XX, 11XX)

- *For 2415, 2425, 2435A, 2455, 2475, 248X with WTP:*
  When enabled, pressing [**F1**] is equivalent to pressing [**FnL**] [7] (Home), while pressing [**F2**] is equivalent to pressing [**F1**], etc. When disabled, [**F1**] is equivalent to [**F1**], [**F2**] is equivalent to [**F2**], etc.
- *For 2435A Terminals with 48-key keyboards:*
  When enabled, pressing [**F1**] is equivalent to pressing Green ▢, H.(Home), while pressing [**F2**] is equivalent to pressing Orange ▢, 1, etc. When disabled, [**F1**] is equivalent to pressing Orange ▢, 1, [**F2**] is equivalent to pressing Orange ▢, 2, etc.
- *For 6400 Computers with WTP on a 51-key keyboard:*
  When enabled, pressing [**F1**] is equivalent to pressing [**Blue**] [**0**], while pressing [**F2**] is equivalent to pressing [**Blue**] [**1**], etc. When disabled, [**F1**] is equivalent to [**Blue**] [**1**], [**F2**] is equivalent to [**Blue**] [**2**], etc.
- *For 6400 Computers with WTP on a 41-key keyboard:*
  When enabled, pressing [**F1**] is equivalent to pressing [**Blue**] [**Space**].
- *For 5055 Terminals with WTP:*
  When enabled, pressing [**F1**] is equivalent to pressing [**Blue**] [**0**], while pressing [**F2**] is equivalent to pressing [**Blue**] [**1**], etc. When disabled, [**F1**] is equivalent to [**Blue**] [**1**], [**F2**] is equivalent to [**Blue**] [**2**], etc.
- *For 59XX, 17XX, 11XX,*
  When enabled, pressing [**F1**] is equal to [**Black**] [**0**] and [**F2**] is equal to [**Black**] [**1**], etc. When disabled, [**F1**] is equal to [**Black**] [**1**], [**F2**] is equal to [**Black**] [**2**], etc.



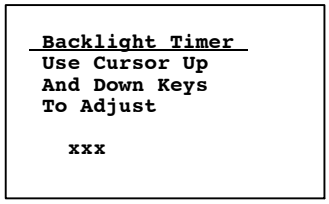
4) Display Opts *(2415, 2425, 2435A, 2455, 2475, 248X, 5055, 5020, 6400, 59XX, 17XX, 11XX)*

4) **Display Opts** adjusts the backlight timer, the cursor appearance on the display, or the remote display.



1) Backlight *(2415, 2425, 2435A, 2455, 2475, 248X, 6400, 17XX, 11XX)*

Use the up and down arrows to select "Off" or a number from "1–60" for 2415, 2425, 2435A, 2455, 2475, and 248X Terminals or from "1–255" for 6400, 17XX, and 11XX Terminals. This would dictate the number of seconds that the backlight stays on after a key is pressed.



2) Cursor Mode

Selects the cursor style. After making a selection, press [**Enter**] to return to the 4) **Display Opts** menu. The cursor shape is shown between ">" and "<".

1) Underline Blink (blank for 5020)

Causes the underline character to appear and disappear in its current location.

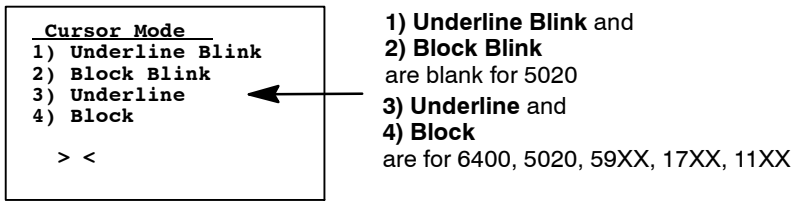
2) Block Blink (blank for 5020)

Causes the block (■) character cursor to appear and disappear in its current location.

3) Underline (6400, 5020, 59XX, 17XX, 11XX)

This option provides a solid underline character to display the cursor's current location.

4) Block (6400, 5020, 59XX, 17XX, 11XX)
This provides a reverse or highlighted block (■) character displaying the cursor's current location.



3) Remote Disp *(17XX)*

This menu allows communication to a remote display.

1) Enabled

Press this option to enable the remote display function.

2) Screen Size

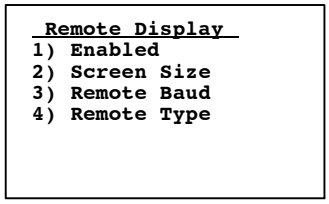
Use this option to set the screen size of the remote display.

3) Remote Baud

Select the appropriate baud rate for the remote display: 9600, 19200, or 38400.

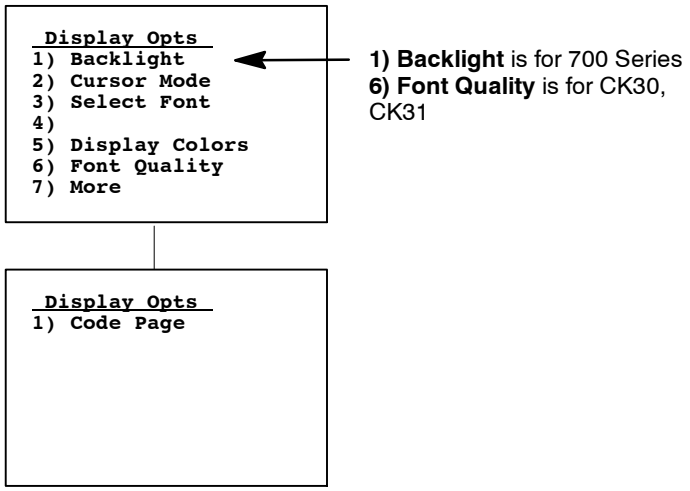
4) Remote Type

Use this option to identify the remote terminal: VT100, VT220, or ANSI.



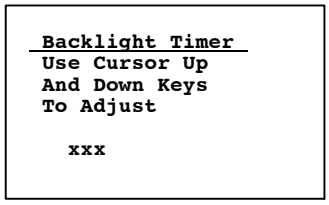
4) Display Opts *(700 Series, CK30, CK31, CV60)*

4) **Display Opts** adjusts the backlight timer, the cursor appearance on the display, or the remote display.



1) Backlight *(700 Series)*

Use the up and down arrows to select "Off" or a number from "1–60" for 700 Series Terminals. This would dictate the number of seconds that the backlight stays on after a key is pressed.



2) Cursor Mode

Selects the cursor style. After making a selection, press [**Enter**] to return to the 4) **Display Opts** menu. The cursor shape is shown between ">" and "<".

1) Underline Blink

Causes the underline character to appear and disappear in its current location.

2) Block Blink

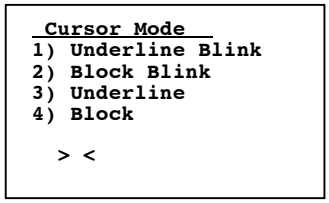
Causes the block (■) character cursor to appear and disappear in its current location.

3) Underline

This option provides a solid underline character to display the cursor's current location.

4) Block

This provides a reverse or highlighted block (■) character displaying the cursor's current location.



3) Select Font

Selects a font type to appear on the display.

1) Lucida

This displays the font type in Lucida:
ABCDEFGHIJKLMNOPQRSTUVWXYZ

2) Courier New

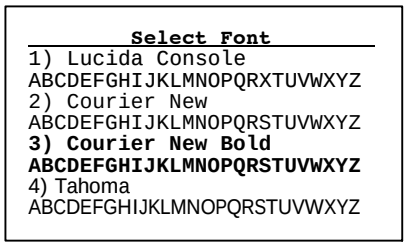
This displays the font type in Courier New:
ABCDEFGHIJKLMNOPQRSTUVWXYZ

3) Courier New Bold

This displays the font type in Courier New with bold applied:
ABCDEFGHIJKLMNOPQRSTUVWXYZ

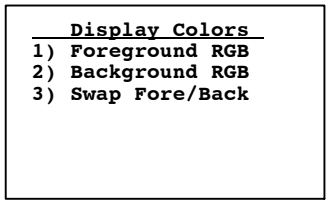
4) Tahoma

This displays the font type in Tahoma:
ABCDEFGHIJKLMNOPQRSTUVWXYZ



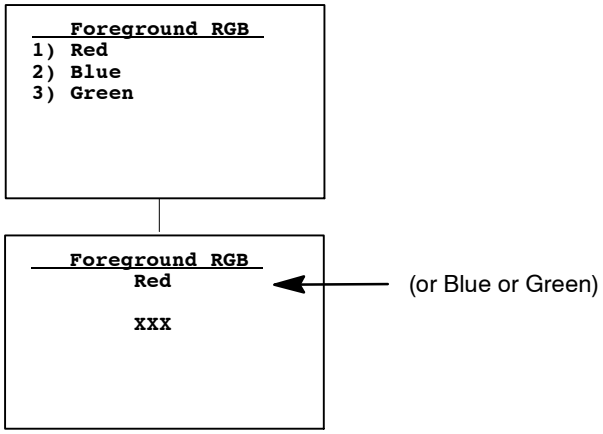
5) Display Colors

Adjusts foreground (text) or the background colors of the display.



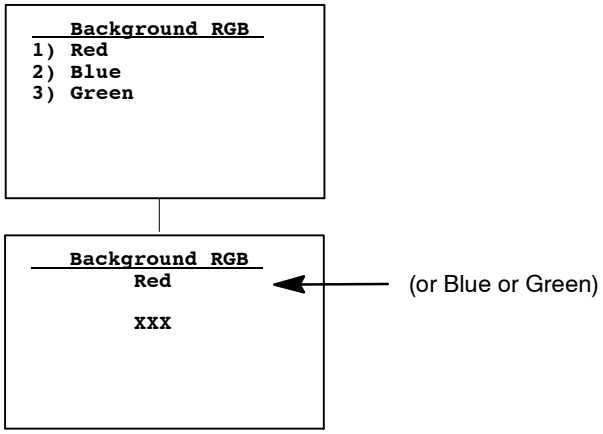
1) Foreground RGB

Assigns a color setting for the foreground (text). Select a color in the first screen, which is then displayed in the second screen. In the second screen, enter a numeric value from 0–255.



2) Background RGB

Assigns a color setting for the background. Select a color in the first screen, which then is displayed in the second screen. In the second screen, enter a numeric value from 0–255.



3) Swap Fore/Back

Renders the original foreground color as the new background color and the original background color as the new foreground color.

6) Font Quality (CK30, CK31)

Selects either a standard font quality or a clear type font quality to appear on the display.

1) Standard

This displays the font in standard quality.

2) Clear Type

This displays the font in the clear type quality.

```
 Font Quality
1) Standard
ABCDEFGHIJKLMNOPQRXTUVWXYZ
2) Clear Type
ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

7) More

Select this for more menu options:

1) Code Page

Selects a language in which the code page is to appear.

- **1) English**
  This displays text in the English language, — code page 37.
- **2) Cyrillic** *(Russian)*
  This displays text in the Cyrillic (Russian) language — code page 855.
- **3) Greek**
  This displays text in the Greek language — code page 1253.
- **4) Hebrew**
  This displays text in the Hebrew language — code page 862.
- **5) Central Europe**
  This displays text in the Polish language — code page 1250.
- **6) Latin 2**
  This displays text in the Latin language — code page 8859-2.

```
   Code Page
1) English
2) Cyrillic
3) Greek
4) Hebrew
5) Central Europe
6) Latin 2
```

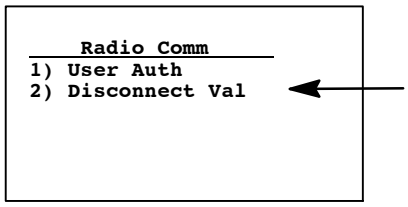
5) Radio Comm (Blank for 5020, 700 Series, CK30, CK31, CV60, and for 2415, 2425, 2435A, 2455, 2475, 248X Terminals without either an 802.1x Supplicant Radio Driver or UDP Plus)

Note: Diagnostic modes disable data compression and are reserved for engineering tests.

Menus for 5) **Radio Comm** specify the communication protocol and speed in certain instances. Depending on circumstances, one of the two menus appear.

For 2415, 2425, 2435A, 2455, 2475, 248X Terminals with either an 802.1x Supplicant Radio Driver or UDP Plus

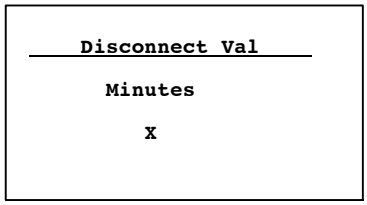
The following menu appears:



1) User Auth is for 2415, 2425, 2435A, 2455, 2475, 248X Terminals with an 802.1x supplicant radio
2) Disconnect Val is for 2415, 2425, 2435A, 2455, 2475, 248X Terminals with UDP Plus

1) User Auth (2415, 2425, 2435A, 2455, 2475, 248X Terminals with 802.1x supplicant radio driver)
When enabled, the terminal prompts for a user name and password before sending any radio data. When disabled, the terminal will use the machine authentication as set up in the firmware menus.

2) Disconnect Val (2415, 2425, 2435A, 2455, 2475, 248X Terminals with UDP Plus)
The length of time in minutes that the terminal, after receiving an error from the network status, will continue to look for network errors before restarting. Enter a value from 1–10. Default is 2.



For 6400, 5055, 59XX, 17XX, 11XX Terminals

This menu enables or disables the SST diagnostic mode.

```
 Protocol
1) SST
2) SST-Diag Mode
3) Security ID
```

3) Security ID is for Proxim radios

3) Security ID (Proxim radios)

This changes the radio security identification. Enter the new security ID (up to 16 characters) twice. If the old security ID is not correct or if the second new security ID was not entered correctly, you will see the "unchanged" message on the bottom line of the display.

```
 Protocol
Security ID
New Security ID


New Security ID
```

If the new security ID is entered correctly, the following will appear.

```
 Protocol
Security ID changed.

Save parms then re-
boot terminal for
change to take af-
fect.
```

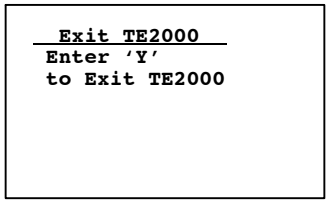
6) Cold Start (2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX)

This resets all TE values to the stored configuration in CONFIG.DAT and performs a cold-start on the terminal. Press [**Y**] to reboot the terminal, or press any other key to return to the **1) Set-up Parms** menu. *Depending on the setting in the firmware menu of the terminal*, after rebooting, the terminal opens to the TRAKKER Antares 2400 Menu System.

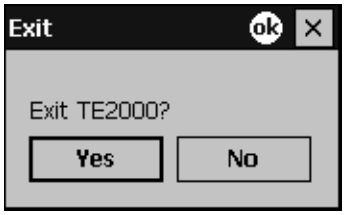
```
 Cold Start
Enter 'Y'
to Cold Start
terminal:
```

6) Exit TE2000 (700 Series, CK30, CK31, CV60)

This returns control to the Windows operating system. The 700 Series and CV60 Terminals prompt you for a password before displaying the Exit dialog. Either press [**Y**] or tap **Yes** to exit the TE 2000 application and return to the Windows operating system.



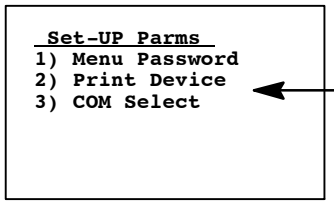
CK30



700 Series, CK31, CV60

7) More

7) **More** provides the following additional setup parameters:



2) Print Device is for 6400, 5020, 700 Series, CK30, CK31, CV60

3) COM Select is for 248X, 5055

1) Menu Password

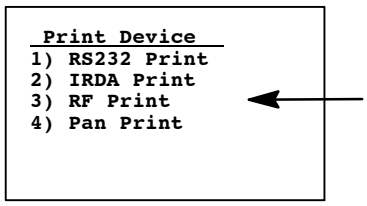
This parameter enables menu password protection for the TE configuration menus. This provides added protection because once enabled, the password must be entered before any further activity can occur within the terminal emulation menu screens. The default is to have this option disabled.

To enable the password, press [**1**], then type "3193693" for the fixed password set by Intermec Technologies Corporation. *The "1)" will change to reverse video to indicate it is enabled.* With this enabled, enter this password when you access the terminal emulation menu screens. Press [**Enter**] until you reach the **Main Menu**, then press **6**) **Exit Menus** to return to the main terminal screen.

To disable the password, press [**1**] to display in normal viewing text. You do not need to enter a password to disable this function. *Note that the menu password can be set via a custom configuration. See Chapter 5, "Customizing Your Configuration," for help on creating a custom configuration file.*

2) Print Device (6400, 5020, 700 Series, CK30, CK31, CV60)

Establishes extended commands for the RS-232, IrDA, RF, or Pan printer drivers. Press [**1**] for the RS-232 driver *(default)*, press [**2**] for the IrDA driver *(6400, 5020, 700 Series, CV60)*, press [**3**] for the RF driver *(5020)*; or press [**4**] for the Pan driver *(700 Series, CK30, CV60)*.



1) RS232 Print is for 6400, 5020, 700 Series, CK30, CK31, CV60

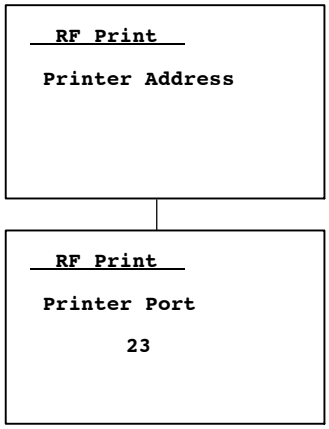
2) IRDA Print is for 6400, 5020, 700 Series, CV60

3) RF Print is for 5020, 700 Series, CK30, CK31, CV60

4) Pan Print is for 700 Series, CK30, CV60

3) RF Print (5020, 700 Series, CK30, CK31, CV60)

Enter the IP address of the RF Printer to which the 5020 Terminal is to communicate. If you want to use a serial port other than port "23", you may select from the range of 0–65535.



4) Pan Print (700 Series, CK30, CV60)

When selected, the print data is sent to the Bluetooth device specified in the registry. The registry is updated by using the Bluetooth Device Manager application to discover other Bluetooth devices.

Note: The TE 2000 application only supports Bluetooth devices attached to COM6.

3) COM Select (248X, 5055)

Selects which communications port to use for extended commands, RS-232 communications, or media copy commands.

```
  COM Select
1) COM 1
2) COM 2
```

2) LCD Parms (Parameters)

2) **LCD Parms** adjusts these Liquid Crystal Display (LCD) features:

- The screen size (number of rows displayed, and the number of characters displayed on each row).
- The screen mode (how the cursor positions itself on the display).
- Making all alphabetic character keystrokes uppercase characters.
- Scrolling window parameters.

```
  LCD Parms
1) LCD Contrast
2) Screen Size
3) Screen Mode
4) Annunciators
5) Backlight
6) Key Uppercase
7) Scroll Window
```

1) LCD Contrast is for 59XX, 17XX
2) Screen Size is blank for 2480, 2485
4) Annunciators is blank for 17XX
5) Backlight is for 59XX, 17XX

1) LCD Contrast (59XX, 17XX)

Use this option to adjust the contrast of the display to a more readable level (range 0–255). The terminal uses this setting as a baseline, automatically readjusting contrast as necessary, based on temperature changes. Use the up and down arrow keys to adjust the contrast, then press [**Enter**] to return to the **LCD Parms** screen.

```
LCD Contrast
Use Cursor Up
and Down Keys
 To Adjust

 xxx
```

Note: 2) Screen Size is available for 2415, 2425, 2435A, 2455, 2475, 2481, and 2486 Terminals on TE 2000 application versions 7.00 or greater and with Double-Byte Country Code equal to 00 (USA).

2) Screen Size (blank for 2480, 2485)

2) **Screen Size** selects the number of lines and characters in each line to be viewed on the display. To change the screen size:

1. Press the arrow keys. Each key press moves the word **On** one position in the direction of the arrow key pressed. The word **On** indicates the current setting.
2. When the word **On** appears in the position corresponding to the desired screen size, press [**Enter**].

2415 and 2425 Terminal Screen Sizes

Choices for the 2415 and 2425 Terminals include the following. Only one option can be selected at a time. *(Default is 16 x 20)*

- 4 rows, with 10, 12, 17, 22, or 26 characters per row
- 6 rows, with 10, 12, 17, 22, or 26 characters per row
- 8 rows, with 10, 12, 17, 20, 22, or 26 characters per row
- 10 rows, with 12, 17, 22, or 26 characters per row
- 12 rows, with 12, 17, 22, or 26 characters per row
- 16 rows, with 12, 17, 20, 22, 26, or 32 characters per row
- 21 rows, with 12, 17, 22, 26, or 32 characters per row

Screen Size

	10	12	17	20	22	26	32
4	Off	Off	Off		Off	Off	
6	Off	Off	Off		Off	Off	
8	Off	Off	Off	Off	Off	Off	
10		Off	Off		Off	Off	
12		Off	Off		Off	Off	
16		Off	Off	On	off	Off	Off
21		off	off		Off	Off	Off

2435A Terminal Screen Sizes

For 2435A Terminals with Terminal Emulation version 6.60 or greater and TE 2000 application versions 7.10 or greater, if icons are enabled in the TE 2000 application, then the 2435A Terminal uses the following screen sizes.

If the icons are disabled in the TE 2000 application *(default)*, then the 2435A Terminal uses the screen sizes as shown on page 162 for the 2415 and 2425 Terminals. Only one option can be selected. *(Default is 16 x 19)*

- 4 rows, with 9, 12, 17, 22, or 26 characters per row
- 6 rows, with 9, 12, 17, 22, or 26 characters per row
- 8 rows, with 9, 12, 17, 19, 22, or 26 characters per row
- 10 rows, with 12, 17, 22, or 26 characters per row
- 12 rows, with 12, 17, 22, or 26 characters per row
- 16 rows, with 12, 17, 19, 22, 26, or 31 characters per row
- 21 rows, with 12, 17, 22, 26, or 31 characters per row

	Screen Size						
	9	12	17	19	22	26	31
4	Off	Off	Off		Off	Off	
6	Off	Off	Off		Off	Off	
8	Off	Off	Off	Off	Off	Off	
10		Off	Off		Off	Off	
12		Off	Off		Off	Off	
16		Off	Off	On	off	Off	Off
21		off	off		Off	Off	Off

2455 Terminal Screen Sizes

Choices for the 2455 Terminal include the following. Only one option can be selected at a time. *(Default is 25 x 80)*

- 8 rows, with 33 or 40 characters per row
- 12 rows, with 40, 53, or 80 characters per row
- 20 rows, with 80 characters per row
- 25 rows, with 80 characters per row

	Screen Size			
	33	40	53	80
8	Off	Off		
12		Off	Off	Off
20				Off
25				On

For 2455 Terminals with Terminal Emulation version 6.73 or greater and TE 2000 application versions 7.15.09 or 7.15.77 or greater, the 2455 Terminals use the following screen sizes. Only one option can be selected at a time. *(Default is 25 x 80)*

- 8 rows, with 20, 33, or 40 characters per row
- 12 rows, with 20, 33, 40, 53, or 80 characters per row
- 16 rows, with 20, 33, 40, or 53 characters per row
- 20 rows, with 80 characters per row
- 25 rows, with 80 characters per row

Screen Size

	20	33	40	53	80
8	Off	Off	Off		
12	Off	Off	Off	Off	Off
16	Off	Off	Off	Off	
20					Off
25					On

2475, 2481, and 2486 Terminal Screen Sizes

Note: This information does *not* apply to the 2480 and 2485 Terminals.

Choices for the 2475, 2481, and 2486 Terminals include the following. Only one option can be selected at a time. *(Default is 25 x 64)*

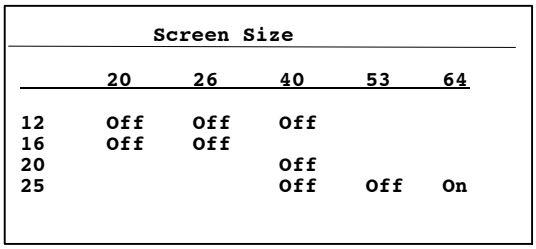
- 12 rows, with 20, 26, 40, 53, or 64 characters per row
- 20 rows, with 40 characters per row
- 25 rows, with 40, 55, or 64 characters per row

Screen Size

	20	26	40	53	64
12	Off	Off	Off		
20			Off		
25			off	off	On

For 2475, 2481, and 2486 Terminals with Terminal Emulation version 6.73 or greater and TE 2000 application version 7.15.09 or 7.15.77 or greater, the 2475, 2481, and 2486 Terminals use the following screen sizes. Only one option can be selected at a time. *(Default is 25 x 64)*

- 12 rows, with 20, 26, or 40 characters per row
- 16 rows, with 20 or 26 characters per row
- 20 rows, with 40 characters per row
- 25 rows, with 40, 53, or 64 characters per row

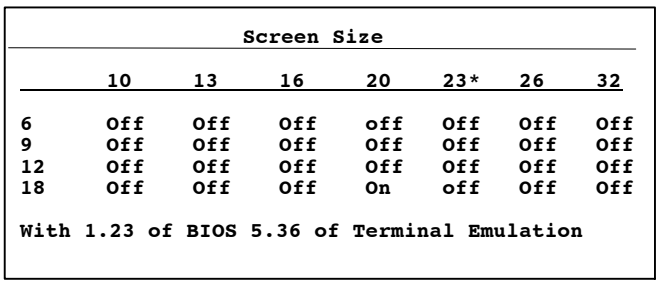


```
Screen Size

      20     26     40     53     64

12    Off    Off    Off
16    Off    Off
20                  Off
25                  Off    Off    On
```

6400 Computer Screen Sizes

Choices for the 6400 Computer include the following. It is also possible to have selected 5, 8, 10, and 16 for number of rows. This depends on what size of display you have selected. Only one option can be selected at a time. *(Default is 18 x 20)*

- 6 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 9 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 12 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 18 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row



```
                Screen Size

      10     13     16     20     23*    26     32

6     Off    Off    Off    off    Off    Off    Off
9     Off    Off    Off    Off    Off    Off    Off
12    Off    Off    Off    Off    Off    Off    Off
18    Off    Off    Off    On     off    Off    Off

With 1.23 of BIOS 5.36 of Terminal Emulation
```

5020 PC Screen Sizes

Choices for the 5020 PC include the following. Only one option can be selected at a time. *(Default is 16 x 20)*

- 8 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 10 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 12 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 14 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row
- 16 rows, with 10, 13, 16, 20, 23, 26, or 32 characters per row

Screen Size							
	10	13	16	20	23	26	32
8	Off	Off	Off	off	Off	Off	Off
10	Off	Off	Off	Off	Off	Off	Off
12	Off	Off	Off	Off	Off	Off	Off
14	Off	Off	Off	Off	off	Off	Off
16	Off	off	off	On	Off	Off	Off

5055 PC Screen Sizes

Choices for the 5055 Data Collection PC include the following. Only one option can be selected at a time. *(Default is 25 x 80)*

- 8 rows, with 20 columns per row
- 10 rows, with 20 columns per row
- 12 rows, with 20 or 40 columns per row
- 16 rows, with 20, 40, or 80 columns per row
- 21 rows, with 40 or 80 columns per row
- 25 rows, with 40 or 80 columns per row

Screen Size			
	20	40	80
8	Off		
10	Off		
12	Off	Off	
16	Off	Off	Off
21		Off	Off
25		Off	On

59XX Terminal Screen Sizes

Choices for the 59XX Terminal includes the following. Only one option can be selected at a time. *(Default is 12 x 40)*

- 8 rows, with 40, 60, or 80 columns per row
- 10 rows, with 40, 60, or 80 columns per row
- 12 rows, with 40, 60, or 80 columns per row
- 16 rows, with 40, 60, or 80 columns per row
- 21 rows, with 80 columns per row
- 25 rows, with 80 columns per row

Screen Size			
	40	60	80
8	Off	Off	Off
10	Off	Off	Off
12	On	Off	Off
16	Off	Off	Off
21			Off
25			Off

17XX Terminal Screen Sizes

Choices for the 17XX Terminal include the following. Only one option can be selected at a time. *(Default is 8 x 22)*

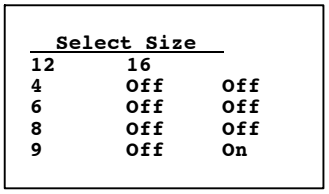
- 4 lines, with 12, 17, 22, or 26 characters per line
- 6 lines, with 12, 17, 22, or 26 characters per line
- 8 lines, with 12, 17, 22, or 26 characters per line
- 10 lines, with 12, 17, 22, or 26 characters per line
- 12 lines, with 12, 17, 22, or 26 characters per line
- 16 lines, with 12, 17, 22, 26, or 31 characters per line
- 21 lines, with 12, 17, 22, or 26 characters per line

Screen Size					
	12	17	22	26	31
4	Off	Off	Off	off	
6	Off	Off	Off	off	
8	Off	Off	On	off	
10	Off	Off	Off	off	
12	Off	Off	Off	off	
16	Off	Off	Off	off	off
21	off	off	off	off	

11XX Terminal Screen Sizes

Choices for the 11XX Terminal include the following. Only one option can be selected at a time. *(Default is 9 x 16)*

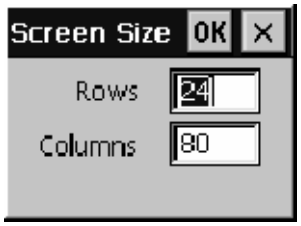
- 4 rows, with 12 or 16 characters per row
- 6 rows, with 12 or 16 characters per row
- 8 rows, with 12 or 16 characters per row
- 9 rows, with 12 or 16 characters per row



700 Series, CK30, CK31, CV60 Terminal Screen Sizes

Choices for the 700 Series, CK30, CK31, and CV60 Terminals include the following. Only one option can be selected at a time. *(Default is 10 x 20)*

- *For 700 Series Computers,* enter a value between 8–20 for rows and a value between 10–32 for columns.
- *For CK30 and CK31 Handheld Computers,* enter a value between 8–20 for rows and a value between 10–32 for columns.
- *For CV60 Vehicle Mount Computers,* enter a value between 8–24 for rows and a value between 16–80 for columns.



Sample screen from CV60 Terminal

3) Screen Mode

3) Screen Mode selects the cursor position and movement as you scroll through data in the display buffer. This buffer stores data in a standard CRT format (as sent from the host computer). Since the terminal display is smaller than a CRT, these **3) Screen Mode** options optimize your view of information (data) on the display. *Default is **2) Corner Mode**.*

Use arrow keys to scroll (or "move") the screen's view port on the display.

```
 Screen Mode
1) Center Cursor
2) Corner Mode
3) Page Mode
4) Lazy Mode
5) Locked Mode
6) Define Origin
```

1) Center Cursor

In this mode, the cursor begins near the center of the display and attempts to remain there as you scroll through the data. Upon reaching an outside boundary of the full CRT screen, the display stops advancing while the cursor moves beyond the center of the screen. When the cursor reaches the boundary of the CRT screen, an error tone sounds, such as a "beep." The cursor does not wrap to the next line in the display.

2) Corner Mode

Starts the display at the upper-left corner of the full CRT screen and keeps the cursor in the lower-right corner of the display. As you scroll, the cursor remains there as data advances in the scrolled direction (up, down, right, or left) until an outside boundary of the full CRT screen is reached. Then the screen stops moving in relation to the display and the cursor moves in the scrolled direction (the cursor no longer remains in the corner of the display). When the cursor reaches the CRT screen boundary it stops moving. The cursor does not wrap to the next line in the display. An error tone sounds if you try to move the cursor beyond the boundary.

This option is recommended when your application uses only the upper-left corner of the full CRT screen.

3) Page Mode

Divides the full CRT screen into predefined "pages," and starts the terminal display on page 1. The cursor first appears in the upper-right corner of the display. As you scroll, only the cursor moves (the data on the screen does not appear to move). When you scroll off the edge of the displayed page, the display snaps to the next (or previous) page. Upon reaching the boundary of the CRT screen, the cursor stops moving and an error tone sounds each time you attempt to move beyond the boundary.

Some "pages" in **3) Page Mode** overlap each other (the same information is shown on both pages). This overlap occurs because the 24-row by 80-column CRT screen cannot be divided equally.

4) Lazy Mode

Starts the cursor in the upper left corner of the terminal display. The cursor moves across the display in the scrolled direction. When the cursor goes beyond the edge of the display, the data begins to move in the opposite direction that the cursor is moving in and the cursor remains at the edge of the display. When you reach an outside boundary of the full CRT display, an error tone sounds each time you try to move beyond the boundary.

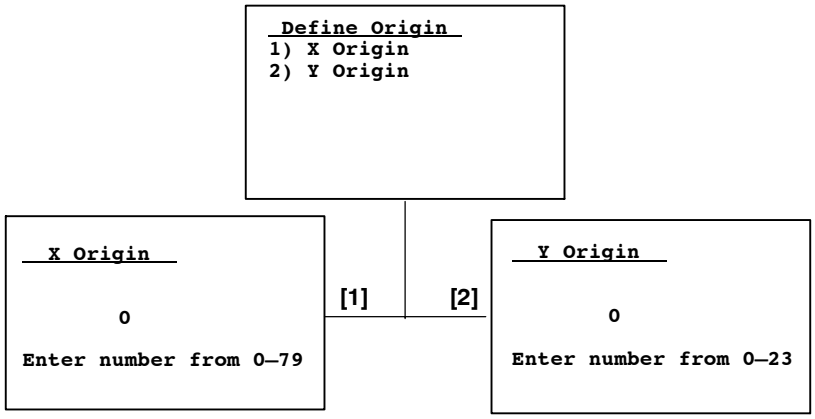
5) Locked Mode

When this is selected the screen view is locked to the upper left-hand corner of the display. Any characters selected outside of the display window size are written to the screen but are not visible. The windowing keys do not move the visible window.

Note: In 5250 emulation, the err_row is mapped to the last row of the screen size selected.

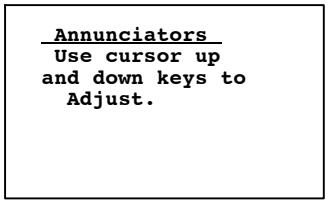
6) Define Origin

Use this option to specify the "X,Y" origin of the terminal display. Enter a number from the range of 0–79 for the "X" origin and a number from the range of 0–23 for the "Y" origin. *Default is 0 for both "X" and "Y" origins*
.



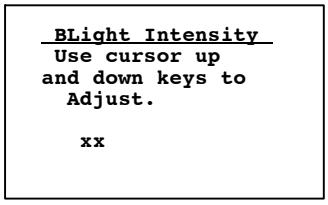
4) Annunciators (Blank for 17XX, 11XX)

4) **Annunciators** selects and changes the location of the annunciators on the display screen. Press the up or down arrows to position the annunciators around each of the four display corners, once as a line and once as a box. You can also select "Stealth Mode" which displays the annunciators only when you make a change and then hides it when you press a key. *Default is "Stealth Mode."*



5) Backlight (59XX, 17XX)

This adjusts the intensity (brightness) of the display backlight. The intensity can be set from 0 (off) to 15 (fully on). Keep in mind that the backlight uses considerable battery power. To conserve battery power, keep the intensity and duration of the backlight as low as possible. Use the up and down arrow keys to adjust the intensity of the backlight. Press the up arrow key to increase the intensity, the down arrow key to decrease. Press [**Enter**] when finished to return to the **LCD Parms** screen.



6) Key Uppercase

When enabled, this causes the alphabetic keys (A–Z) to display as uppercase characters regardless of the shift or caps lock mode settings.

7) Scroll Window *(2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX)*

7) **Scroll Window** defines the cursor movement, just how far it moves with each press of the arrow keys. *Default is **1) Tab Size**.*

1) Tab Size

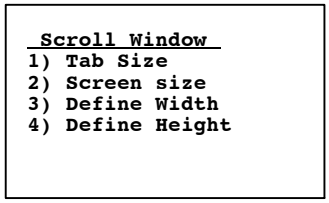
Moves the cursor by the amount configured for 3) **Define Width** and 4) **Define Height**.

2) Screen Size

Causes the cursor to move by the virtual screen size selected in 2) **LCD Parms** under the **Main Menu**.

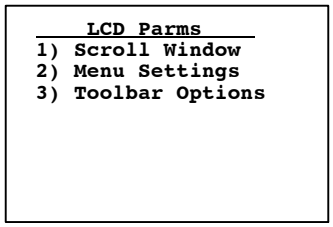
3) Define Width and 4) Define Height

These options customize the x-axis and y-axis (up and down) movement of the cursor when **1) Tab Size** is selected. *Default is 8.*



7) More *(700 Series, CK30, CK31, CV60)*

Select 7) **More** to access the following screen:

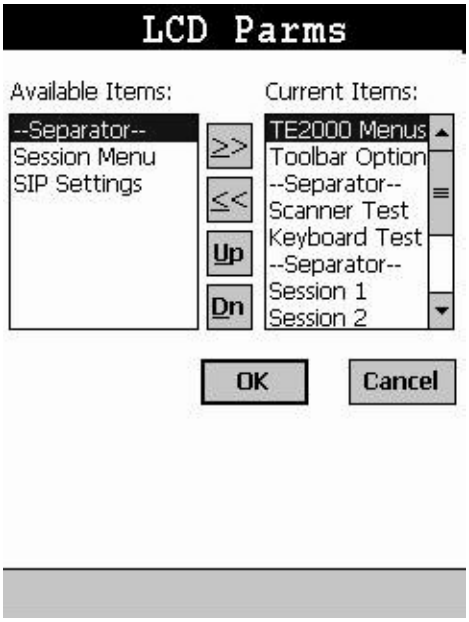


1) Scroll Window *(700 Series, CK30, CK31, CV60)*

1) **Scroll Window** defines the cursor movement, just how far it moves with each press of the arrow keys. *Default is **1) Tab Size**.*

2) Menu Settings *(700 Series, CK30, CK31, CV60)*

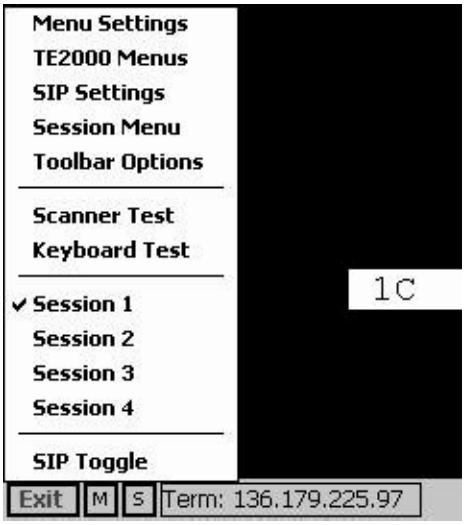
When you select this option, you are prompted for a password. The default password is *cr52401*.



The set up current menu settings are listed on the right in the **Current Items** box The available items that you can add to the current menu settings are listed on the left in the **Available Items** box. To select an item, tap that item, then tap either >> or << button to move the item.

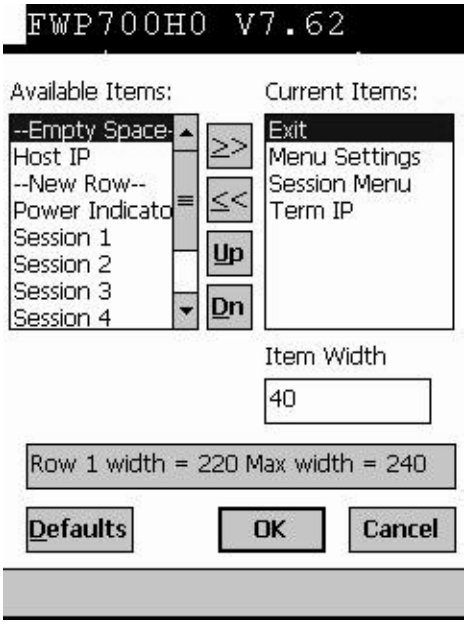
To rearrange the order the items are displayed in the **Current Items** box, select an item from the list, then use the **Up** or **Dn** buttons to move the selected item up or down the list.

This configures the way menu options are listed when the user taps the **Menu Settings** button created by the toolbar settings. When this button is pressed, the following menu would appear. See page 111 for information.



3) Toolbar Options *(700 Series, CK31, CV60)*

When you select this option, you are prompted for a password. The default password is *cr52401*.



In the **Current Items** box on the right, are the set toolbar values. The items you can include in the toolbar are listed under **Available Items** on the left.left hand side is the available items that you can add to the toolbar. To select an item, tap that item, then tap the appropriate >> or << buttons to move the item to the other box.

To rearrange the order that items are displayed in the toolbar, select an item from the **Current Items** list, then use the **Up** or **Dn** buttons to move the selected item up or down the list of items shown in the toolbar.

As you select an item, **Item Width** shows the default width value and the current row width is recalculated. On 700 Series and CK31 Terminals, the maximum toolbar width is 240 pixels. On a CV60 Terminal, the maximum toolbar width is 800 pixels.

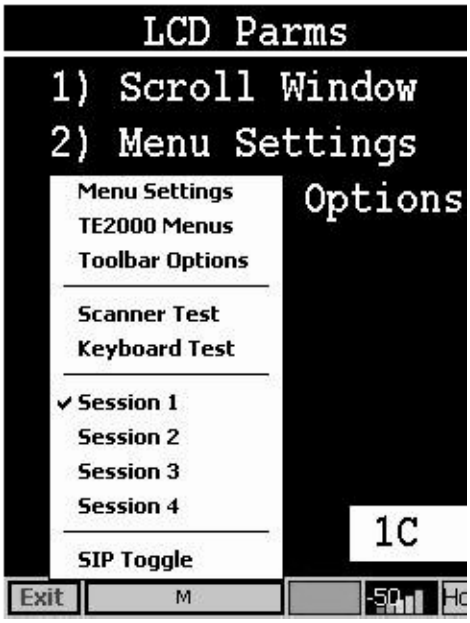
Note: We do not test for the maximum width of terminal displays. If the toolbar exceeds the maximum width of your display, then the items in the toolbar that go past the maximum width are not shown and the data that is not visible is not checked for errors.

Under **Available Items**:

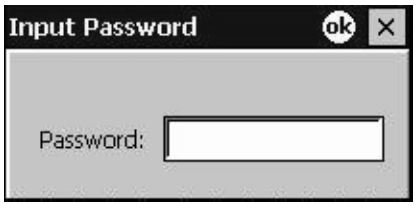
- Select "Host IP" to display the current IP address of the host or DNS name for the host in the toolbar.
- Select "Power Indicator" to display (in a graphical form) the percentage of the battery life still available in the toolbar. Below is a color chart:

Color	Percentage of Available Battery Life
Green	Above 66%
Yellow	Between 33% and 66%
Red	Below 33%
Brown	Unknown

- Select “Menu Settings” to add an “M” button to your toolbar. Tap this to access the menu settings selected from the menu settings screen in option two under LCD parms. Default settings bring up this screen:



- Select “Switch Session” to add an “S” button to your toolbar. Tap this to access Session Switching. See page 191 for more information on session switching. *Note that if you tap this button while in the TE menus, no action will occur.*
- Select “Exit” to add an “EXIT” button to your toolbar. Tap this button to exit the TE 2000 application. Enter the password *(default is cr52401)*, then tap **Yes** to continue.



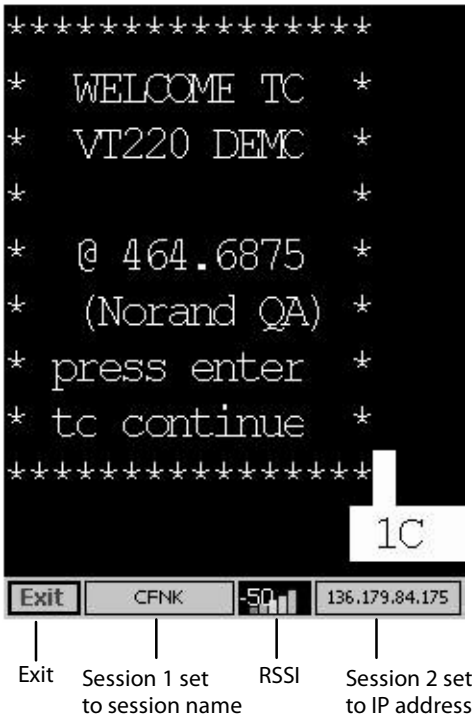
- Select “Signal Indicator” to show the RSSI (Radio or Ready Signal Strength Indicator) which displays the RSSI frequency retrieved from the radio module. The RSSI indicator is updated every 200 milliseconds. The color scheme is set up as follows.

Color	Status of RSSI
Dark Green	100% Excellent
Light Green	80% Favorable
Yellow	60% Good
Orange	40% Poor
Red	20% Bad

- Select “Term IP” to display the IP address of the terminal. If the IP address is not known because the DCHP address is not assigned to the terminal, then the literal “unknown” is displayed in this area.
- Select “SIP Toggle” to add a “T” button to your toolbar. Tap the “T” button to toggle the SIP to its new state without regard to the SIP Toggle setting in the TE 2000 menus.
- Select “Empty” to include a set number of blank pixels on the toolbar.
- Select “New Row” to divide your toolbar into two rows. All items after the new row then shows the new width of the toolbar in the selected row. Use the **Up** and **Dn** arrows to position where in your current toolbar menus you want to split the toolbar.
- Select “Session 1,” “Session 2,” “Session 3,” or “Session 4” to reserve space on the toolbar to display the session name first if entered or the IP address or DNS name of the host that to which that session is connected. Then, tap on this toolbar section to switch to that session. If no session name, IP address or DNS name is entered, then space is reserved on the toolbar and is left empty.

Example

In this example, the toolbar has an "Exit" option, is set to "Session 1," displays the RSSI status, and is also set to "Session 2." Session 1" is definted to have the session name "CFNK" and Session 2 shows the IP address "136.179.84.175."



Note: Press **Defaults** to reset the toolbar to its default values.

3) Beeper Setup (6400, 5055, 59XX, 17XX, 11XX, CK30, CK31)

The **3) Beeper Setup** menus adjust the beeper tones for key clicks (presses) and error conditions. *For 17XX Terminals*, **3) Beeper Select** directs the audio output to the internal buzzer or to a headset.

```
 Beeper Setup
1) Key Click
2) Error Tone
3) Beeper select
```

1) Key Click (6400, 5055, 59XX, 17XX, 11XX)

Use **1) Key Click** to adjust the frequency and length (duration) of the sound made when you press a key.

To adjust the key click tone, press the appropriate Key Click option, then press the up or down arrow keys to make the desired adjustment. Each key press is accompanied by a tone at the new frequency or length. Press [**Enter**] to confirm the selection and return to the **1) Key Click** screen.

1) Volume (59XX)

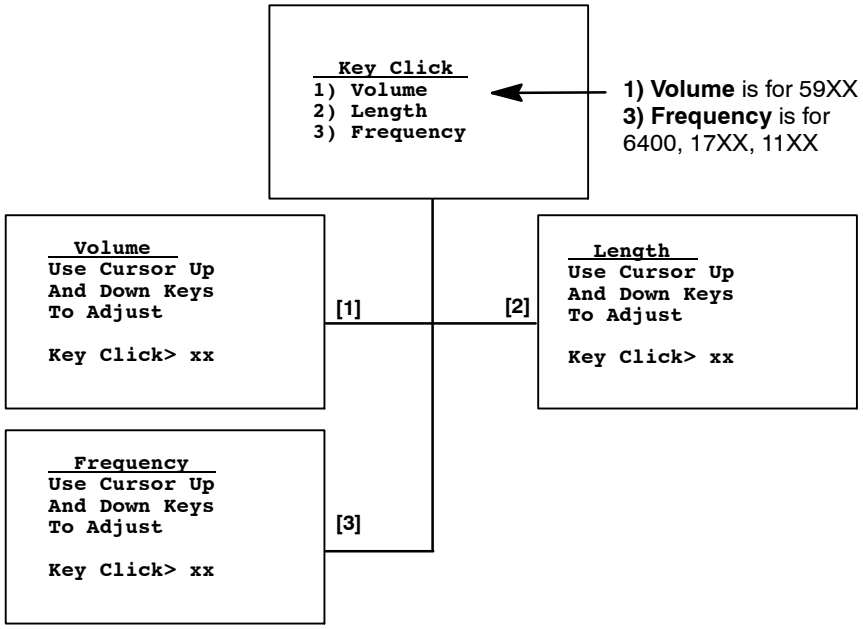
Press [**1**], then the up/down arrow keys to adjust the volume from 0 to 32.

2) Length

Press [**2**], then the up/down arrow keys to adjust the length from 0 to 10.

3) Frequency (6400, 17XX, 11XX)

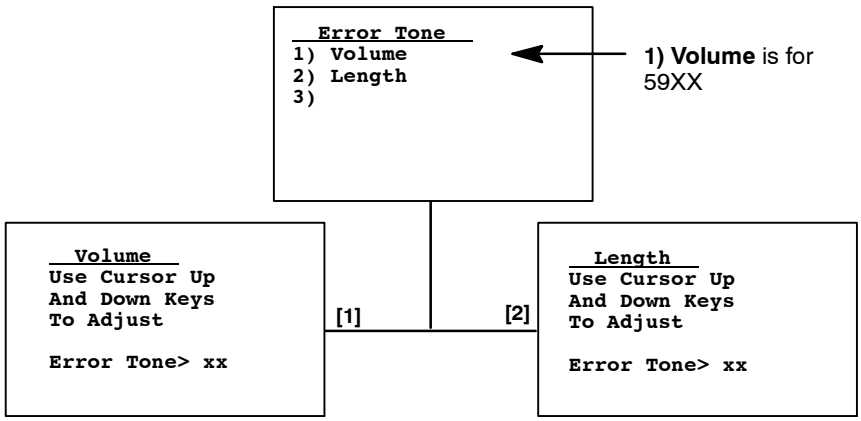
Press [**3**], then the up/down arrow keys to adjust the tone frequency in steps from 0 to 32.



2) Error Tone

2) **Error Tone** adjusts the length and frequency of the tone made when an error occurs (for example, pressing an invalid key). The **2) Error Tone** adjustments, and the procedures for making them are identical to the **1) Key Click** adjustments. Press **2) Length** to set the length. The range is 1 through 10, which equates to a 500 to 5000 ms beep for all errors. *Default error tone length is 3 (or 1500 ms).*

For version 6.73 or greater, the range is 1 through 10, but now equates to a 50 to 500 ms beep for all errors. The default error tone length is still 3 (but for 150 ms).



3) Beeper Select (6400, 5055, 17XX, 11XX)

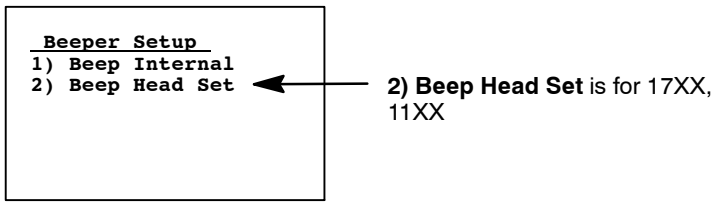
For 17XX, 11XX, both buzzers are not allowed to beep simultaneously when using a headset. If both options are enabled, the head set buzzer will beep first before the internal buzzer. If you are using the RS-232 port for communications, enable **1) Beep Internal** and disable **2) Beep Head Set**.

1) Beep Internal

Press [**1**] to direct the audio to the internal beeper. *Default is enabled.*

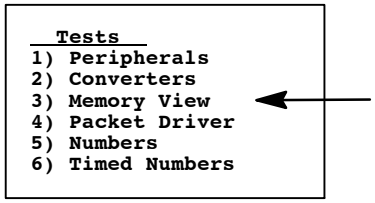
2) Beep Head Set (17XX, 11XX)

Press [2] to direct sound to the headset.



4) Tests

Intermec Systems Engineers use the 4) **Tests** menus to verify terminal operation during environmental stress tests, peripherals, the display, RF communications, and memory.



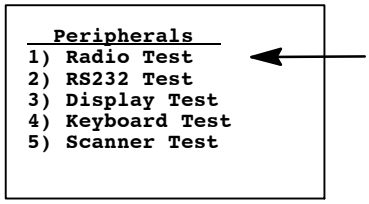
2) Converters is for 59XX

3) Memory View and
4) Packet Driver
are for 6400, 5055, 59XX, 17XX, 11XX

5) Numbers and
6) Timed Numbers
are blank for 700 Series, CK30, CK31, CV60

1) Peripherals

1) **Peripherals** tests terminal peripheral devices, such as radio, RS-232, display, keyboard, and scanner. Detailed descriptions of each peripheral test follows.



1) Radio Test is for
6400, 5055 802.11 (Lucent) radios

2) RS232 Test,
3) Display Test, and
4) Keyboard Test are for
6400, 5055, 59XX, 17XX, 11XX

1) Radio Test (802.11 (Lucent) Radios — 6400, 5055)

Several factors influence the rate at which a frame is transmitted. First, the radio's transmission rate is configured in the **net.cfg** file. The keyword "Transmit_Rate" in **net.cfg** holds a numeric value for the transmission rate.

The transmission rate is also affected by the characteristics of the RF link. If the radio encounters problems sending a higher transmission rate because the RF link is weak, busy, or noisy, the radio may retry the transmission at a lower data rate. Thus, the **TxRate** reported may be lower than the configured transmission rate. Only the transmission rate of the most recent and successful transmission is reported.

Transmit_Rate values and their respective supported transmission rates available in the high speed Lucent radios are as follows:

1	Fixed Low (1 Mb/s)	**5**	Fixed High (11 Mb/s)
2	Fixed Standard (2 Mb/s)	**4**	ARS Standard (2 Mb/s)
3	ARS High (11 Mb/s *default*)	**4**	ARS Medium (5.5 Mb/s)
4	Fixed Medium (5.5 Mb/s)		

- **PRI**
  The primary version of low-level radio firmware.
- **SEC**
  The secondary version of the low-level radio firmware.
- **RFLINK**
  A general description of the RF connection overall quality between Lucent radios in the terminal and radios in the Access Point. The Lucent radio grades the RF link on a scale from 0–92, representing the RF channel Signal-to-Noise Ratio. The RF link quality descriptions are assigned as: 0–23 "Adequate," 24–47 "Good," or 48–92 "Excellent."
- **SNR** *(Signal-to-Noise Ratio)*
  Calculated by dividing the RF signal level by the RF noise level. The result is a number that indicates the overall communications quality of the RF link and is expressed in dBm.
- **SSID** *(Service Set ID)*
  A 32-character, alphanumeric string that identifies the service set, or infrastructure, with which the terminal is currently associated. The SSID is a user-configurable parameter and is configured by the keyword **WaveLAN_Network_Name** in the **net.cfg** file. Setting the keyword to ANY allows the station to associate with any service set.
- **B SSID** *(Basic Service Set ID)*
  The 6-byte MAC address of the Lucent radio in the Access Point with which the station is associated. The Lucent radio in the terminal may associate with a non-Lucent (but 802.11-compliant) radio in an Access Point. Looking at the first three bytes of the MAC address (OUI) can help identify the Access Point radio's manufacturer.

Example

An OUI of "00601D" points to a Lucent radio, while "0020A6" indicates a Proxim radio.

- **TxRate**
  The data rate (in Mb/s) of the last message transmitted by the Lucent radio. The default TXRate of 2 Mb/s and will be displayed when the terminal starts up and has not transmitted a frame yet. High speed Lucent radios are capable of data rates of 1 Mb/s, 2 Mb/s, 5.5 Mb/s, and 11 Mb/s. The TxRate 5.5 Mb/s data rate is displayed as 6 Mb/s. This occurs because the Lucent radio reports an integer value for current transmission data rate, so the data rate of 5.5 Mb/s is rounded up to 6 Mb/s.

```
  Radio Test
PRI:    v4.0
SEC:    v4.52
RFLINK: Excellent
SNR:    99dBm
SSID:   xxxxxxx
B SSID: xxxxxxxxxxxx
TxRate:xMb/s std
```

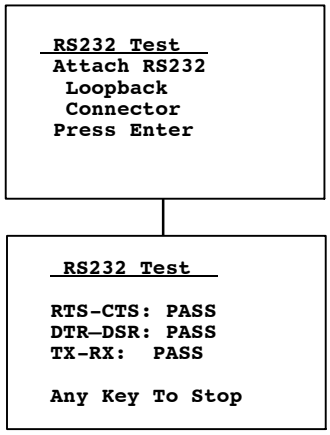
Primary version of Lucent driver
Secondary version of driver
RF link quality
Signal-to-Noise ratio
Network name in use
MAC address of access point
Data rate

2) RS232 Test (6400, 5055, 59XX, 17XX, 11XX)

Tests the data communication port on the terminal, requiring a special loop-back connector that links the following input and output pins on the data connector:

- TX output to the RX input
- DTR output to the DSR input
- CTS output to the RTS input

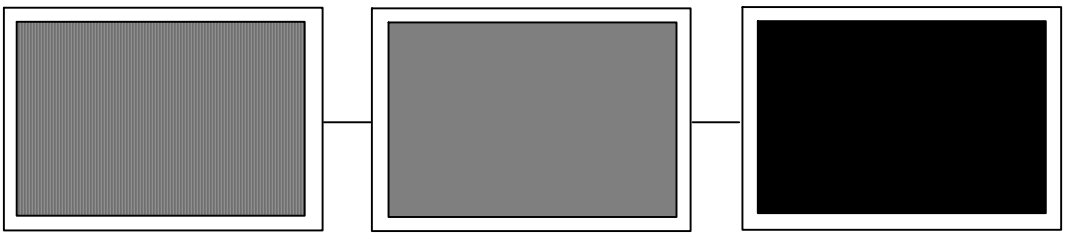
To run the test, select **2) RS232 Test**, attach the loop-back connector to the port connector on the terminal, then press [**Enter**]. The display changes to the second **RS232 Test** menu shown below. The condition of each line-pair displays as passing or failing the test. If any test fails, return the terminal for service.



3) Display Test (6400, 5055, 59XX, 17XX, 11XX)

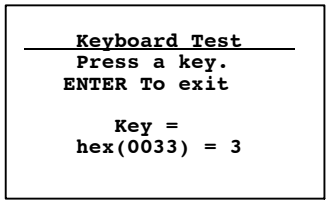
3) Display Test tests the operation of and activates each element in the terminal LCD panel. If a line appears broken, or there are gaps in the display, replace the LCD panel.

1. From the **Display Test** menu, press [**Enter**] to start the test. The display screen is painted with a series of vertical lines. Visually inspect the lines. All lines should appear clear and complete (no broken segments).
2. Press [**Enter**] to move to a screen drawn with horizontal lines. Visually inspect the lines using the same criteria.
3. Press [**Enter**] to move to the final screen. Visually inspect the painted black lines which should be uniformly black for monochrome displays and uniformly white for color displays.
4. Press [**Enter**] to return to the **1) Peripherals** menu.



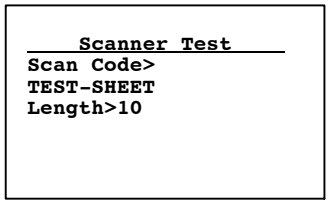
4) Keyboard Test (6400, 5055, 59XX, 17XX, 11XX)

Tests each key on the terminal keypad or 5055 external keyboard. Press each key, except the [**Enter**] key, and a character corresponding to the pressed key should appear on the display.



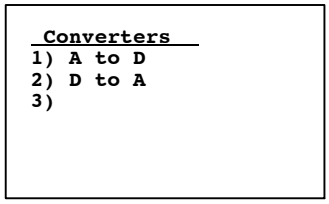
5) Scanner Test

This option tests the operation of an attached bar code scanner. From this menu, scan an enabled bar code. The bar code and the bar code length should appear on the display to pass. Press [**Enter**] to exit the text.



2) Converters (59XX)

Use this option to test the analog-to-digital (A to D) and the digital-to-analog (D to A) converters. The **RSSI Test** (*not available on all radios*) offers a choice of graphics displays of the received radio signals. Press any key to exit.



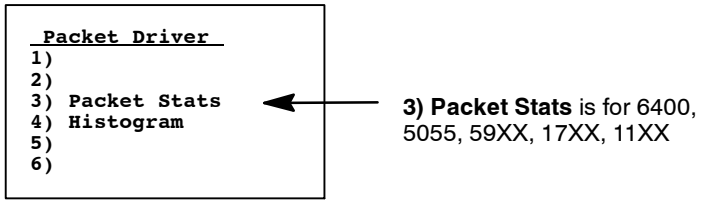
3) Memory View (6400, 5055, 17XX, 11XX)

This menu is reserved for engineering test and evaluation. Press [**F1**] to exit out of this test, [**F2**] to view the heap, [**F3**] to view the far heap, or [**F4**] to do a memory dump.

```
 Memory View
F1 - Exit
F2 - Heap
F3 - Far Heap
F4 - Memory Dump


Address: xxxxxx
```

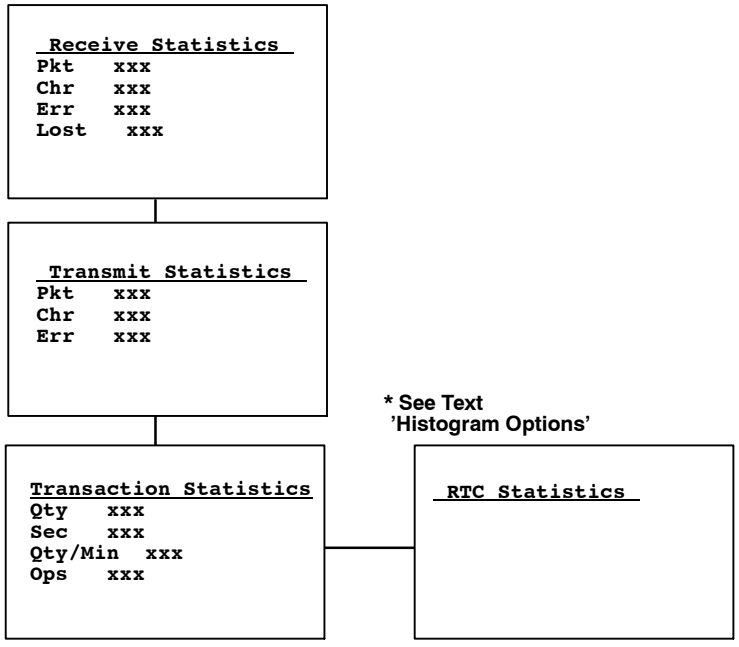
4) Packet Driver (6400, 5055, 59XX, 17XX, 11XX)

4) **Packet Driver** tests accuracy of data transmissions to and from the terminal.



3) Packet Stats (Statistics) (6400, 5055, 59XX, 17XX, 11XX)

Shows the number of packets sent and received, number of errors, and number of packets dropped.

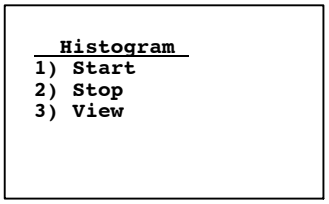


4) Histogram

An Intermec engineer may ask you to access this menu if your terminal has problems. From this menu you can provide the Intermec system engineer with vital information about your unit.

The actual menus are not shown in this manual, however some of the general terminology is shown below. Several of the menu options, such as "Clear. . ., " are password-protected and are only accessible if the engineer provides you with the correct password. An Intermec system engineer will work with you on these selections. Terminology you might see:

- avg tx time
- avg trans time
- ptt (push-to-talk) count
- addrs on list
- poll no data
- send retries
- rcv retries
- reset count
- interval time
- time bucket #



5) Numbers (2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX)

5) **Numbers** checks the operation of the terminal microprocessor. During the test, the terminal display is filled with hexadecimal numbers that move across the screen horizontally and scroll vertically. Character movement indicates that the processor is still running. To stop the test, press any key.

This test is helpful in detecting lockups during severe operating conditions.

6) Timed Numbers (2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX)

6) **Timed Numbers** does the same thing as 5) **Numbers** except that it keeps track of the time in seconds that it took to run the test. The test terminates when a key is pressed or when 65,536 numbers are displayed.

5) Version Info (Information)

5) **Version Info** shows the name, version, and release date of the program you are using, the version of the radio driver, and the MAC address of the 6400, 5055, or 11XX Terminal. See Chapter 1, "*Getting Started*," for TE program names.

MLID Name and **MLID ver** are for 6400, 5055

```
  Version Info
   Firmware
 <TE Program Name>
Version        <number>
Date           <ddmmyy>
MLID Name      ZZZZZZ
MLID ver       xx.xx
(mac address)
```

6) Exit Menus

Note: If direct connect is used, the terminal may reboot upon exiting the TE configuration menu.

Use **6) Exit Menus** to exit the TE configuration menus. If you changed any parameter settings, the terminal displays the following when you exit the menus.

```
 Save Parms
Enter 'Y'
to save parms
```

If you press [**Y**] ("yes"), you are prompted for a password. "cr52401" is the default password.

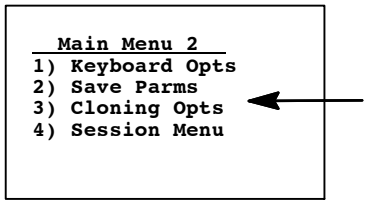
```
 Save Parms

Enter
Password
> .......
```

After you enter the correct password, your settings are saved to Flash, and the terminal may reboot. (Some changes automatically reboot the terminal.) If you press a key other than [Y], you exit the menus and the new settings are *not* saved. In this case, the new settings are lost when you reboot your terminal. When you exit the TE configuration menus, the following information appears:

```
<TE program name> <version>
Session: <number>
Host:
<data stream>
```

7) More (Main Menu 2)

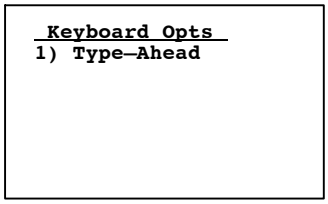
Select 7) **More** to open the **Main Menu 2** screen.



3) Cloning Opts is for 59XX, 17XX, 11XX
4) Session Menu is for 2415 (WTP), 2425 (WTP), 2435A (WTP), 2455 (WTP), 2475 (WTP), 248X (WTP), 6400, 5020 (TCP/IP), 5055, 17XX, 11XX, 700 Series, CK30, CK31, CV60

1) Keyboard Opts

Use 1) **Keyboard Opts** > 1) **Type-Ahead** to key in information when the terminal cannot immediately send data to the host computer.
1) **Type-Ahead** enters information when the terminal cannot immediately send data to the host.



This stores keystrokes after the Input Inhibited annunciator (below) appears on the status line, and then saves them for the next input field. Type-ahead is enabled by default.

X Input Inhibited annunciator

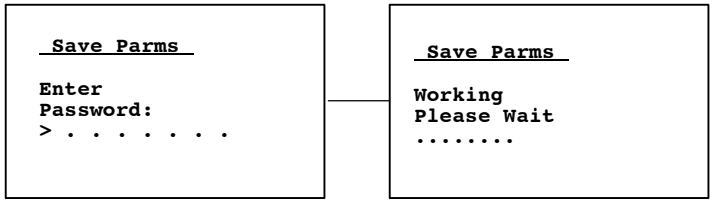
2) Save Parms (Parameters)

Use **2) Save Parms** to retain the changes made to TE configuration settings. When saved, changes become the default settings for the terminal.

Note: Use this option sparingly. Each time it is used, additional memory space is occupied because previously saved changes are not erased. The memory cannot be recovered on 59XX, 17XX, and 11XX Terminals without reflashing.

Ensure that the parameters are correct before choosing **2) Save Parms**. When selected, you are prompted to enter a seven-character password. The default password is "cr52401;" which you can alter with a custom configuration to be a string of 1 to 10 characters long. After you enter the correct password, your changes are written to Flash.

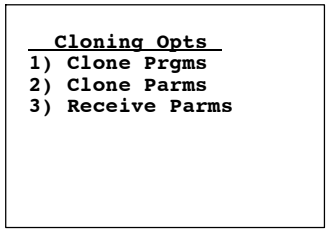
If an error is made or the incorrect password is entered, the terminal will return to **2) Save Parms** screen without saving your entries.



3) Cloning Opts (59XX, 17XX, 11XX)

Note: 3) Cloning Opts is disabled for 59XX Terminals.

These options transfer the application program or parameter settings from one terminal to another. All three choices are password-protected, with "cr52401" as the default password. To perform this function you need a cloning cable and both terminals set for cloning.



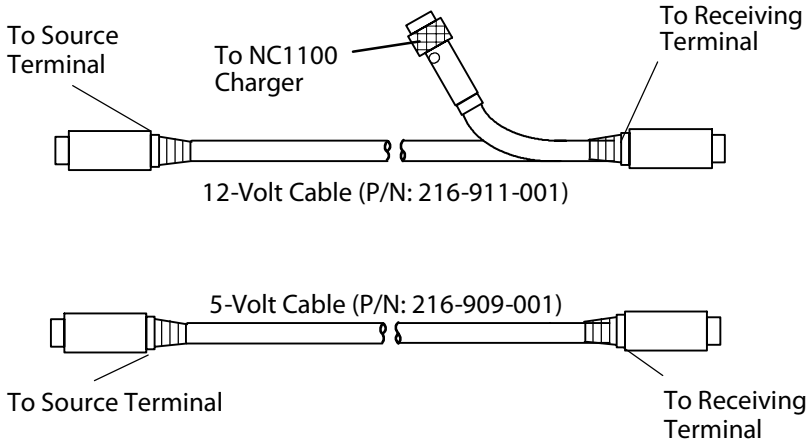
1. Connect the two terminals together using the cloning cable. Use cable P/N: 216-911-001, with radio terminals containing 12-volt Flash *(see illustration on page 190)* for connecting with the NC1100 Power Supply and Charger *(see illustration on the next page)*.
2. Plug the NC1100 Power Supply and Charger into an ac outlet. Use cable P/N: 216-909-001, with radio terminals containing 5-volt Flash. You may use the 12-volt Flash cable, but this is optional.

3 Turn on the source terminal from which to copy the application.

4 Press **3) Cloning Opts**, then **1) Clone Prgms**.

5 Key in the password.

6 Hold down the [**I**] key while turning on the terminal receiving the program. The application program will copy into the receiving terminal.



This illustrations shows the FLASH cloning cable connections as they pertain to step 1 on the previous page.

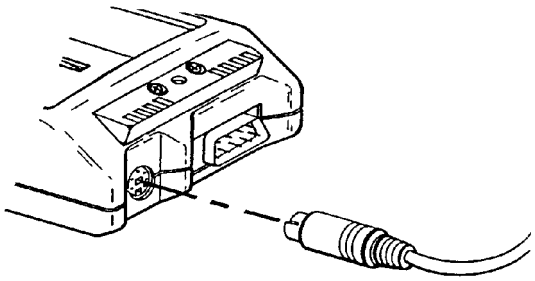
To clone parameters from one terminal to another, first ensure the desired parameters are already set in the terminal you wish to transfer from. Then:

1 Connect the terminals together using the cloning cable. Data Terminals with 12-volt FLASH use P/N: 216-911-001. Data Terminals with 5-volt FLASH use P/N: 216-909-001.

2 With both terminals turned ON, press **3) Cloning Opts** on both.

3 On the source terminal *(the terminal with the parameters from which to copy)*, press **2) Clone Parms**.

4 On the receiving terminal, press **3) Receive Parms**. If using the cable that requires the NC1100 Power Supply and Charger, make sure it is connected to the NC1100 Power Supply and Charger.



Follow the alignment from the NC1100 power supply to the cloning cable connection. This illustration pertains to step 1 on the previous page.

Note: *For 700 Series, CK31, and CV60 Terminals*, the following menu appears after double-tapping the upper-left corner of your display.

4) Session Menu (2415, 2425, 2435A, 2455, 2475, 248X with WTP, 700 Series, CK30, CK31, CV60 with TCP/IP, 6400, 5020, 5055, 59XX, 17XX, 11XX)

Note: 2415, 2425, 2435A, 2455, 2475, 248X, 700 Series, CK30, CK31, and CV60 Terminals with UDP Plus do not allow multiple sessions.

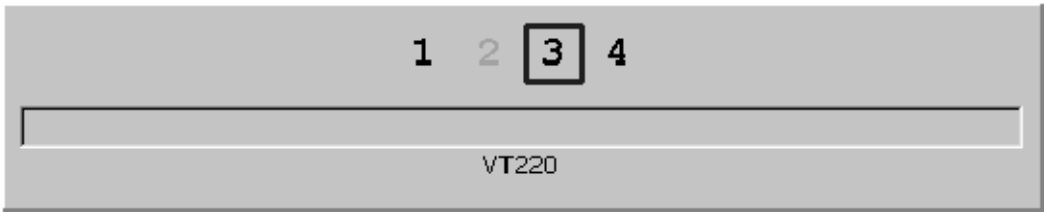
4) **Session Menu** defines different host communication sessions, designates a "hot key" that switches quickly between sessions, and assigns sessions customizable host names (or, friendly names).

1) Switch
Use this option to change the current session. Be sure to identify (or designate) the current (or intended) session before setting parameters.

2) Set Hot Key *(available on units supporting session-switching)*
Displays the current hot key. Use the up and down keys to view the available choices. Press [**Enter**] to designate a key for the hot key.

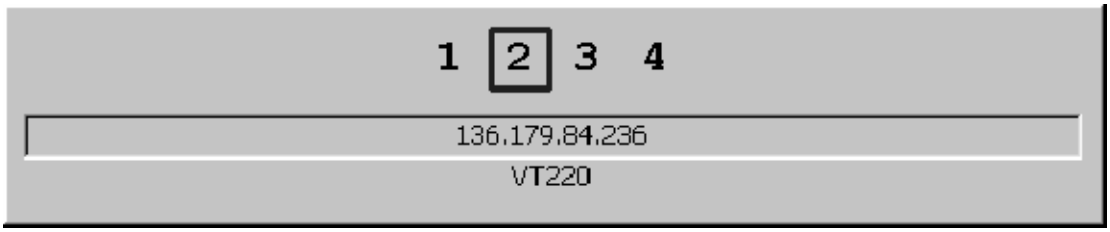
3) Copy Setup *(password -protected)*
For 2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 59XX, 17XX, 11XX Terminals, this copies parameters from the background session to the current session.

For 700 Series, CK30, CK31, CV60 Terminals, this copies parameters from the current session to the session chosen. The copied data is grayed out and the chosen session is outlined with a box, like in this example:



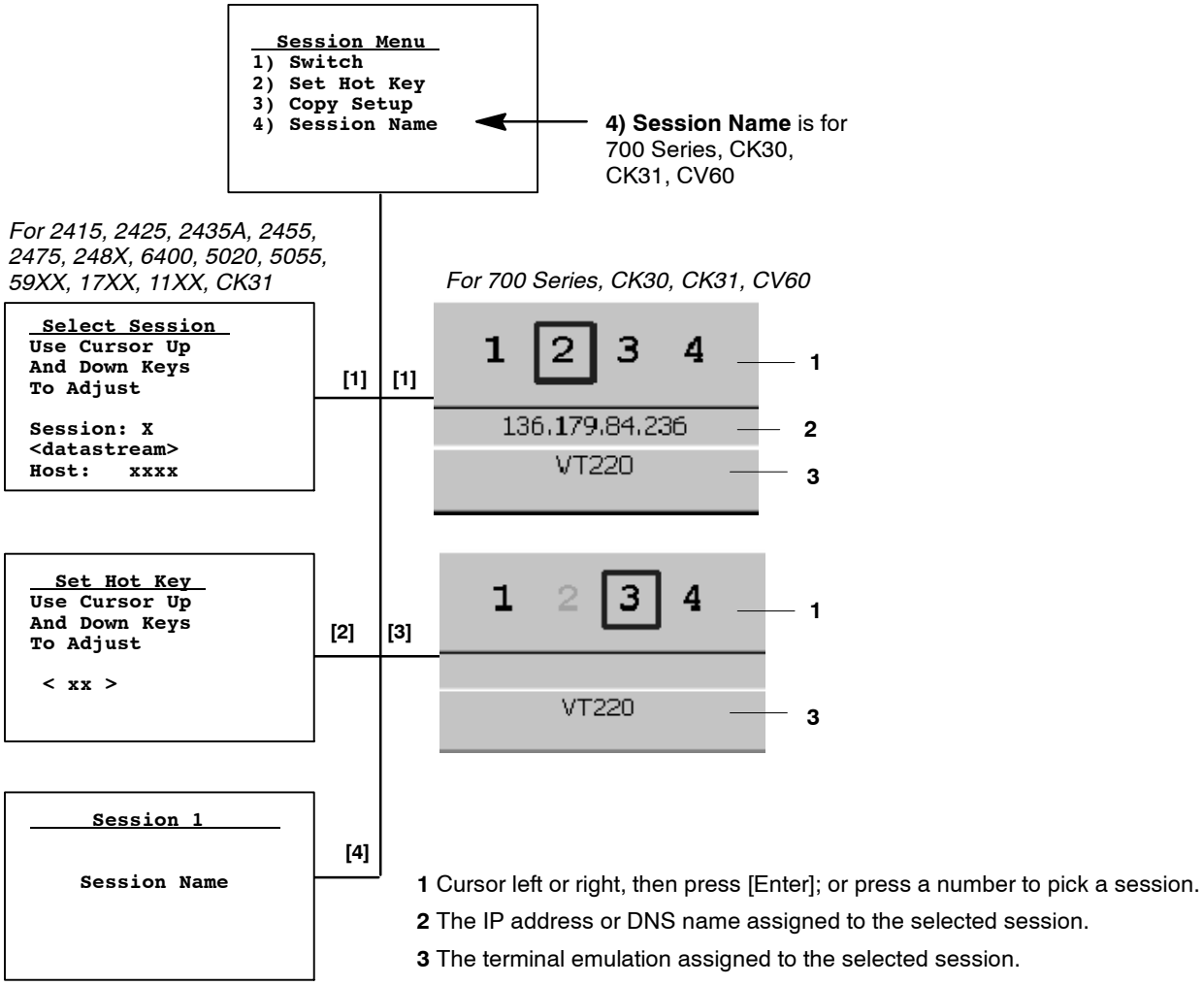
Sample screen from CV60 Terminal

4) Session Name *(700 Series, CK30, CK31, CV60)*
Use this to assign customizable host names (or, friendly names) to each session. Enter a name for Session 1, then press [**Enter**] to return to the Session Menu. You may use up to 64 characters for each name.



Sample screen from CV60 Terminal

To assign a name to another session, press [1] to switch to that session, return to the Session Menu, then press [4] to assign a name to that session.



1 Cursor left or right, then press [Enter]; or press a number to pick a session.

2 The IP address or DNS name assigned to the selected session.

3 The terminal emulation assigned to the selected session.

Restarting Terminal Emulation

Note: The reset firmware bar code is not supported on the 5020, 59XX, 17XX, 11XX, 700 Series, CK30, CK31, or CV60 Terminals. Instead, do the cold-start function to exit the TE application and return to the Windows CE main menu.

You need to restart your TE application if you are having problems or if you want to reconnect to the host with a new configuration. Restarting your TE application also clears the auto-login information, preventing another user from establishing a TE session using your login information.

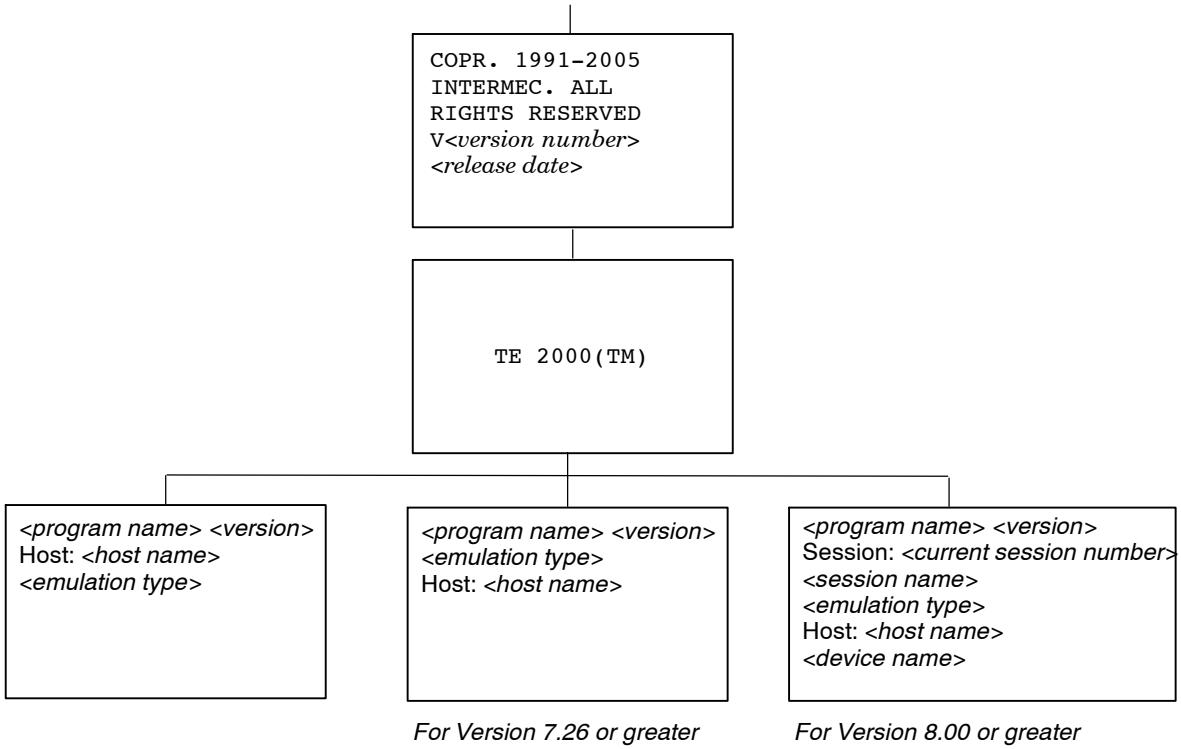
You can restart your TE application by either scanning the following **Reset Firmware** bar code or by using the **6) Cold Start** option in the TE configuration **Main Menu**. Both methods reset all terminal firmware and the application and run the application in a new session.

Reset Firmware

-.

The terminal restarts your TE 2000 application using the configuration saved in CONFIG.DAT, or follow this procedure:

1. At the third initialization screen or anywhere in a TE 2000 session, access the Main Menu by pressing the appropriate key combination (*see page 4*).



Note: If not connected to the Intermec Application Server or host computer, or have problems accessing the Main Menu, reset the terminal to go to the initialization screens.

2. Select **1) Set-up Parms**, then enter the "cr52401" password. *Do not press Enter.*
3. Select **6) Cold Start**, press [**Y**] when prompted to restart, then start using the application or change the TE configuration.

Note: See the terminal's user guide or manual for information on how to recover from a lock-up condition.

2415, 2425, 2435A, 2455, 2475, 248X Terminals

Note: The following instructions are specific for 2415, 2425, 2435A, 2455, 2475, and 248X Terminals.

You can configure several options for VT/ANSI TE on your Trakker Antares® Terminal, including:

- UDP Plus or TCP/IP communications
- VT/ANSI options
- Main Menu password

Note: You can also set the password for UDP Plus Terminals from the Intermec Application Server.

You can access the TE configuration menus when the initialization screens appear or once you establish a TE session. The TE initialization screens appear each time you reboot the terminal or restart your application.

Note: Some parameters for 2415, 2425, 2435A, 2455, 2475, and 248X Terminals are available through the TRAKKER Antares 2400 Menu System. They are not reproduced in the TE configuration menus. See the terminal's user manual for information about the menu system.

6400 Computer

The terminal emulation screens support terminals running Intermec Terminal Emulation or 6400 TCP/IP software. This describes the menus used to set operating and scanning parameters for the hand-held computer. Additional information can be found in the technical overview for your emulation program.

Note: Ensure there is a fully-charged battery pack in the 6400 Computer before setting parameters.

Opening the Main Menu

The Main Menu is the first screen displayed when you open the computer menus. All other menus are accessed from the Main Menu. To open the Main Menu, press [**Yellow**], then [**Blue**]. Briefly, these keys generally operate as:

- [**Blue**] for functions labeled by blue legends above the keys.
- [**Green**] for functions labeled by green legends above the keys.
- [**Yellow**] for functions labeled by yellow legends above the keys.
- [**Blue**], then [**Green**] shift is CAPS LOCK.
- [**Blue**], then [**Yellow**] shift is Alphabetic Lock *(6400 Computer 41-key units)*.
- [**Yellow**], then [**Blue**] is Terminal Emulation menus; your particular emulation software probably treat the keys for contrast control, backlighting and other functions differently.

To Exit Emulation Mode and Return to DOS

Do a cold-restart to exit the current emulation program and return back to the DOS keyboard layout. Press [**Y**], press [**Enter**] several times to put you at the DOS C:\ prompt. To exit to the beginning of the current emulation, press and hold [**Blue**] and [**Yellow**], and both [**ENT**] keys to do the hard reset.

5055 Data Collection PC

If you are running terminal emulations **and ever update the DOS load on the internal SanDisk IDE drive on the 5055 PC, be aware that when updating 50DS1000, avoid copying the CONFIG.SYS and AUTOEXEC.BAT files. The new versions of these two files may interfere with existing applications, such as Terminal Emulations. If affected, Terminal Emulations will automatically run on boot up.**

In all other situations, do **copy the CONFIG.SYS and AUTOEXEC.BAT files.**

This contains information about the terminal emulations with keyboards supported for the 5055 Data Collection PC.

The 5055 PC supports terminal emulations with rugged keyboards. FWP650H0 is DOS-based and is not compatible with Windows DOS prompts.

An external PS/2-compatible keyboard is required for configuring and using terminal emulations.

Terminal emulation font files are needed to generate the various character fonts. See the related terminal emulation programmer's reference guide for additional information.

Programs Used to Create Terminal Emulation Menus

The Terminal Emulation Menu Screens are provided to support terminals running Intermec Terminal Emulation software. This describes the menus that set operating and scanning parameters for the 5055 PC. Additional information can be found in the programmer's guide or technical overview for your emulation program.

When you power on the 5055 PC, the AUTOEXEC.BAT file executes the following programs, in sequential order, to create the terminal emulation menus. Listed are their descriptions.

- **LSL**
  Creates the link layer for the protocol stack.
- **rl2pcm**
  Includes the Proxim radio driver for the Proxim RangeLAN2 radio, ***or*** **wvlan43**
  Includes the WaveLAN/IEEE radio driver for the 802.11b HR radio.
- **6500ikps**
  Installs multitasking, beeper, and key remapping TSRs.

- **wtppkt**
  Includes the WTP Packet driver program if a WTP link accesses the host computer, ***or***
  ethdrv and **odipkt**
  Includes the Ethernet and ODI Packer driver programs if a TCP/IP link and a controller are used to gain access to the host computer.
- **65scn7b -c1**
  Activates the scanner driver.
- **6500dbcs**
  Intercepts INT10 and display characters on the display.
- **fwp650h0**
  Activates the terminal emulation program.

Press **<Alt>**, then [**M**] on the external keyboard to access the setup menus.

Note: On terminal emulation keyboards, use the Yellow key in place of **<Alt>**. For example, to access the Setup Menus, press [**Yellow**], then [**M**].

Opening the Main Menu

The Main Menu is the first screen displayed when you open the computer menus. All other menus are accessed from the Main Menu.

To open the Main Menu, press [**Yellow**], then [**Blue**] (MENU). Briefly, these keys generally operate as:

- [**Blue**] for functions labeled by blue legends above the keys.
- [**Green**] for functions labeled by green legends above the keys.
- [**Yellow**] for functions labeled by yellow legends above the keys.
- [**Blue**], then [**Green**] is CAPS LOCK.
- [**Yellow**], then [**Blue**] is Terminal Emulation menus; your particular emulation software probably treat the keys for contrast control, back-lighting and other functions differently.

To Exit Emulation Mode and Return to DOS

Do a cold-restart to exit the current emulation program and return back to the DOS keyboard layout. Press [**Y**], then press [**Enter**] several times to arrive at the DOS C:\ prompt. To exit to the beginning of the current emulation, press and hold the [**Blue**] and [**Yellow**], and both [**ENT**] keys to do the hard reset.

5 Customizing Your Configuration

This chapter describes the procedures you can use to customize the standard TE 2000 VT/ANSI program by Intermec Technologies Corporation. You customize the TE 2000 program by creating or modifying configuration files, and then downloading them to your terminal to do the following.

- Use the auto-login feature to send the same login information each time you login to the host *(page 198)*.
- Display double-byte characters *(page 209)*.
- Create a custom parameter set-up file to download a customized file to all terminals so they have the same setup information *(see note below)*.
  - CUSTOM.DAT Settings *(page 211)*
  - TE_SETTINGS.INI Settings *(page 237)*
- Change the text of TE 2000 configuration menus or system messages *(page 252)*.
- Preinitialize the TE 2000 VT/ANSI program *(page 253)*.
- Remap the terminal's keys *(page 254)*.
- Remap characters *(page 260)*.
- Implement ITCCOLOR.DAT attribute colors *(page 261)*.

Note: *For 700 Series, CK30, CK31, CV60 Terminals with TE 2000 application versions 8.00 or greater,* if a CONFIG.DAT file is present on your terminal, its settings are backed up in a CONFIG.OLD file, then written into a TE_SETTINGS.INI file. If the CONFIG.DAT file is not on your terminal, all settings are written to the TE_SETTINGS.INI file.

Using the Auto-Login Feature

Use the auto-login feature to send the same login information each time you login to the host. When you start the TE 2000 application, the terminal checks for an auto-login script file. If a script file exists, the terminal runs the login commands from the auto-login script file before the TE 2000 program starts.

To use the auto-login feature, you need to develop an auto-login script file and load the auto-login script file on the terminal. These steps are covered on the following pages along with a list of the necessary control characters and the procedure for disabling the auto-login feature.

Developing Auto-Login Script Files

A typical auto-login script file consists of Input and InputHidden commands followed by a HostName command, followed by a series of WaitFor and Send commands. A very simple script file may not have any input commands if all of the terminals are using the same account.

Note: The auto-login script must be an ASCII text file with AUTOLOG.SCR as the required file name or the file is not processed.

Commands

You can use several commands to create auto-login script files. All commands are case-sensitive. For example, **WaitFor** is a command, but **Waitfor** is not a valid command. For examples of script files, see *"Sample Auto-Login Script Files"* on page 206.

- **Input**
  This is called with two parameters. The first one is a character string enclosed in quotes used as a prompt to the user. The second one is a string variable name indicating where the text string is stored.
- **InputHidden**
  Same as the **Input** script command except that user input is echoed as a string of asterisks.
- **HostName**
  This command is case-sensitive and must be presented as mixed-case letters. **HostName** is followed by a character string enclosed in quotes. The character string can be a host name or an asterisk. The **HostName** command acts as an IF clause. If the host name matches, the following section of the script file is executed up to the next **HostName** command. If an asterisk is used, it matches any host name.

Note: If a session name (friendly name) is entered, then this is used in place of the host name or server IP name to section off the autologin script.

- **WaitFor**
  Wait for a list of up to ten strings. The strings must be enclosed in quotes and must be separated by a comma. The strings cannot exceed 20 characters in length.

- **Send**
  This command sends a character string enclosed in quotes or a string variable to the host. The character string enclosed in quotes can have an embedded control key in the TE 2000 VT/ANSI application.
- **Pause "xxxxx"**
  Delays the terminal for x milliseconds, halts terminal operation from receiving and processing for the duration specified.
- **PromptSessionStart**
  This command is a predefined variable. If this variable is defined and set to any value other than 0, the application prompts the user to press [Enter] before starting a Telnet session with the host. Do not put quotes around the variable.
- **Restart "x"**
  Restarts the autologin script file. The "x" is a dummy argument.
- **Keyboard "0"**
  Disables the keyboard. Key presses are ignored. For additional information, see Note below.
- **Keyboard "1"**
  Enables the keyboard. Key presses are processed. The keyboard is enabled by default. For additional information, see Note below.
- # (pound symbol)
  Documents the script file. Text following a # (pound) symbol is considered a comment unless the # symbol is in a quoted string.

Note: Input the **Keyboard "0"** or **Keyboard "1"** command into the autologin script file after the **PromptSessionStart** command (if present) and the **HostName** command (if present). Also turn on the keyboard command before another **HostName** command is found in the file.

Search Strings

Some auto-login search string limitations are as follows. You can use line wrapping to look for unique strings.

- The searches are case sensitive.
- The maximum search string length is 20 characters.
- Each WaitFor command searches the entire screen from the top.

If a screen from the host has multiples of the word you are looking for, you can use the preceding spaces to identify a unique string.

Example

If the screen sent to the terminal is:

```
Linux rlogin 2.4.6
login
```

The autologin script would be:

```
PromptSessionStart=1
HostName "*"
#wait for host login screen and send login and password
WaitFor "login"
Send "billy<ENTER>"
WaitFor "password"
Send "letmein<ENTER>"
```

In this example, you can search for the three leading spaces from the end of the previous line to make a unique search string.

Control Characters

You can include control characters in your auto-login script file. The control character must be enclosed by < > (angle brackets) in AUTOLOG.SCR. The following table lists control characters for TE 2000 VT/ANSI.

Note: Some control characters may be represented by their hexadecimal values. For a description of control characters and hexadecimal equivalents, see the full ASCII chart in Appendix C, "*Conversion Tables.*"

Control Characters for Auto-Login Script File

Control Character	Definition	Control Character	Definition
<ACK>	Acknowledgment	<F1> – <F20>	Function keys
<BEL>	Bell	<F21>	Toggles from Character mode/ Line Edit (block) mode
<BS>	Backspace	<FF>	Form Feed
<CAN>	Cancel	<FS>	File Separator
<CR>	Carriage Return	<GS>	Group Separator
<CUR_DN>	Cursor Down	<HT>	Horizontal Tab
<CUR_LF>	Cursor Left	<INS>	Insert
<CUR_RT>	Cursor Right	<LF>	Line Feed
<CUR_UP>	Cursor Up	<LTAB>	Left Tab
<DC1>	Device Control 1 (XON)	<NAK>	Negative Acknowledge
<DC2>	Device Control 2	<NUL>	Null, or all zeros
<DC3>	Device Control 3 (XOFF)	<RS>	Record Separator
<DC4>	Device Control	<RTAB>	Right Tab
<DEL>	Delete	<SI>	Shift In
<DLE>	Data Link Escape	<SO>	Shift Out
<EM>	End of Medium	<SOH>	Start of Heading
<ENQ>	Enquiry	<SPACE>	Space
<ENTER>	Enter	<STX>	Start of Text
<EOT>	End of Transmission	<SUB>	Substitute
<ESC>	Escape	<SYN>	Synchronous Idle
<ETB>	End Transmission Block	<US>	Unit Separator
<ETX>	End of Text	<VT>	Vertical Tab

Loading the Auto-Login Script File

Follow these procedures to download an auto-login script file to your terminal. The method depends on the type of terminal you are using.

2415, 2425, 2435A, 2455, 2475, 248X Terminals

You can download more than one script file to a 2415, 2425, 2435A, 2455, 2475, or 248X Terminal, but immediately name the file to use as AUTOLOG.SCR and name any other script files with different names ending with .SCR. To learn more about transferring files, refer to your terminal's user manual.

Use one of the following download utilities to copy your completed AUTOLOG.SCR file to the terminal.

Using Serial Port to Download File

1. Connect the terminal to the development personal computer or host. For help, refer to your terminal's user manual or your accessory documentation.
2. Load the AUTOLOG.SCR file into drive C, where the TE application is stored. For help, refer to your terminal's user manual.
3. Use T24XCOPY.EXE (from the developer's kit) to copy the file directly to drive C: on the terminal; or use LOADER.EXE (from the flash upgrade) to copy the file to the terminal in flash mode using the following command:

   ```
   loader AUTOLOG.SCR
   ```

Using RF Communications to Download File

Note: Loading the AUTOLOG.SCR file from the Intermec® Application Server is supported.

1. Copy the AUTOLOG.SCR file to the Intermec Application Server.
2. Configure the download server on the Intermec Application Server to send AUTOLOG.SCR to the terminals in groups of 10 or less.
3. **Start the download.**
   When you reset your terminal, it clears the auto-login information, such as the password and user's name. You can cancel the auto-login process by pressing any key during the auto-login sequence. When a host session is broken, you can restart the auto-login sequence by rebooting your terminal.

5020 Data Collection PC

The *5020 Data Collection PC User's Manual* (P/N: 068975) has comprehensive information regarding 5020 file management. Below is an excerpt from the manual.

Downloading a File

1. From the host computer or PC, connect to the 5020 Terminal using a web browser and start the Unit Manager application. For help, see the *5020 PC User's Manual*.
2. Click **File Manager** to access the main File Manager screen.
3. Click the option button next to the parent directory where the file to be downloaded is located, then click the **Go To** button to access its contents. To download a file to the current directory on the 5020 Terminal, go to the next step.
4. Go to the File Upload form at the bottom of the main File Manager screen on the host computer and click the **Browse** button.
5. From the Choose File box on the host computer, select the file to be downloaded to the 5020 Terminal, then click **Open** to place the path and file name on the File Upload form.
6. On the host computer, click the **Upload File** button to continue, or click **Clear** to clear the form and start again. The screen showing the parent directory is refreshed.

   If successful, the following confirmation message will appear on the host computer, where "Filename" is the file that was downloaded to the 5020 Terminal: **Uploaded file "Filename"**

Copying a File

Use the File Manager from the host computer to make a copy of a file. Repeat steps 1 through 3 of "*Downloading a File*", then do the following:

1. Click the option button next to the file you want to copy, then click the **Copy** button to access the Copy File screen.
2. To save the copied file to the same directory as the original file, enter a unique file name in the **New Name** field, then click **Copy File** to create a copy of the file. The screen showing the parent directory is refreshed.

   If successful, the following confirmation message will appear on the host computer, where "Filename" is the original file and "New Filename" is the copy: **"Filename" copied to "New Filename"**

6400, 5055 Terminals

Use INTERLNK/INTERSVR communications to connect your terminal to a personal computer. For help, see *"Downloading Files"* on page 263.

You must load AUTOLOG.SCR into drive C, where the TE application is stored.

59XX, 17XX, 11XX Terminals

The download process requires flash and utility files.

1 Using FLSHCONV.EXE from the TOOLS.EXE file from the flash program, append the AUTOLOG.SCR file to the end of the .HEX program. For help, see *"Downloading Files"* on page 263. Below are sample command lines for each terminal type:

- 11XX Terminal with 256K flash *(this uses 1180, but applies to all radio types)*:

```
flshconv –eC000 –a fwp118c0.hex AUTOLOG.scr
–oNEW1180.HEX
```

- 11XX Terminal with 512K flash *(this uses 1180, but applies to all radio types)*:

```
flshconv –eFFC0 –a fwp118h0.hex AUTOLOG.scr
–oNEW1180.HEX
```

- 17XX Terminal *(example uses 1780, but applies to all radio types)*;

```
flshconv –eFFC0 –a fwp178h0.hex AUTOLOG.scr
–oNEW1780.HEX
```

- 59XX Terminal *(example uses 5980, but applies to all radio types)*:

```
flshconv –eE000 –a fwp598h0.hex AUTOLOG.scr
–oNEW5980.HEX
```

2 Using PROGDUX.EXE from the flash files, load the NEW.HEX file onto the terminal. Below is a sample command line using the 1780 Terminal:

```
PROGDUX –e NEW178H0.HEX
```

700 Series, CK30, CK31, CV60 Terminals

This procedure requires that you have Microsoft ActiveSync installed on your desktop and that you have established a remote connection to your 700 Series, CK30, CK31, or CV60 Terminal. *See the 3-paragraph note on the next page.*

1 On the terminal, tap **Start** > **ActiveSync** > **Sync**.

2 From your desktop, access the Microsoft ActiveSync, then click **Explore** to access the contents of the terminal via its "Mobile Device" directory or folder. Browse to the appropriate location where to install the files.

3 Also from your desktop, select **Start** > **Windows Explorer**, then browse for the files to transfer to your terminal.

4 Drag those files from the desktop Windows Explorer to the ActiveSync "Mobile Device" window.

5 From the terminal, tap **Start** > **Programs** > **File Explorer**, then browse to the location where to place the files. If missing, then ensure all connections and locations are accurate before attempting this procedure again.

Note: Always store files such as the AUTOLOG.SCR, REMAP.CFG, CONFIG.DAT *(for TE 2000 application versions older than 8.00)*, TE_SETTINGS.INI *(for TE 2000 application versions 8.00 or greater)*, CFGLIT.DAT, or other such files, in the directory where the TE 2000 executable is stored. This is the root directory on the CV60 Computer, and is the "\CK_FFS" directory on the CK30 or CK31 Computer.

On 700 Series Computers, if a Secure Digital card is present, the "\SDMMC Disk\TE2000" directory contains the executable if installed from a CAB file. If there is no SecureDigital card, the next choice is the Flash File Store. Finally, if neither is present, then the TE 2000 executable is stored in the "\Program Files" directory.

These extra files are either in the directory with the executable, in the root of the Secure Digital card if present or the Flash File Store if present, or at the very root of the machine, which is the order of precedence. Thus, the root directories are not the default — not the first choice. If the user created a new one of these files and placed it at the root, and another file of the same name existed somewhere else, higher in priority, then the user's file is ignored. Thus, it is best to place it in the directory with the TE 2000 executable file.

Disabling the Auto-Login Feature

To disable auto-login, you may rename or delete the AUTOLOG.SCR file. Renaming the file ensures that you can use the same auto-login script file later by changing the name back to AUTOLOG.SCR. If you want to enable a new script file, you can use the instructions in this section to rename a different script file to AUTOLOG.SCR.

Follow these procedures to disable (or delete) the auto-login script file. The method depends on the type of terminal you are using.

2415, 2425, 2435A, 2455, 2475,248X Terminals

1. Press the appropriate key sequence or scan the following bar code to access the Trakker Antares® 2400 Menu System's Main Menu:

   Enter Test and Service Mode

   ..-.

2. Choose System Menu and then choose File Manager.
3. Select drive C. Press ▲ or ▼ to highlight AUTOLOG.SCR.
4. Press [**FnL .**] to delete the file or press [**F7**] to rename the file.
5. Exit the Trakker Antares 2400 Menu System to return to your current TE session. Restart the TE application to use TE without the auto-login.

You can also rename the auto-login script file from your host. For help, refer to your terminal's user manual.

5020, 700 Series, CK30, CK31, CV60 Terminals

Via your web browser, access the IP address at *http://<IP address>*, double-click the **File Manager** desktop icon, select **File**, then press the [**Del**] key to remove the auto-login feature.

For the terminal, using Microsoft ActiveSync, browse for the auto-login file, right-click the file for a pop-up menu, then select **Delete** to remove the file from the terminal.

6400, 5055 Terminals

1. Reboot the terminal to a DOS prompt.
   - *For the 6400 Computer*:
     press and hold the yellow, blue, and both green enter keys until the terminal resets. Watch the screen as the terminal boots and press 0 (zero) when the prompt appears.
   - *For the 5055 Data Collection PC*:
     power-cycle the terminal and select the minimum DOS prompt from the boot menu.
2. Rename or delete the AUTOLOG.SCR file.
3. Reboot the terminal again and allow it to complete the boot into terminal emulation.

59XX, 17XX, 11XX Terminals

To disable auto-login on a 59XX, 17XX, or 11XX Terminal, reload the terminal with unmodified flash, then perform a cold start to flush the memory. The flash file does not allow selective erasing; files can be added, but not removed without removing all files.

Sample Auto-Login Script Files

You can use these sample script files as they are or as the starting point for creating your own auto-login script files.

Example 1

Auto-Login With All Terminals Using the Same Account

```
HostName "*"                                #Use this to log into any host
WaitFor "login:"                            #Wait for the login prompt
Send "username<NEWLN>"                      #Send the user name
WaitFor "Password:"                         #Wait for the password prompt
Send "letmein<ENTER>"                       #Send the password
```

• The **HostName** command matches the host the user accesses.
• The **WaitFor** command waits for a string to be displayed by the host. **WaitFor** takes up to 10 strings, 20 characters long. The strings must be enclosed in quotes and separated by a comma.
• The first **Send** command sends a fixed user name. The second **Send** command sends a fixed password.
• Angle brackets < and > can enclose uppercase mnemonics or hexadecimal values.

Example 2

Auto-Login With Different User Names and Passwords

```
Input “Enter user name”, username                    #Prompt for user name
InputHidden “Enter password”, password               #Prompt for password
HostName “*”
WaitFor “login:”                                     #Wait for login prompt
Send username                                        #Send the user name
Send “<NEWLN>”                                       #Send a carriage return
WaitFor “Password:”                                  #Wait for password
prompt
Send password                                        #Send the users password
Send “<ENTER>”                                       #Send a carriage return
```

• The **Input** and **Send** commands use input variables. **Input** commands require a prompt string followed by a comma and a variable name in which to store the string.
• The **InputHidden** command display “*” in place of any characters the user types. Place all **Input** commands before the first **HostName** command.
• The **Send** command only accepts a single argument, so you need two **Send** commands to send the user name and a carriage return.

Example 3

Auto-Login to an Application

```
Input “Enter user name”, username                    #Prompt for user name
InputHidden ”Enter Password”, password               #Prompt for password
HostName “*”
WaitFor “login:”                                     #Wait for login prompt
Send username                                        #Send the user name
Send “<NEWLN>”                                       #Send a carriage return
WaitFor “Password:”                                  #Wait for password prompt
Send password                                        #Send the users password
Send “<ENTER>”                                       #Send a carriage return
WaitFor “Main Menu”                                  #Wait for the main menu
Send “3”
Send “<ENTER>”                                       #Pick option 3 from menu
WaitFor “Wip Menu”                                   #Await work-in-process menu
Send “1”
Send “<ENTER>”                                       #Pick option 1 from menu
```

• Example 3 modifies the script file in Example 2. The additional modification (which starts with WaitFor “Main Menu”) allows you to move automatically to an application after logging in.

Example 4

Auto-Login With Variable Processing

```
Input “Enter user name”, username                    #Prompt for user name
InputHidden “Enter Password”, password               #Prompt for password
HostName “BigHost”                          #Use script portion for BigHost
WaitFor “User:”                                      #Wait for the user prompt
Send username                                        #Send the user name
Send “<NEWLN>”                                       #Send a carriage return
WaitFor “Password:”                                  #Wait for password prompt
Send password                                        #Send the users password
Send “<ENTER>”                                       #Send a carriage return
HostName “*”                                         #Match any host name
WaitFor “login:”                                     #Wait for login prompt
Send username                                        #Send the user name
Send “<NEWLN>”                                       #Send a carriage return
WaitFor “Password:”                                  #Wait for password prompt
Send password                                        #Send the users password
Send “<ENTER>”                                       #Send a carriage return
WaitFor “Main Menu”                                  #Wait for the main menu
Send “3”
Send “<ENTER>”                                       #Pick option 3 from menu
WaitFor “Wip Menu”                                   #Await work-in-process menu
Send “1”
Send “<ENTER>”                                       #Pick option 1 from menu
```

• A section for the host name BigHost is added to the beginning of the script file. If you log into any host other than BigHost, the script file starts at the **HostName** “*” line. This allows for different processing on each host.

Auto-Login Restart

The Auto-Login Restart command starts the auto-login script file from the correct **HostName** statement in the script file when a host session is broken. For this command to work, the **WaitFor** string must match the last data sent from the host. For example, if the **WaitFor** string is the login prompt “login:” with a space after the colon, the **WaitFor** string must include a space for the auto-login restart to work.

To use the **Auto-Login Restart** command, press the keys listed in Chapter 3, “*Using the Terminal’s Keyboard*.” Or, scan the following bar code.

Auto-Login Restart

%ALRS

Displaying Double-Byte Characters

The 2415 Terminal supports Double-Byte Character Sets. The sets available are Thai, Big 5 (traditional) Chinese, simplified Chinese, Japanese (Kanji), and Korean (Hangul) and are preloaded on the 2415 Terminal.

To order a Double-Byte Character Set, contact your Intermec representative, then follow instructions in the terminal user manual to install it.

700 Series Terminals

Do the following to load CAB files that support double-byte characters onto your terminal. Be sure to set the terminal's screen size to 8x16.

1 From your desktop, select **Start** > **Windows Explorer**, then browse the "C:\Program Files\Intermec\TE2000" path for the following CAB files:

Language	Pocket PC 2002	Pocket PC 2003 or Windows Mobile 2003
Simplified Chinese	GB700.ARM.CAB	GB730.ARM.CAB
Traditional Chinese	BIG700.ARM.CAB	BIG730.ARM.CAB
Japanese	JP700.ARM.CAB	JP730.ARM.CAB
Thai	THAI700.ARM.CAB	THAI730.ARM.CAB
Korea	DIOPEN1.CAB	DIOPEN1.CAB

2 Select the appropriate CAB file, do a right-click for a pop-up menu, then select **Copy**.

3 *If you are using the 700 Monochrome Computer*:
Within the **Mobile Device** directory on the 700 Monochrome Computer, tap **My Pocket PC** > **Storage Card** > **cabfiles**. Do a right-click for a pop-up menu, then select **Paste**.

If you are using the 700 Color Computer with a CompactFlash storage card:
Within the **Mobile Device** directory, select **My Pocket PC** > **Storage Card** > **cabfiles**. Do a right-click for a pop-up menu, then select **Paste**.

If you are using the 700 Color Computer with a Secure Digital storage card:
Within the **Mobile Device** directory, select **My Pocket PC** > **SDMMC_Disk** > **cabfiles**. Do a right-click for a pop-up menu, then select **Paste**.

If neither the CompactFlash nor Secure Digital storage card is installed in the 700 Series Computer, paste the CAB file into the root of the object store.

After extracting the CAB files, perform a warm-boot on the terminal. When rebooted, the newly copied CAB file automatically activates the double-byte character fonts for usage.

CK30 Handheld Computers

The CK30 Handheld Computer needs the following CAB files for double-byte character support.

1 From your desktop, select **Start** > **Windows Explorer**, then browse the "C:\Program Files\Intermec\TE2000" path for the following CAB files:

Language	Windows CE.NET 4.2
Simplified Chinese	GBCK30.ARM.CAB
Traditional Chinese	BIGCK30.ARM.CAB
Japanese	JPCK30.ARM.CAB
Thai	THAICK30.ARM.CAB
Korea	KRCK30.ARM.CAB

2 Select the appropriate CAB file, do a right-click for a pop-up menu, then select **Copy**.

3 Within the **Mobile Device** directory on your SecureDigital storage card, select **My Pocket PC** > **SDMMC_Disk** > **cabfiles**. Do a right-click for a pop-up menu, then select **Paste**.

4 After extracting the CAB files, wait 3 minutes before performing a warm-boot on the CK30. When rebooted, the newly copied CAB file automatically activates the double-byte character fonts for usage.

Creating a Custom Parameter Set-Up File

You can create a custom VT/ANSI TE 2000 set-up file to preset almost any parameter you can set from the TE configuration menus. These parameter settings become the default (cold start) configuration for the terminal.

Note: *For 700 Series, CK30, CK31, CV60 Terminals with TE 2000 application versions 8.00 or greater,* if a CONFIG.DAT file is present on your terminal, its settings are backed up in a CONFIG.OLD file, then written into a TE_SETTINGS.INI file. If the CONFIG.DAT file is not on your terminal, all settings are written to the TE_SETTINGS.INI file. Go to page 237 for TE_SETTINGS.INI information and settings.

CONFIG.DAT Settings

Note: CHECKCFG.EXE is no longer used except for Trakker Antares Terminals 2415, 2425, 2435A, 2455, 2475, or 248X. This information is included for Trakker Antares users and for those using TE 2000 application versions older than 8.00 on 700 Series, CK30, or CV60 Terminals. This information does *not* apply towards CK31 Terminals.

CONFIG.DAT Syntax

The parameter setup file is an ASCII text file that you create which gets converted to a binary file by the CHECKCFG.EXE utility. New terminals do not come with this utility but it is available by request from the system engineer; or, if you ordered the upgrade version, it is included in the TOOLS.EXE self-extracting file.

You can name the input file as you choose. When you use the CHECKCFG utility later to verify the file, you must change the output file name to CONFIG.DAT. A field may have zero or more qualifiers.

The syntax of a line is `FieldName = Value;` *or*
`Qualifier.FieldName = Value;`

- *FieldName* is the name of the parameter you want to modify.
- *Value* is the new value for the field.
- *Qualifier* and *FieldName* must be ASCII strings that match one of the configuration parameters.
- *Value* can be an ASCII string or a numeric value, depending on the type of the parameter *FieldName* specifies. The parameters along with their types and allowable values are listed under "*Parameters and Qualifiers"* later in this chapter.

CHECKCFG.EXE ignores blank lines, leading white space (spaces and tabs), and white space on either side of any delimiter (period, equal sign, or semicolon).

In addition, the set-up file converts consecutive white space characters within strings to one space. For example, this line:

```
Screen  Mode   =  Page Mode  ;
```

is the same as: `Screen Mode=Page Mode;`

You can set the *Value* field of any configuration parameter to "?", which indicates that the TE configuration program should prompt the user for the appropriate value. For example, this parameter causes the terminal to prompt the user to select a screen mode from the list of values. Following is a sample setup file. `Screen Mode = ?;`

```
Program Name = MYCUSTOM;

Screen Mode = Page Mode;

Host A.Port Number = 1;

Data Stream = VT220;
Code 39.Encoded = Enabled;
Extended Cmds = Enabled;
```

CONFIG.DAT Parameter Formats

You can direct the complete parameter list with value definitions to a file using this command: `CHECKCFG –P CFGLIT.DAT > parms.txt`

Each parameter in the setup file is followed by one of three different formats that indicates the type of parameter and the values it can contain.

- **Literal strings.** List of fixed values to choose from. Session 1 or 2 may qualify Screen Mode. It may take the value Center Cursor, Corner Mode, Page Mode, Lazy Mode, or Locked Mode. Session 1 is the default qualifier. These configuration lines are valid:

  ```
  Screen Mode = Lazy Mode;
  Session 1.Screen Mode = Lazy Mode;
  Session 2.Screen Mode = Lazy Mode;
  ```

- **Numeric parameters.** Numeric parameters have minimum and maximum values. Parameters can be either decimal or hexadecimal:

  - Decimal parameters consist of digits 0 through 9.
  - Hexadecimal parameters consist of 0x or 0X, followed by 1 to 4 digits of 0 through 9, a through f, or A through F. These are equivalent: 160, 0xA0, and 0Xa0.

  Port Number is a variable with a minimum value of 0 and a maximum of 65535. These lines are valid:

  ```
  Port Number = 1;
  Session 1.Host A.Port Number = 1;
  Session 2.Host A.Port Number = 1;
  ```

- **String parameters.** String parameters are variables with minimum and maximum lengths.

  Program Name is unqualified. It must have eight characters. These configuration lines are valid:

  ```
  Program Name = ABCDEFGH;
  Program Name = FWP248H0;
  ```

Verifying Your CONFIG.DAT Configuration

Use the CHECKCFG utility to verify that you properly configured your set-up file. CHECKCFG reads your configuration and reports any syntax errors. To get the utility, contact your Systems Engineer.

To verify your configuration, type

`checkcfg <input config file> cfglit.dat config.dat`

- *<input config file>* is the name of your parameter set-up file.
- CFGLIT.DAT contains the strings that appear in the configuration menus, parameter files, and system messages.
- CONFIG.DAT is the name of the output file you will download to the terminal. You must name this file CONFIG.DAT.

You are ready to download the CONFIG.DAT file to the terminal when CHECKCFG reports no errors. For download instructions, see "*Downloading Files"* on page 263.

If CHECKCFG reports an error, use a text editor to open and correct the set-up file. This chart lists the system messages CHECKCFG may display.

Default String	Description	ID #
Can't open file	Could not locate the input config (configuration) file	F000
Bad option name	Right side of expression in input config file has an invalid name	F001
Syntax error	Input config file contains a syntax error	F002
Bad string length	Right side of expression in input config file has a string too long for specified parameter	F003
Unknown type	Parameter table in config program has a bad value *(testing purposes only, should not occur)*	F004
Value out of range	Right side of expression in input config file has an out-of-range # for specified parameter	F005
Bad value	Right side of expression in input config file has an invalid string for specified parameter	F006
Expected numeric	Right side of expression in input config file contains nonnumeric data instead of a numeric value	F007
Missing '='	A line in the input config file does not contain the required "=" (equal sign)	F008
Missing ';'	A line in the input config file is not terminated by a ";" (semicolon)	F009

CONFIG.DAT Parameters and Qualifiers

Note: If parameters are duplicated, an error is not generated. Instead, the terminal processes the entire file and uses the last entered value of the duplicated parameter.

Parameters in the set-up file apply to all model numbers unless otherwise noted here. The following pages list each parameter and its qualifiers. Some qualifiers have default values. If you want to use the default value, you can omit the qualifier from the parameter set-up file. Default qualifiers are listed between square brackets "[ ]" in this chapter.

The CFGLIT.DAT file specifies the text of set-up menus or system messages. Parameters and qualifier strings in the set-up file assume you are using the default CFGLIT.DAT file. To customize CFGLIT.DAT, see *"Changing Text"* on page 252.

Trakker Antares terminals using WTP (2415, 2425, 2435A, 2455, 2475, and 248X), support dual sessions. If the terminals use UDP Plus or TCP/IP, then dual sessions are *not* supported.

Note: Only WTP terminals support dual sessions ("Session 2"). For a list of terminals with WTP, see Chapter 1, "*Getting Started*."

Set-Up Parameters Options

Note that brackets indicate default settings and values.

Set-Up Parameters Options

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CV60)* **Session 4** *(700 Series, CV60)*	**Values**	**Terminals using this option**
Channel *(900 MHz radio).*	[Host A].Channel Host B.Channel Host C.Channel	10, 25, 30, 25, 30, 35, 40	6400, 5020, 5055, 11XX, 17XX, 59XX
Data Stream ***Note**: For TE 2000 application versions 6.60 and greater, "VT/ANSI" is the default data stream.*	[Host A].Data Stream Host B.Data Stream Host C.Data Stream	Native *(blank if UDP Plus or TCP/IP)*, 3270, 5250, [VT/ANSI]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Frequency *(S-UHF radio)*	[Host A].Frequency Host B.Frequency Host C.Frequency	Numeric, minimum = 0, maximum = 0xFFFFFFFF	6400, 5020, 5055, 11XX, 17XX, 59XX
Host Name	[Host A].Host Host B.Host Host C.Host	String, minimum = 0, maximum = 16 [null string]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Lan ID	[Host A].Lan Host B.Lan Host C.Lan	Numeric, minimum = 0, maximum = 254 [0] *applies to 900 MHz* Numeric, minimum = 0, maximum = 15 [0] *applies to 2.4 GHz OpenAir*	6400, 5020, 5055, 11XX, 17XX, 59XX

Set-Up Parameters Options (continued)

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CV60)* **Session 4** *(700 Series, CV60)*	**Values**	**Terminals using this option**
Mode	[Host A].Mode Host B.Mode Host C.Mode	*For 900 MHz radio:* DS 225K, DS 090K, DS 450K *For S-UHF radio*: Freq Agility, Single Freq	6400, 5020, 5055, 11XX, 17XX, 59XX
Port Number	[Host A].Port Number Host B.Port Number Host C.Port Number	Numeric, minimum = 0, maximum = 65535 [23]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Radio Configuration Number	[Host A].Radio Config# Host B.Radio Config# Host C.Radio Config#	Numeric, minimum = 0, maximum = 255 [0]	6400, 5020, 5055, 11XX, 17XX, 59XX
Radio Number (*same as unit number*)	[Host A].Radio # Host B.Radio # Host C.Radio #	Numeric, minimum = 0, maximum = 127 [127]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
RTC over TCP	[Host A].RTC over TCP Host B.RTC over TCP Host C.RTC over TCP	Enabled, [Disabled]	CK30, CV60
Server IP	[Host A].Server IP Host B.Server IP Host C.Server IP	Numeric, minimum = 1, maximum = 16 [16]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
SNA	SNA	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Telnet	Telnet	[Enabled}* [Disabled}**	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [Enabled] is the default for 2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5055 with TE over IP options. ** [Disabled] is the default for 5020, 59XX, 17XX, 11XX, 700 Series, CK30, CV60.			
Terminal Type	[Host A].Terminal Type Host B.Terminal Type Host C.Terminal Type	Numeric, minimum = 0, maximum = 255 [255]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Set-Up Parameters Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Unit Number *(same as radio number)*	[Host A].Unit # Host B.Unit # Host C.Unit #	Numeric, minimum = 0, maximum = 127 [127]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Bar Code Parameters

Note that brackets indicate default settings and values.

Bar Code Parameters

Parameters	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this parameter
BC Type Character	BC Type Char	Enabled, [Disabled]	6400, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Code 39 Encoded	Code 39 Encoded	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Concatenate	Concatenate	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 700 Series, CK30, CV60
MOD 10 Check	MOD 10 Check	Enabled, [Disabled]	6400, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
ParmsBySession	ParmsBySession	Enabled, [Disabled]	6400, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Redundancy	Redundancy	Enabled, [Disabled]	6400, 11XX, 17XX, 59XX
RS-232 Stream	RS-232 Stream	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 5020
Scan All Fields	Scan All Flds	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Scan Postamble Character	Scan PostChar	Numeric, minimum = 0, maximum = 255 [0]	6400, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Bar Code Parameters (continued)

Parameters	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this parameter
Scan Preamble Character	Scan PreChar	Numeric, minimum = 0, maximum = 255 [0]	6400, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Scan Timeout	Scan Timeout	Numeric, minimum = 1, maximum = 200 [30]	11XX, 17XX, 59XX, 700 Series, CK30, CV60
Scanner Type 6400, 5055 *support Laser only*	Scanner Type	[No Scanner], Wand, Laser, Wand Emulate, Auto Detect	6400, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Stream Scan	Stream Scan	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Bar Code Symbologies

Note that brackets indicate default settings and values.

Bar Code Symbologies

Symbologies	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this symbology
ABC Codabar	ABC Codabar	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Codabar	Codabar	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Code 11	Code 11	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 5020, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Code 39	Code 39	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Bar Code Symbologies (continued)

Symbologies	**[Session 1]** **Session 2** **Session 3** *(700 Series, CV60)* **Session 4** *(700 Series, CV60)*	**Values**	**Terminals using this symbology**
Code 93	Code 93	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Code 128	Code 128	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Computer Identics 2 of 5	CI 2of5	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
EAN	EAN	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Interleaved 2 of 5	Int 2of5	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Plessey *(6400 does not support Plessey alpha characters)*	Plessey	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Straight 2 of 5	Str 2of5	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
UPC	UPC	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Generic Bar Code Options

Note that brackets indicate default settings and values.

Note: Generic bar code options must be qualified by one of the bar code symbology strings. For example: "Session 1.UPC.Max Length = 13;"

Generic Bar Code Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Drop Leading	UPC.Drop Leading EAN.Drop Leading Code 128.Drop Leading Code 39.Drop Leading Codabar.Drop Leading ABC Codabar.Drop Leading Str 2of5.Drop Leading Int 2of5.Drop Leading CI 2of5.Drop Leading Code 11.Drop Leading Code 93.Drop Leading Plessey.Drop Leading	Numeric, minimum = 0, maximum = 15 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Drop Trailing	UPC.Drop Trailing EAN.Drop Trailing Code 128.Drop Trailing Code 39.Drop Trailing Codabar.Drop Trailing ABC Codabar.Drop Trailing Str 2of5.Drop Trailing Int 2of5.Drop Trailing CI 2of5.Drop Trailing Code 11.Drop Trailing Code 93.Drop Trailing Plessey.Drop Trailing	Numeric, minimum = 0, maximum = 15 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Fixed Length 1	UPC.Fix Length 1 EAN.Fix Length 1 Code 128.Fix Length 1 Code 39.Fix Length 1 Codabar.Fix Length 1 ABC Codabar.Fix Length 1 Str 2of5.Fix Length 1 Int 2of5.Fix Length 1 CI 2of5.Fix Length 1 Code 11.Fix Length 1 Code 93.Fix Length 1 Plessey.Fix Length 1	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Generic Bar Code Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Fixed Length 2	UPC.Fix Length 2 EAN.Fix Length 2 Code 128.Fix Length 2 Code 39.Fix Length 2 Codabar.Fix Length 2 ABC Codabar.Fix Length 2 Str 2of5.Fix Length 2 Int 2of5.Fix Length 2 CI 2of5.Fix Length 2 Code 11.Fix Length 2 Code 93.Fix Length 2 Plessey.Fix Length 2	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Fixed Length 3	UPC.Fix Length 3 EAN.Fix Length 3 Code 128.Fix Length 3 Code 39.Fix Length 3 Codabar.Fix Length 3 ABC Codabar.Fix Length 3 Str 2of5.Fix Length 3 Int 2of5.Fix Length 3 CI 2of5.Fix Length 3 Code 11.Fix Length 3 Code 93.Fix Length 3 Plessey.Fix Length 3	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Fixed Length 4	UPC.Fix Length 4 EAN.Fix Length 4 Code 128.Fix Length 4 Code 39.Fix Length 4 Codabar.Fix Length 4 ABC Codabar.Fix Length 4 Str 2of5.Fix Length 4 Int 2of5.Fix Length 4 CI 2of5.Fix Length 4 Code 11.Fix Length 4 Code 93.Fix Length 4 Plessey.Fix Length 4	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Generic Bar Code Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Maximum Length	UPC.Max Length EAN.Max Length Code 128.Max Length Code 39.Max Length Codabar.Max Length ABC Codabar.Max Length Str 2of5.Max Length Int 2of5.Max Length CI 2of5.Max Length Code 11.Max Length Code 93.Max Length Plessey.Max Length	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Minimum Length	UPC.Min Length EAN.Min Length Code 128.Min Length Code 39.Min Length Codabar.Min Length ABC Codabar.Min Length Str 2of5.Min Length Int 2of5.Min Length CI 2of5.Min Length Code 11.Min Length Code 93.Min Length Plessey.Min Length	Numeric, minimum = 0, maximum = 99 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

UPC Options

Note that brackets indicate default settings and values.

UPC Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Add-On 2	UPC.Add-On 2	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Add-On 5	UPC.Add-On 5	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

UPC Options (continued)

Options	[Session 1] Session 2 Session 3 (700 Series, CV60) Session 4 (700 Series, CV60)	Values	Terminals using this option
Expand E to A	UPC.Expand E to A	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
System 0 UPCE	UPC.Sys 0 UPCE	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
System 1 UPCE	UPC.Sys 1 UPCE	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

EAN Options

Note that brackets indicate default settings and values.

EAN Options

Options	[Session 1] Session 2 Session 3 (700 Series, CV60) Session 4 (700 Series, CV60)	Values	Terminals using this option
Add-On 2	EAN.Add-On 2	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Add-On 5	EAN.Add-On 5	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Expand 8 to 13	EAN.Expand 8to13	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Code 39 Options

Note that brackets indicate default settings and values.

Code 39 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Auto-Encoded	Code 39.Auto-Encoded	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Check Digit	Code 39.Chk Digit	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Data Decode	Code 39.Data decode	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Element Decode	Code 39.Element decod	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Encoded	Code 39.Encoded	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Extended	Code 39.Extended	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Full ASCII	Code 39.Full ASCII	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Quiet Zone	Code 39.Quiet zone	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Code 39 Options (continued)

Options	[Session 1] Session 2 Session 3 (700 Series, CV60) Session 4 (700 Series, CV60)	Values	Terminals using this option
START Decode	Code 39.START decode	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Interleaved 2 of 5 Option

Note that brackets indicate default settings and values.

Interleaved 2 of 5 Options

Options	[Session 1] Session 2 Session 3 (700 Series, CV60) Session 4 (700 Series, CV60)	Values	Terminals using this option
Interleaved 2 of 5 Chk Digit	Interleaved 2 of 5 Chk Digit	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Code 11 Options

Note that brackets indicate default settings and values.

Code 11 Options

Options	[Session 1] Session 2 Session 3 (700 Series, CV60) Session 4 (700 Series, CV60)	Values	Terminals using this option
Check Digit 1	Code 11.Chk Dig 1	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Check Digit 2	Code 11.Chk Dig 2	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Plessey Options

Note that brackets indicate default settings and values.

Plessey Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Allow Alpha	Plessey.Allow Alpha	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
MOD 10 Check	Plessey.MOD10 Chk	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
MOD 11 Check	Plessey.MOD11 Chk	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Code 128 Options

Note that brackets indicate default settings and values.

Code 128 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
No UCC Type	Code 128.NO UCC Type	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
UCC/EAN	Code 128.UCC/EAN	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Code 128 Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
UCC F1 Value	UPC.UCC F1 Value EAN.UCC F1 Value Code 128.UCC F1 Value Code 39.UCC F1 Value Codabar.UCC F1 Value ABC Codabar.UCC F1 Value Str 2of5.UCC F1 Value Int 2of5.UCC F1 Value CI 2of5.UCC F1 Value Code 11.UCC F1 Value Code 93.UCC F1 Value Plessey.UCC F1 Value	Numeric, minimum = 0, maximum = 255	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

VT/ANSI Protocol Options

Note that brackets indicate default settings and values.

VT/ANSI Protocol Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Allow LineMode	Allow LineMode	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Allow Negotiate About Window Size (NAWS)	Allow NAWS	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
AnswerBack	AnswerBack	String, minimum length=0, maximum length = 30 *	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
*The default string default is the terminal serial number for 700 Series, CK30, and CV60 terminals, otherwise it is a null string.			
Any Auto Enter	Any Auto Enter	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Auto Enter Scan	Auto Entr Scn	[Enabled]* [Disabled]**	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [Enabled] is the default for TE 2000 application version 6.60 or greater. ** [Disabled] is the default for TE 2000 application versions less than 6.60.			

VT/ANSI Protocol Options (continued)

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CV60)* **Session 4** *(700 Series, CV60)*	Values	Terminals using this option
Auto Tab Scan	Auto Tab Scan	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Auto Wrap	Auto Wrap	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
CR to CRLF	CR to CRLF	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
DEL to BS	DEL to BS	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Discrete Bells	DiscreteBells	Enabled, [Disabled]	6400, 5055, 11XX, 17XX, 59XX
Do Gold Key	Do Gold Key	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Do UTF-8	Do UTF8	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Extended Commands	Extended Cmds	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Host View Columns	Host View Cols	Numeric, minimum = 1, maximum = 255 [24]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

VT/ANSI Protocol Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Host View Rows	Host View Rows	Numeric, minimum = 1, maximum = 255 [80]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Keypad Mode	Keypad Mode	[Numeric], Application	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Local Echo	Local Echo	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Lock Mode	Lock Mode	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
RS-232 Baud Rate	RS232 BaudRate	1200 *(6400, 11XX, 17XX, 59XX)*, 2400 *(6400, 11XX, 17XX, 59XX)*, 4800 *(6400, 11XX, 17XX, 59XX)*, [9600], 19200, 38400, 57600 *(5020, 700 Series, CK30, CV60)*, 115200 *(5020, 700 Series, CK30, CV60)*	6400, 5055, 5020, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
RS-232 Data Bits	RS232 DataBits	7, [8]	6400, 5055, 11XX, 17XX, 59XX
RS-232 Flow	RS232 Flow	[NONE], DTR, XON/XOFF	6400, 5055, 11XX, 17XX, 59XX
RS-232 Parity	RS232 Parity	[NONE], EVEN, ODD	6400, 5055, 11XX, 17XX, 59XX
RS-232 Stop Bits	RS232 StopBits	[1], 2	6400, 5055, 11XX, 17XX, 59XX
Screen Lock	Screen Lock	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

VT/ANSI Protocol Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Send XON	Send XON	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Telnet	Telnet	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Terminal Mode	Terminal Mode	[7-Bit], 8-Bit	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Terminal Type	Terminal Type	String, minimum = 0, maximum = 30, [Null string, not defined]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Terminal Setup	Term Setup	ANSI, VT100, VT220, VT320, [VT340], IBM 330x	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Transmit BS	Transmit BS	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Use PC Character Set	Use PC Char Set	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
User Key Locked	UserKey Locked	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
VT Cursor Mode	VT Cursor Mode	[Cursor], Application	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

VT/ANSI Protocol Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
VT220 Mode	VT220 Mode	[Char], Block	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Display Options

Note that brackets indicate default settings and values.

Display Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Backlight State	Backlight State	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Backlight Timer	Backlight Timer	Numeric, minimum = [0], maximum = 60 *(2415, 2425, 2435A, 2455, 2475, 248X)* Numeric, minimum = [0], maximum = 255 *(6400, 17XX, 11XX, 700 Series)*	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 11XX, 17XX, 59XX, 700 Series
Code Page	Code Page	[English], Cyrillic (Russian), Greek, Hebrew, Central Europe, Latin 2	700 Series, CK30, CV60
Contrast Mode	Contrast Mode	[Compensated], Absolute	11XX, 17XX, 59XX
Cursor Mode	Cursor Mode	[Underln Blink]* *(not supported on 5020)* Block Blink *(not supported on 5020)* Underline *(6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CV60)* [Block]** *(6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CV60)*	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [Underln Blink] is the default for 2415, 2425, 2435A, 2455, 2475, 248X. ** [Block] is the default for 6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30, CV60.			
Font Quality	Font Quality	[Standard], Clear Type	CK30
Remote Baud	Remote Baud	9600, 19200, [38400]	11XX, 17XX
Remote Display	Remote Disp	Enabled, [Disabled]	11XX, 17XX

Display Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Remote Display Remote Columns	Remote Cols	Numeric, minimum = 1, maximum = 255 [80]	11XX, 17XX
Remote Display Remote Rows	Remote Rows	Numeric, minimum = 1, maximum = 255 [24]	11XX, 17XX
Remote Display Remote Type	Remote Type	VT100, VT220, [ANSI]	11XX, 17XX
Select Font	Select Font	Lucida]*, [Courier New]**, [Courier New Bold]***, Tahoma	700 Series, CK30, CV60
* [Lucida] is the default for CK30. ** [Courier New] is the default for CV60. *** [Courier New Bold] is the default for 700 Series.			
Software Input Panel Toggle	SIP Toggle	Enabled, [Disabled]	700 Series, CV60

Radio Communications Options

Set the Security ID for 2415, 2425, 2435A, 2455, 2475, 248X terminals without an 802.1x supplicant radio driver or UDP Plus installed through the Trakker Antares 2400 Menu System. Note that brackets indicate default settings and values.

Radio Communications Options

Options	[Session 1] Session 2	Values	Terminals using this option
Baud Rate *(UHF radio)* Note that the default depends on the type of radio in the terminal.	Radio Baud Rate	4800, 4800/9600, 9600	2415, 2425, 2435A, 2455, 2475, 248X with 802.1x supplicant radio driver or UDP Plus installed, 6400, 5055, 11XX, 17XX, 59XX
Disconnection Value	Disconnect Val	Numeric, minimum = 1, maximum = 10 [2]	2415, 2425, 2435A, 2455, 2475, 248X with UDP Plus installed
Protocol Note the default depends on the radio type and is either RTC or SST.	Radio Protocol	*The following qualifiers apply to UHF:* RTC, Adaptive Poll, RTC-Diag Mode, *The following qualifiers apply to SST:* SST, SST-Diag Mode	6400, 5055, 11XX, 17XX, 59XX

Radio Communications Options (continued)

Options	[Session 1] Session 2	Values	Terminals using this option
Security ID	Security ID	String, minimum length=0, maximum length=16 [null string] Default is NORANDOWL for 6400, 5055, 59XX, 17XX, 11XX.	2415, 2425, 2435A, 2455, 2475, 248X with 802.1x supplicant radio driver or UDP Plus installed, 6400, 5055, 11XX, 17XX, 59XX
User Authentication	User Auth	Enabled, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X with 802.1x supplicant radio driver installed

More Options

Note that brackets indicate default settings and values.

More Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Change Menu Password You must enable and set the password to access the Main Menu before you can change it. To set the password, see above.	Change Menu Password	String, minimum length = 1, maximum length = 10 [3193693] *To enable the password, see "Main Menu password."*	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
COM Select	Com Select	[COM 1], COM 2	248X, 5055
Main Menu Password You must enable and set the password to access the Main Menu. To enable or disable the password, see above.	Menu Password	Enabled, [Disabled] *To set the password, see "Change menu password."*	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Print Device	Print Device	[RS232 Print], IRDA Print *(6400, 5020, 700 Series, CV60)* RF Print *(700 Series, CK30, CV60)* Pan Print *(700 Series, CK30 Bluetooth Printing)*	6400, 5020, 700 Series, CK30, CV60
Printer Address	Printer Address	String, minimum length=0, maximum length=16 [null string]	5020, 700 Series, CK30, CV60
Printer Port	Printer Port	Numeric, minimum = 0, maximum = 65535 [23]	5020, 700 Series, CK30, CV60

LCD Options

Note that brackets indicate default settings and values.

LCD Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Annunciator Format	Annun Format	[Vertical]*, [Horizontal]**	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [Vertical] is the default for 2455, 2475, 248X, 5020, 5055, 59XX, 700 Series, CK30. ** [Horizontal] is the default for 2415, 2425, 2435A, 6400, CV60.			
Annunciator Position	Annun Position	Upper Right, Upper Left, [Lower Right]*, Lower Left, [Stealth]**	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [Lower Right] is the default for 6400, 5020, 5055, 59XX, 17XX, 11XX, 700 Series, CK30. ** [Stealth] is the default for 2415, 2425, 2435A, 2455, 2475, 248X, CV60.			
Backlight Intensity	BLight Intensity	Numeric, minimum = 0, maximum = 15	59XX
Define Height (Scroll Window)	Define Height	Numeric, minimum = 1, maximum = 24 [8]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Define Width (Scroll Window)	Define Width	Numeric, minimum = 1, maximum = 80 [8]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Key Uppercase	Key Uppercase	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
LCD Contrast	LCD Contrast	Numeric, minimum = [0], maximum = 255	17XX, 59XX
Screen Columns	Screen Cols	Numeric, minimum = 1, maximum = 255 [16]*, [17]**, [19]***, [20]****, [40]*****, [80]******, [16]*******	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [16] is the default for 11XX. ** [17] is the default for 17XX. *** [19] is the default for 2435A. **** [20] is the default for 2415, 2425, 2455, 2475, 2481, 2486. ***** [40] is the default for 2480, 2485, 59XX. ****** [80] is the default for 5055, CV60. ******* [16] is default for 6400 Wide Display, 5020, 700 Series, CK30.			
Screen Mode	Screen Mode	Center Cursor, [Corner Mode], Page Mode, Lazy Mode, Locked Mode	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

LCD Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Screen Rows	Screen Rows	Numeric, minimum = 1, maximum = 255 [8]*, [8]**, [10]***, [16]****, [17]*****, [25]******, [16]*******	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
* [8] is the default for 11XX. ** [8] is the default for 17XX. *** [10] is the default for 5020, 59XX, 700 Series, CK30. **** [16] is the default for 2415, 2425, 2435A, 2455, 2475, 2481, 2486. ***** [17] is the default for 2480, 2485. ****** [25] is the default for 5055, CV60. ******* [16] is the default for 6400 Wide Display.			
Scroll Window	Scroll Window	Screen Size, Scroll Setting, [Tab Size]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
XOrigin	XOrigin	Numeric minimum = 0, maximum = 79 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
YOrigin	YOrigin	Numeric minimum = 0, maximum = 23 [0]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Beeper Setup Options

Note that brackets indicate default settings and values.

Beeper Setup Options

Options	[Session 1] Session 2	Values	Terminals using this option
Beep Head Set	Beep Head Set	Enabled, [Disabled]	17XX
Beep Internal	Beep Internal	[Enabled], Disabled	6400, 5055, 11XX, 17XX
Beeper (Error Tone) Frequency	Beep Frequency	Numeric, minimum = 0, maximum = 30 [13]*, [6]**	6400, 5055, 11XX, 17XX
* [13] is the default for 17XX, 11XX. ** [6] is the default for 6400.			
Beeper (Error Tone) Length	Beep Length	Numeric, minimum= 1 , maximum= 10 [3]	6400, 5055, 11XX, 17XX, 59XX
Beeper (Error Tone) Volume	Beep Volume	Numeric, minimum = 0, maximum = 255 [95]	59XX
Key Click Frequency	KeyClick Freq	Numeric, minimum = 0, maximum = 30 [13]*, [6]**	6400, 5055, 11XX, 17XX
* [13] is the default for 17XX, 11XX. ** [6] is the default for 6400.			

Beeper Setup Options (continued)

Options	[Session 1] Session 2	Values	Terminals using this option
Key Click Length	KeyClick Length	Numeric, minimum = 1, maximum = 10 [1]*, [6]**	6400, 5055, 11XX, 17XX, 59XX
* [1] is the default for 59XX, 17XX, 11XX. ** [6] is the default for 6400, 5055.			
Key Click Volume	KeyClick Volume	Numeric, minimum = 0, maximum = 255 [95]	59XX

More (Main Menu 2) **Option**

Note that brackets indicate default settings and values.

More** (Main Menu 2) **Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this option
Foreground Session	Foreground Sess	None	2415, 2425, 2435A, 2455, 2475, 248X with WTP protocol stack, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Session Name	Session Name	String, minimum length = 0, maximum length = 64 [null string]	700 Series, CK30, CV60
Set Hot Key	Set Hot Key	F1 *through* F24, [Disabled]	2415, 2425, 2435A, 2455, 2475, 248X with WTP protocol stack, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Type-Ahead	Type-Ahead	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

Additional Parameters

These parameters do not have equivalent TE 2000 configuration menu options. Note that brackets indicate default settings and values.

Additional Parameters

Parameters	[Session 1] Session 2 Session 3 *(700 Series, CV60)* Session 4 *(700 Series, CV60)*	Values	Terminals using this parameter
Alternate Screen Columns	Alt Screen Cols	Numeric, minimum = 1, maximum = 255 [17]*, [40]**, [16]***	6400, 5055, 17XX
* [17] is the default for 17XX. ** [40] is the default for 5055. *** [16] is the default for 6400.			
Alternate Screen Rows	Alt Screen Rows	Numeric, minimum = 1, maximum = 255, [8]*, [12]**, [16]***	6400 Wide Display, 5055, 17XX
* [8] is the default for 17XX. ** [12] is the default for 5055. *** [16] is the default for 6400 Wide Display.			
Double Byte Character Set (DBCS) Code	DBCS Code	Numeric, minimum = 0, maximum = 16 [0]	59XX
Key Repeat	Key Repeat	Enabled, [Disabled]	59XX
Program Name *(appears on initialization and version screens)*	Program Name	String, minimum length = 1, maximum length = 8	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Program Version *(appears on initialization and version screens)*	Program Version	String, minimum length = 1, maximum length = 4	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Return Result This is a test feature for VT/ANSI emulation; if disabled, extended commands (for #K only) does not return a result to the host application.	Return Result	[Enabled], Disabled	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60
Set-Up Parms Menu Password	Password	String, minimum length = 1, maximum length = 10 [CR52401]	2415, 2425, 2435A, 2455, 2475, 248X, 6400, 5020, 5055, 11XX, 17XX, 59XX, 700 Series, CK30, CV60

TE_SETTINGS.INI Settings

For 700 Series, CK30, CK31, CV60 Terminals with TE 2000 application versions 8.00 or greater, the following settings are available.

Upgrading from CONFIG.DAT Configuration

Note that the settings from the CONFIG.DAT file are the same as the settings for the TE_SETTINGS.INI file. For example, the CONFIG.DAT setting: `[Host A].Host` would appear as `session_1|host_a|host = 136.179.84.76` in the TE_SETTINGS.INI file.

All values follow the [**iccu values**] section and use the pipe character to separate the names. The settings and literals are the same as the old CONFIG.DAT with the exception of the use of the different naming convention using the pipe ("|"). Below are a few values from the CONFIG.DAT file as they appear in the TE_SETTINGS.INI file.

```
[iccu values]
  session_1|host_a|host = 136.179.84.76
  session_1|host_a|port_number = 23
  session_1|destructive_bs = 0
```

TE_SETTINGS.INI Configuration

`"enable_sip" = 0 or 1`

This enables or disables the interaction between the TE 2000 application and the onscreen keyboard. If this value is 1, the TE 2000 application displays the SIP when it starts and when it gains focus. If this value is 0, the TE 2000 application does not display the SIP and it does not toggle the SIP when you click the SIP toggle button.

`"sip_settings" = {674EC110-EFF0-47D3-B828-CDB2A6CCD3EB}`

This is a GUID (globally unique identifier) that identifies the SIP that the TE 2000 application is to use as its default. This can be the GUID of any registered SIP in the system.

These are for debugging purposes only. They inform which version of the TE 2000 application created the TE_SETTINGS.INI file.

- program_name = FWP700H0
- program_version = 7.53

TE_SETTINGS.INI Parameter Formats

Each parameter in the setup file is followed by one of three different formats that indicates the type of parameter and the values it can contain. Formats are as follows:

- **Literal strings.** List of fixed values to choose from. Session 1 or 2 may qualify Screen Mode. It may take the value Center Cursor, Corner Mode, Page Mode, Lazy Mode, or Locked Mode. Session 1 is the default qualifier. These configuration lines are valid:

  ```
  screen_mode = Lazy Mode;
  session_1|screen_mode = Lazy Mode;
  session_2|screen_mode = Lazy Mode;
  ```

- **Numeric parameters.** Numeric parameters have minimum and maximum values. Parameters can be either decimal or hexadecimal:
  - Decimal parameters consist of digits 0 through 9.
  - Hexadecimal parameters consist of 0x or 0X, followed by 1 to 4 digits of 0 through 9, a through f, or A through F. These are equivalent: 160, 0xA0, and 0Xa0.

  Port Number is a variable with a minimum value of 0 and a maximum of 65535. These lines are valid:

```
port_number = 1;
session_1|host_a|port_number = 1;
session_2|host_a|port_number = 1;
```

- **String parameters.** String parameters are variables with minimum and maximum lengths.

  Program Name is unqualified. It must have eight characters. These configuration lines are valid:

```
program_name = ABCDEFGH;
program_name = FWP248H0;
```

TE_SETTINGS.INI Parameters and Qualifiers

Note: If parameters are duplicated, an error is not generated. Instead, the terminal processes the entire file and uses the last entered value of the duplicated parameter.

Parameters in the set-up file apply to all model numbers unless otherwise noted here. The following pages list each parameter and its qualifiers. Some qualifiers have default values. If you want to use the default value, you can omit the qualifier from the parameter set-up file.

The CFGLIT.DAT file specifies the text of set-up menus or system messages. Parameters and qualifier strings in the set-up file assume you are using the default CFGLIT.DAT file. To customize CFGLIT.DAT, see *"Changing Text"* on page 252.

Note: Only WTP terminals support dual sessions ("Session 2"). For a list of terminals with WTP, see Chapter 1, "*Getting Started*."

Set-Up Parameters Options

Note that brackets indicate default settings and values.

Set-Up Parameters Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Data Stream	host_a|data_stream *(default)* host_b|data_stream host_c|data_stream	Native *(blank if UDP Plus or TCP/IP)*, 3270, 5250, [VT/ANSI]	700 Series, CK30, CK31, CV60
Host Name	host_a|host *(default)* host_b|host host_C|host	String, minimum = 0, maximum = 16 [null string]	700 Series, CK30, CK31, CV60

Set-Up Parameters Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Port Number	host_a|port_number *(default)* host_b|port_number host_c|port_number	Numeric, minimum = 0, maximum = 65535 [23]	700 Series, CK30, CK31, CV60
Radio Number (*same as unit number*)	host_a|radio_# *(default)* host_b|radio_# host_c|radio_#	Numeric, minimum = 0, maximum = 127 [127]	700 Series, CK30, CK31, CV60
RTC over TCP	host_a|rtc_over_tcp *(default)* host_b|rtc_over_tcp host_c|rtc_over_tcp	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Server IP	host_a|server_ip *(default)* host_b|server_ip host_c|server_ip	Numeric, minimum = 1, maximum = 16 [16]	700 Series, CK30, CK31, CV60
SNA	sna	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Telnet	telnet	Enabled, [Disabled}	700 Series, CK30, CK31, CV60
Terminal Type	host_a|terminal_type *(default)* host_b|terminal_type host_c|terminal_type	Numeric, minimum = 0, maximum = 255 [255]	700 Series, CK30, CK31, CV60
Unit Number *(same as radio number)*	host_a|unit_# *(default)* host_b|unit_# host_c|unit_#	Numeric, minimum = 0, maximum = 127 [127]	700 Series, CK30, CK31, CV60

Bar Code Parameters

Note that brackets indicate default settings and values.

Bar Code Parameters

Parameters	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this parameter
BC Type Character	bc_type_char	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Code 39 Encoded	code_39_encoded	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Concatenate	concatenate	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
MOD 10 Check	mod_10_check	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
ParmsBySession	parmsbysession	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Bar Code Parameters (continued)

Parameters	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this parameter
Scan All Fields	scan_all_flds	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Scan Postamble Character	scan_postchar	Numeric, minimum = 0, maximum = 255 [0]	700 Series, CK30, CK31, CV60
Scan Preamble Character	scan_prechar	Numeric, minimum = 0, maximum = 255 [0]	700 Series, CK30, CK31, CV60
Scanner Type	scanner_type	[No Scanner], Wand, Laser, Wand Emulate, Auto Detect	700 Series, CK30, CK31, CV60
Stream Scan	stream_scan	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Use Wedge Mode	use_wedge_mode	[Enabled], Disabled	700 Series, CK30, CK31, CV60

Bar Code Symbologies

Note that brackets indicate default settings and values.

Bar Code Symbologies

Symbologies	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this symbology
ABC Codabar	abc_codabar	Scanner_type = 33	700 Series, CK30, CK31, CV60
Codabar	codabar	Scanner_type = 32	700 Series, CK30, CK31, CV60
Code 11	code_11	Scanner_type = 56	700 Series, CK30, CK31, CV60
Code 39	code_39	Scanner_type = 40	700 Series, CK30, CK31, CV60
Code 93	code_93	Scanner_type = 72	700 Series, CK30, CK31, CV60
Code 128	code_128	Scanner_type = 64	700 Series, CK30, CK31, CV60
Computer Identics 2 of 5	ci_2of5	Scanner_type = 50	700 Series, CK30, CK31, CV60
EAN	ean	Scanner_type = 17	700 Series, CK30, CK31, CV60
Interleaved 2 of 5	int_2of5	Scanner_type = 51	700 Series, CK30, CK31, CV60
Plessey	plessey	Scanner_type = 8	700 Series, CK30, CK31, CV60

Bar Code Symbologies (continued)

Symbologies	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this symbology
Straight 2 of 5	str_2of5	Scanner_type = 49	700 Series, CK30, CK31, CV60
UPC	upc	Scanner_type = 16	700 Series, CK30, CK31, CV60

Generic Bar Code Options

Note that brackets indicate default settings and values.

Note: Generic bar code options must be qualified by one of the bar code symbology strings. For example: "session_1|upc|max_length = 13;"

Generic Bar Code Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Drop Leading	upc|drop_leading ean|drop_leading code_128|drop_leading code_39|drop_leading codabar|drop_leading abc_codabar|drop_leading str_2of5|drop_leading int_2of5|drop_leading ci_2of5|drop_leading code_11|drop_leading code_93|drop_leading plessey|prop_leading	Numeric, minimum = 0, maximum = 15 [0]	700 Series, CK30, CK31, CV60
Drop Trailing	upc|drop_trailing ean|drop_trailing code_128|drop_trailing code_39|drop_trailing codabar|drop_trailing abc_codabar|drop_trailing str_2of5|drop_trailing int_2of5|drop_trailing ci_2of5|drop_trailing code_11|drop_trailing code_93|drop_trailing plessey|drop_trailing	Numeric, minimum = 0, maximum = 15 [0]	700 Series, CK30, CK31, CV60

Generic Bar Code Options (continued)

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CK30, CK31, CV60)* **Session 4** *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Fixed Length 1	upc|fix_length_1 ean|fix_length_1 code_128|fix_length_1 code_39|fix_length_1 codabar|fix_length_1 abc_codabar|fix_length_1 str_2of5|fix_length_1 int_2of5|fix_length_1 ci_2of5|fix_length_1 code_11|fix_length_1 code_93|fix_length_1 plessey|fix_length_1	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60
Fixed Length 2	upc|fix_length_2 ean|fix_length_2 code_128|fix_length_2 code_39|fix_length_2 codabar|fix_length_2 abc_codabar|fix_length_2 str_2of5|fix_length_2 int_2of5|fix_length_2 ci_2of5|fix_length_2 code_11|fix_length_2 code_93|fix_length_2 plessey|fix_length_2	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60
Fixed Length 3	upc|fix_length_3 ean|fix_length_3 code_128|fix_length_3 code_39|fix_length_3 codabar|fix_length_3 abc_codabar|fix_length_3 str_2of5|fix_length_3 int_2of5|fix_length_3 ci_2of5|fix_length_3 code_11|fix_length_3 code_93|fix_length_3 plessey|fix_length_3	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60
Fixed Length 4	upc|fix_length_4 ean|fix_length_4 code_128|fix_length_4 code_39|fix_length_4 codabar|fix_length_4 abc_codabar|fix_length_4 str_2of5|fix_length_4 int_2of5|fix_length_4 ci_2of5|fix_length_4 code_11|fix_length_4 code_93|fix_length_4 plessey|fix_length_4	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60

Generic Bar Code Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Maximum Length	upc|max_length ean|max_length code_128|max_length code_39|max_length codabar|max_length abc_codabar|max_length str_2of5|max_length int_2of5|max_length ci_2of5|max_length code_11|max_length code_93|max_length plessey|max_length	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60
Minimum Length	upc|min_length ean|min_length code_128|min_length code_39|min_length codabar|min_length abc_codabar|min_length str_2of5|min_length int_2of5|min_length ci_2of5|min_length code_11|min_length code_93|min_length plessey|min_length	Numeric, minimum = 0, maximum = 99 [0]	700 Series, CK30, CK31, CV60

UPC Options

Note that brackets indicate default settings and values.

UPC Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Add-On 2	upc|add-on_2	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Add-On 5	upc|add-on_5	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Expand E to A	upc|expand_e_to_a	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
System 0 UPCE	upc|sys_0_upce	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
System 1 UPCE	upc|sys_1_upce	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

EAN Options

Note that brackets indicate default settings and values.

EAN Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Add-On 2	ean|add-on_2	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Add-On 5	ean|add-on_5	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Expand 8 to 13	ean|expand_8to13	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Code 39 Options

Note that brackets indicate default settings and values.

Code 39 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Auto-Encoded	code_39|auto-encoded	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Check Digit	code_39|chk_digit	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Data Decode	code_39|data_decode	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Element Decode	code_39|element_decod	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Encoded	code_39|encoded	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Extended	code_39|extended	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Full ASCII	code_39|full_ascii	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Quiet Zone	code_39|quiet_zone	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
START Decode	code_39|start_decode	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Interleaved 2 of 5 Option

Note that brackets indicate default settings and values.

Interleaved 2 of 5 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Interleaved 2 of 5 Chk Digit	interleaved_2_of_5_chk_digit	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Code 11 Options

Note that brackets indicate default settings and values.

Code 11 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Check Digit 1	code_11|chk_dig_1	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Check Digit 2	code_11|chk_dig_2	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Plessey Options

Note that brackets indicate default settings and values.

Plessey Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Allow Alpha	plessey|allow_alpha	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
MOD 10 Check	plessey|mod10_chk	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
MOD 11 Check	plessey|mod11_chk	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

Code 128 Options

Note that brackets indicate default settings and values.

Code 128 Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
No UCC Type	code_128|no_ucc_type	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
UCC/EAN	code_128|ucc/ean	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
UCC F1 Value	upc|ucc_f1_value ean|ucc_f1_value code_128|ucc_f1_value code_39|ucc_f1_value codabar|ucc_f1_value abc_codabar|ucc_f1_value str_2of5|ucc_f1_value int_2of5|ucc_f1_value ci_2of5|ucc_f1_value code_11|ucc_f1_value code_93|ucc_f1_value plessey|ucc_f1_value	Numeric, minimum = 0, maximum = 255	700 Series, CK30, CK31, CV60

VT/ANSI Protocol Options

Note that brackets indicate default settings and values.

VT/ANSI Protocol Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Allow LineMode	allow_linemode	[Enabled], Disabled	700 Series, CK30, CK31, CV60
Allow Negotiate About Window Size (NAWS)	allow_naws	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
AnswerBack	answerback	String, minimum length=0, maximum length = 30*	700 Series, CK30, CK31, CV60
*The default string default is the terminal serial number			
Any Auto Enter	any_auto_enter	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Auto Enter Scan	auto_entr_scn	[Enabled]*, [Disabled]**	700 Series, CK30, CK31, CV60
* [Enabled] is the default for TE 2000 application version 6.60 or greater. ** [Disabled] is the default for TE 2000 application versions less than 6.60.			
Auto Tab Scan	auto_tab_scan	Enabled, [Disabled]	700 Series, CK30, CK31, CV60

VT/ANSI Protocol Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Auto Wrap	auto_wrap	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
CR to CRLF	cr_to_crlf	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
DEL to BS	del_to_bs	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Do Gold Key	do_gold_key	[Enabled], Disabled	700 Series, CK30, CK31, CV60
Do UTF-8	do_utf8	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Extended Commands	extended_cmds	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Host View Columns	host_view_cols	Numeric, minimum = 1, maximum = 255 [24]	700 Series, CK30, CK31, CV60
Host View Rows	host_view_rows	Numeric, minimum = 1, maximum = 255 [80]	700 Series, CK30, CK31, CV60
Keypad Mode	keypad_mode	[Numeric], Application	700 Series, CK30, CK31, CV60
Local Echo	local_echo	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Lock Mode	lock_mode	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
RS-232 Baud Rate	rs232_baudrate	[9600], 19200, 38400, 57600, 115200	700 Series, CK30, CK31, CV60
Screen Lock	screen_lock	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Send XON	send_xon	[Enabled], Disabled	700 Series, CK30, CK31, CV60
Telnet	telnet	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Terminal Mode	terminal_mode	[7-Bit], 8-Bit	700 Series, CK30, CK31, CV60
Terminal Type	terminal_type	String, minimum = 0, maximum = 30, [Null string, not defined]	700 Series, CK30, CK31, CV60
Terminal Setup	term_setup	ANSI, VT100, VT220, VT320, [VT340], IBM 330x	700 Series, CK30, CK31, CV60

VT/ANSI Protocol Options (continued)

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Transmit BS	transmit_bs	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
Use PC Character Set	use_pc_char_set	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
User Key Locked	userkey_locked	Enabled, [Disabled]	700 Series, CK30, CK31, CV60
VT Cursor Mode	vt_cursor_mode	[Cursor], Application	700 Series, CK30, CK31, CV60
VT220 Mode	vt220_mode	[Char], Block	700 Series, CK30, CK31, CV60

Display Options

Note that brackets indicate default settings and values.

Display Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Backlight State	backlight_state	[Enabled], Disabled	700 Series, CK30, CK31, CV60
Backlight Timer	backlight_timer	Numeric, minimum = [0], maximum = 255	700 Series
Code Page	code_page	[English], Cyrillic (Russian), Greek, Hebrew, Central Europe, Latin 2	700 Series, CK30, CK31, CV60
Cursor Mode	cursor_mode	Underln Blink Block Blink Underline [Block]	700 Series, CK30, CK31, CV60
Font Quality	font_quality	[Standard], Clear Type	CK30, CK31
Select Font	select_font	Lucida]*, [Courier New]**, [Courier New Bold]***, Tahoma	700 Series, CK30, CK31, CV60

* [Lucida] is the default for CK30, CK31. ** [Courier New] is the default for CV60. *** [Courier New Bold] is the default for 700 Series.

More Options

Note that brackets indicate default settings and values.

More Options

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CK30, CK31, CV60)* **Session 4** *(700 Series, CK30, CK31, CV60)*	**Values**	**Terminals using this option**
Change Menu Password	change_menu_password	String, minimum length = 1, maximum length = 10 [3193693] *To enable the password, see "Main Menu password."*	700 Series, CK30, CK31, CV60
You must enable and set the password to access the Main Menu before changing it. To set the password, see above.			
Main Menu Password	menu_password	Enabled, [Disabled] *To set the password, see "Change menu password."*	700 Series, CK30, CK31, CV60
You must enable and set the password to access the Main Menu. To enable or disable the password, see above.			
Print Device	print_device	[RS232 Print], IRDA Print *(700 Series, CV60)* RF Print *(700 Series, CK30, CK31, CV60)* Pan Print *(700 Series, CK30 Bluetooth Printing)*	700 Series, CK30, CK31, CV60
Printer Address	printer_address	String, minimum length=0, maximum length=16 [null string]	700 Series, CK30, CK31, CV60
Printer Port	printer_port	Numeric, minimum = 0, maximum = 65535 [23]	700 Series, CK30, CK31, CV60

LCD Options

Note that brackets indicate default settings and values.

LCD Options

Options	[Session 1] Session 2 Session 3 *(700 Series, CK30, CK31, CV60)* Session 4 *(700 Series, CK30, CK31, CV60)*	Values	Terminals using this option
Annunciator Format	annun_format	[Vertical]*, [Horizontal]**	700 Series, CK30, CK31, CV60
* [Vertical] is the default for 700 Series, CK30, CK31. ** [Horizontal] is the default for CV60.			
Annunciator Position	annun_position	Upper Right, Upper Left, [Lower Right]*, Lower Left, [Stealth]**	700 Series, CK30, CK31, CV60
* [Lower Right] is the default for 700 Series, CK30, CK31. ** [Stealth] is the default for CV60.			
Define Height (Scroll Window)	define_height	Numeric, minimum = 1, maximum = 24 [8]	700 Series, CK30, CK31, CV60
Define Width (Scroll Window)	define_width	Numeric, minimum = 1, maximum = 80 [8]	700 Series, CK30, CK31, CV60
Key Uppercase	key_uppercase	[Enabled], Disabled	700 Series, CK30, CK31, CV60
Screen Columns	screen_cols	Numeric, minimum = 1, maximum = 255 16, 17, 19, 20, 40, [80]*, [16]**	700 Series, CK30, CK31, CV60
* [80] is the default for CV60. ** [16] is default for 700 Series, CK30, CK31.			
Screen Mode	screen_mode	Center Cursor, [Corner Mode], Page Mode, Lazy Mode, Locked Mode	700 Series, CK30, CK31, CV60
Screen Rows	screen_rows	Numeric, minimum = 1, maximum = 255 8, 8, [10]*, 16, 17, [25]**, 16	700 Series, CK30, CK31, CV60
* [10] is the default for 700 Series, CK30, CK31. ** [25] is the default for CV60.			
Scroll Window	scroll_window	Screen Size, Scroll Setting, [Tab Size]	700 Series, CK30, CK31, CV60
XOrigin	xorigin	Numeric minimum = 0, maximum = 79 [0]	700 Series, CK30, CK31, CV60
YOrigin	yorigin	Numeric minimum = 0, maximum = 23 [0]	700 Series, CK30, CK31, CV60

More (Main Menu 2) **Option**

Note that brackets indicate default settings and values.

More** (Main Menu 2) **Options

Options	**[Session 1]** **Session 2** **Session 3** *(700 Series, CK30, CK31, CV60)* **Session 4** *(700 Series, CK30, CK31, CV60)*	**Values**	**Terminals using this option**
Foreground Session	foreground_sess	None	700 Series, CK30, CK31, CV60
Session Name	session_name	String, minimum length = 0, maximum length = 64 [null string]	700 Series, CK30, CK31, CV60
Set Hot Key	set_hot_key	F1 *through* F24, [Disabled]	700 Series, CK30, CK31, CV60
Type-Ahead	type-ahead	[Enabled], Disabled	700 Series, CK30, CK31, CV60

Additional Parameters

These parameters do not have equivalent TE configuration menu options. Note that brackets indicate default settings and values.

Additional Parameters

Parameters	**[Session 1]** **Session 2** **Session 3** *(700 Series, CK30, CK31, CV60)* **Session 4** *(700 Series, CK30, CK31, CV60)*	**Values**	**Terminals using this parameter**
Program Name	program_name	String, minimum length = 1, maximum length = 8	700 Series, CK30, CK31, CV60
(appears on initialization and version screens)			
Program Version	program_version	String, minimum length = 1, maximum length = 4	700 Series, CK30, CK31, CV60
(appears on initialization and version screens)			
Return Result	return_result	[Enabled], Disabled	700 Series, CK30, CK31, CV60
(this is a test feature for VT/ANSI emulation; if disabled, extended commands (for #K only) will not return a result to the host application)			
Set-Up Parms Menu Password	password	String, minimum length = 1, maximum length = 10 [CR52401]	700 Series, CK30, CK31, CV60

Changing Text

Modify CFGLIT.DAT to change the text of TE configuration menus, configuration parameters, or system messages. This file contains the strings that appear in the configuration menus, parameter set-up files, and system messages.

An identification (ID) number identifies each literal string. To create your own literal file, you create a text file that associates these numbers with the actual literal strings. You then use MAKELIT.EXE to convert the text file to a format the configuration program can use.

Each line in the literal text file begins with the literal ID number. After the ID number, you type the quoted string that is used when that ID number is referenced. If you omit an ID number, its string appears as "Bad Literal File" when you run the program in the terminal.

Literal ID numbers are available upon request from Intermec. Contact your Intermec representative for more information about ID numbers.

You can create a sample file containing the default literal strings using MAKELIT.EXE to "reverse engineer" the standard CFGLIT.DAT file. To do this, type the following command line to unpack CFGLIT.DAT into a CFGLIT.TXT text file:

```
makelit -r cfglit.dat cfglit.txt
```

The CFGLIT.TXT file this command creates contains all the default strings the configuration program uses. One line in CFGLIT.TXT looks like this:

```
0x2f10 "RS232 PORT\nIN USE\n\nPLEASE WAIT!"
```

"0x2f10" is the literal ID number for the RS-232 port-in-use message that appears when a personal computer sends an RS-232 command to the TE program. The message text follows the ID number in a quoted string. The embedded "\n" sequence within the quoted string indicates a "new line" character and outputs a carriage return/line feed. To change the text of the message that appears, change the quoted string. For example, change the above line to look like this:

```
0x2f10 "Printing\nPlease Wait!"
```

When you have a text file with one line for every ID number, use MAKELIT.EXE to convert the file to an indexed literal file. If your text file is named CFGLIT.TXT, you would type the following command which creates the new literal CFGLIT.DAT file. For instructions on how to download the file, see *"Downloading Files"* on page 263.

```
makelit cfglit.txt cfglit.dat
```

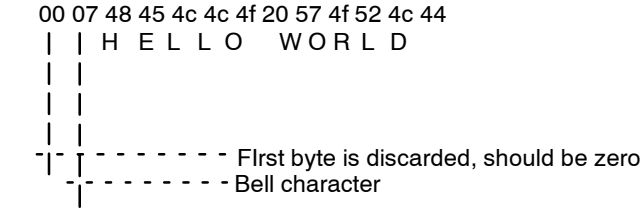
Preinitializing the VT/ANSI TE Program

You can preinitialize the VT/ANSI TE program. You must name the VT/ANSI initialization file as VT220.INI. The file is processed when you reset or warm start the terminal. The file is processed as if the radio had received the data, and must be in the "on-air" format. For instructions on how to download the file, see *"Downloading Files"* on page 263.

Data is encoded in binary format. To create VT220.INI, you may need a HEX editor or other special program.

VT220.INI starts with a single byte that the terminal ignores. This byte should always be 0 (zero). The remainder of the file contains standard VT/ANSI terminal escape sequences.

The following example shows how to display "HELLO WORLD" and beep the beeper from within a data stream initialization file. The line of hexadecimal digits represent the binary values that must be stored in the initialization files.



Remapping the Terminal's Keys

Note: These instructions assume the REMAP.CFG file is downloaded onto your terminal. For instructions on how to download the file to the terminal, see "*Downloading Files*" on page 263.

You may need to remap the terminal's keys if your users need to press a key in VT/ANSI TE that is not on a standard 101-key keyboard. You can also remap a terminal key to transmit a text string or message to the personal computer.

To remap the terminal keys, you create the REMAP.CFG file and add a Remap command to remap a terminal key. You can remap a single key or a two-key sequence. You can add a Remap command or create a macro in the REMAP.CFG file that remaps a single key or a two-key sequence.

You can remap any terminal key or two-key sequence that does not perform a specific function on the terminal. For example, you can remap the [**B**] key because it only types the lowercase letter B.

Note: On the 2425, 2455, 2475, and 248X, you cannot remap the two-key sequence [f] ▲ because it moves the window/viewport up on the Trakker Antares Terminals.

Each terminal key or two-key sequence generates a 4-digit hexadecimal remap code as listed in the "*Key Code*" table starting on page 256. The key code table gives the 4-digit hexadecimal codes for ASCII characters for the terminals. These codes identify the key or keys pressed. For example:

Key	Action	4-Digit Hex Key Code
[B]	Types a lowercase B	0062
[SHIFT] [B]	Types an uppercase B	0042

Remapping a Key or Two-Key Sequence

Note: For terminals made before 1997, refer to the "*Using FLSHCONV*" section for the proper -e parameter value.

1. Choose the key or two-key sequence to remap and determine the current 4-digit hexadecimal code of the keys and the code you will enter to remap the keys. For help, see the "*Key Code*" table on the next page.
2. Connect the terminal to your personal computer.
3. Using any text editor, enter the keys you want remapped on individual lines in this format: `remap=<key>="string" or remap=<key>=<key>`
   - *remap* is the command you enter in REMAP.CFG.
   - *key* is the 4-digit hexadecimal key or keys to which or from which you are remapping.
   - *string* is the new function for the key or keys, which can be a text string, ASCII mnemonic, or another 2-byte hexadecimal code. Enclose the entire string in quotation marks.

4 Save the new file as REMAP.CFG.

5 Download REMAP.CFG to drive C: on your terminal.

Example 1

Suppose you want to remap "+" on your terminal to send a message and then enter a carriage return. In the REMAP.CFG file, add this command:

```
remap=<002b>="My battery is low.<CR>"
```

Example 2

To remap the function of the function keys to another key, replace *string* with the transmitted code for the function and replace *key* with the 4-digit hexadecimal key that will do the function. For example, to remap the [**F6**] function to the "B" key, add this command to the REMAP.CFG file:

```
remap=<0042>="<ESC>[17~"
```

Example 3

This is an example of multiple hexadecimal codes in the right-most argument which makes a key into a text sequence with embedded EHLLAPI values for the [**F4**] and [**F5**] keys.

```
remap=<xxxx>="EHLLAPI value"<1034>"EHLLAPI value
2"<1035>"END
```

Creating a Macro

1 Using any text editor, add the `macro=<key>="string"` Macro command to the end of the REMAP.CFG file, where:

- *macro* is the command you enter in REMAP.CFG.
- *key* is the 4-digit hexadecimal key or keys you are remapping.
- *string* is the new action for the key or keys. The string can be a text string, ASCII mnemonic, or another 2-byte hexadecimal code. Enclose the entire string in quotation marks.

2 At the end of the macro, type **`runmacro=<key>`** where *key* is the 4-digit hexadecimal code that identifies the keys that activate the macro.

3 Save the file name as REMAP.CFG for the macros to work.

4 Append the new remap to the original hex file using one of the following commands. Replace ??? with your type of terminal:

- *59XX Terminals*
  ```
  FLSHCONV -a –eE000 FWP59??H0.HEX REMAP.CFG –oNEW.HEX
  ```
- *17XX, 11XX Terminals*
  ```
  FLSHCONV -a –eFFC0 FWP1???H0.HEX REMAP.CFG –oNEW.HEX
  ```

5 Download REMAP.CFG to drive C on your terminal.

Example

You can assign "+" to activate a macro that remaps [B] to send the message, "Change the battery pack now." In the REMAP.CFG file, add this command:

```
macro=<0042>="Change the battery pack now.<CR>"
runmacro=<002b>
```

Nesting

Macros do not nest. The right-most argument is processed as key strokes and not scanned for macro values. For example:

```
// swap “3” and “5” keys
remap=<0033>=“5”  // map “3” key to a “5” key
remap=<0035>=“3”  // map “5” key to a “3” key
```

The “3” key produces a “5” key. If nesting was allowed, the “5” key is recognized as a macro that produces the “3” key and the “3” key is recognized as a “5” key that produces the “7” key, and so forth.

Remapping Keys for Each Session

Use the following syntax to remap keys for each session. The session number can be 1, 2, 3 or 4 for 700 Series, CK30, CK31, and CV60 Terminals. The 2415, 2425, 2435A, 2455, 2475, and 248X Terminals only support session 1 and 2. 6400, 5020, 5055, 59XX, 17XX, and 11XX Terminals do not allow this feature.

```
remap=Session1<keyval>=”string”
Macro=Session1<keyval>=”string”
Runmacro=Session1<keyval>
```

Note: The string comparison for the “Session” string is case-sensitive.

Key Code Table

Note: Values not listed here may work but are not supported.

remap=<0001>=*“string”* /*CTRL A*/
remap=<0002>=*“string”* /*CTRL B*/
remap=<0003>=*“string”* /*CTRL C*/
remap=<0004>=*“string”* /*CTRL D*/
remap=<0005>=*“string”* /*CTRL E*/
remap=<0006>=*“string”* /*CTRL F*/
remap=<0007>=*“string”* /*CTRL G*/
remap=<0008>=*“string”* /*CTRL H*/
remap=<0009>=*“string”* /*CTRL I or Tab key*/
remap=<000a>=*“string”* /*CTRL J*/
remap=<000b>=*“string”* /*CTRL K*/
remap=<000c>=*“string”* /*CTRL L*/
remap=<000d>=*“string”* /*CTRL M*/
remap=<000e>=*“string”* /*CTRL N*/
remap=<000f>=*“string”* /*CTRL O*/
remap=<0010>=*“string”* /*CTRL P*/
remap=<0011>=*“string”* /*CTRL Q*/
remap=<0012>=*“string”* /*CTRL R*/
remap=<0013>=*“string”* /*CTRL S*/
remap=<0014>=*“string”* /*CTRL T*/
remap=<0015>=*“string”* /*CTRL U*/
remap=<0016>=*“string”* /*CTRL V*/
remap=<0017>=*“string”* /*CTRL W*/

```
remap=<0018>="string"   /*CTRL X*/
remap=<0019>="string"   /*CTRL Y*/
remap=<001a>="string"   /*CTRL Z*/

remap=<0020>="string"   /* SPACE key */
remap=<0021>="string"   /* ! key */
remap=<0022>="string"   /* " key */
remap=<0023>="string"   /* # key */
remap=<0024>="string"   /* $ key */
remap=<0025>="string"   /* % key */
remap=<0026>="string"   /* & key */
remap=<0027>="string"   /* ' key */
remap=<0028>="string"   /* ( key */
remap=<0029>="string"   /* ) key */
remap=<002a>="string"   /* * key */
remap=<002b>="string"   /* + key */
remap=<002c>="string"   /* , key */
remap=<002d>="string"   /* - key */
remap=<002e>="string"   /* . key */
remap=<002f>="string"   /* / key */

remap=<0030>="string"   /* 0 key*/
remap=<0031>="string"   /* 1 key*/
remap=<0032>="string"   /* 2 key*/
remap=<0033>="string"   /* 3 key*/
remap=<0034>="string"   /* 4 key*/
remap=<0035>="string"   /* 5 key*/
remap=<0036>="string"   /* 6 key*/
remap=<0037>="string"   /* 7 key*/
remap=<0038>="string"   /* 8 key*/
remap=<0039>="string"   /* 9 key*/

remap=<003a>="string"   /* : key */
remap=<003b>="string"   /* ; key */
remap=<003c>="string"   /* < key */
remap=<003d>="string"   /* = key */
remap=<003e>="string"   /* > key */
remap=<003f>="string"   /* ? key */
remap=<0040>="string"   /* @ key */

remap=<0041>="string"   /* A key*/
remap=<0042>="string"   /* B key*/
remap=<0043>="string"   /* C key*/
remap=<0044>="string"   /* D key*/
remap=<0045>="string"   /* E key*/
remap=<0046>="string"   /* F key*/
remap=<0047>="string"   /* G key*/
remap=<0048>="string"   /* H key*/
remap=<0049>="string"   /* I key*/
remap=<004a>="string"   /* J key*/
remap=<004b>="string"   /* K key*/
remap=<004c>="string"   /* L key*/
remap=<004d>="string"   /* M key*/
```

```
remap=<004e>="string"   /* N key*/
remap=<004f>="string"   /* O key*/
remap=<0050>="string"   /* P key*/
remap=<0051>="string"   /* Q key*/
remap=<0052>="string"   /* R key*/
remap=<0053>="string"   /* S key*/
remap=<0054>="string"   /* T key*/
remap=<0055>="string"   /* U key*/
remap=<0056>="string"   /* V key*/
remap=<0057>="string"   /* W key*/
remap=<0058>="string"   /* X key*/
remap=<0059>="string"   /* Y key*/
remap=<005a>="string"   /* Z key*/

remap=<005b>="string"   /* [ key */
remap=<005c>="string"   /* \ key */
remap=<005d>="string"   /* ] key */
remap=<005e>="string"   /* ^ key */
remap=<005f>="string"   /* _ key */
remap=<0060>="string"   /* ‘ key */

remap=<0061>="string"   /* a key*/
remap=<0062>="string"   /* b key*/
remap=<0063>="string"   /* c key*/
remap=<0064>="string"   /* d key*/
remap=<0065>="string"   /* e key*/
remap=<0066>="string"   /* f key*/
remap=<0067>="string"   /* g key*/
remap=<0068>="string"   /* h key*/
remap=<0069>="string"   /* i key*/
remap=<006a>="string"   /* j key*/
remap=<006b>="string"   /* k key*/
remap=<006c>="string"   /* l key*/
remap=<006d>="string"   /* m key*/
remap=<006e>="string"   /* n key*/
remap=<006f>="string"   /* o key*/
remap=<0070>="string"   /* p key*/
remap=<0071>="string"   /* q key*/
remap=<0072>="string"   /* r key*/
remap=<0073>="string"   /* s key*/
remap=<0074>="string"   /* t key*/
remap=<0075>="string"   /* u key*/
remap=<0076>="string"   /* v key*/
remap=<0077>="string"   /* w key*/
remap=<0078>="string"   /* x key*/
remap=<0079>="string"   /* y key*/
remap=<007a>="string"   /* z key*/

remap=<007b>="string"   /* { key */
remap=<007c>="string"   /* | key */
remap=<007d>="string"   /* } key */
```

```
remap=<007e>="string"   /* ~ key */
remap=<007f>="string"   /* Del key */

remap=<1031>="string"   /* F1 key */
remap=<1032>="string"   /* F2 key */
remap=<1033>="string"   /* F3 key */
remap=<1034>="string"   /* F4 key */
remap=<1035>="string"   /* F5 key */
remap=<1036>="string"   /* F6 key */
remap=<1037>="string"   /* F7 key */
remap=<1038>="string"   /* F8 key */
remap=<1039>="string"   /* F9 key */
remap=<103c>="string"   /* Backspace key */

remap=<1042>="string"   /* Back Tab key */
remap=<1044>="string"   /* Del key */
remap=<1045>="string"   /* Enter key */
remap=<1049>="string"   /* Insert key */

remap=<104c>="string"   /* Left key */
remap=<1055>="string"   /* Up key */
remap=<1056>="string"   /* Down key */
remap=<105a>="string"   /* Right key */

remap=<1061>="string"   /* F10 key */
remap=<1062>="string"   /* F11 key */
remap=<1063>="string"   /* F12 key */
remap=<1064>="string"   /* F13 key */
remap=<1065>="string"   /* F14 key */
remap=<1066>="string"   /* F15 key */
remap=<1067>="string"   /* F16 key */
remap=<1068>="string"   /* F17 key */
remap=<1069>="string"   /* F18 key */
remap=<106a>="string"   /* F19 key */
remap=<106b>="string"   /* F20 key */
remap=<106c>="string"   /* F21 key */
remap=<106d>="string"   /* F22 key */
remap=<106e>="string"   /* F23 key */
remap=<106f>="string"   /* F24 key */

remap=<1075>="string"   /* Page down key */
remap=<1076>="string"   /* Page up key */

remap=<2041>="string"   /* Auto-Login Restart key */
remap=<206c>="string"   /* Menu key */

remap=<304c>="string"   /* Window/viewport left key */
remap=<3055>="string"   /* Window/viewport up key */
remap=<3056>="string"   /* Window/viewport down key */
remap=<305a>="string"   /* Window/viewport right key */

remap=<3061>="string"   /* Find key */
remap=<3062>="string"   /* Insert here key */
remap=<3063>="string"   /* Remove key */
remap=<3064>="string"   /* Select key */
```

```
remap=<3065>="string"   /* Previous screen key */
remap=<3066>="string"   /* Next screen key */

remap=<3067>="string"   /* Keypad key */
remap=<3068>="string"   /* Keypad Enter key */
remap=<3069>="string"   /* Keypad 0 key */
remap=<306a>="string"   /* Keypad 1 key */
remap=<306b>="string"   /* Keypad 2 key*/
remap=<306c>="string"   /* Keypad 3 key*/
remap=<306d>="string"   /* Keypad 4 key*/
remap=<306e>="string"   /* Keypad 5 key*/
remap=<306f>="string"   /* Keypad 6 key*/
remap=<3070>="string"   /* Keypad 7 key*/
remap=<3071>="string"   /* Keypad 8 key*/
remap=<3072>="string"   /* Keypad 9 key*/
remap=<3073>="string"   /* Keypad . key*/

remap=<3075>="string"   /* Page left key */
remap=<3076>="string"   /* Page right key */

remap=<3077>="string"   /* Keypad - key*/
remap=<3078>="string"   /* Keypad + key*/
```

Remapping Characters

You can use display character translation files to remap characters as they are written to the display. The translation file name for TE 2000 VT/ANSI terminal emulation must be VT220.XLT. For instructions on how to download the file to the terminal, see "*Downloading Files*" on page 263.

Display character translation files are binary files consisting of ordered pairs of eight bit values. Each pair of values remaps a displayable character to a different displayable character.

- The first byte of a pair is the ASCII value of the character to replace.
- The second byte of a pair is the ASCII value that replaces the first.

These translations are only made when a character is written to a display device. If the character is sent to the host (such as keystroke or scan data) or sent to an external device (such as a printer), it is sent as the original, untranslated value.

Suppose you want a terminal running VT/ANSI emulation to replace the uppercase B with the Greek letter beta, and replace the uppercase Z with the Greek letter omega. Create a file named VT220.XLT that is four bytes long (two ordered pairs of two bytes each). The file should contain the 0x42, 0xE1, 0x5A, and 0xEA bytes in this order. These represent the ASCII display character set values for B, beta, Z, and omega, respectively.

Implementing ITCCOLOR.DAT Attribute Colors

Note: The ITCCOLOR.DAT attribute colors were implemented for Wal-Mart Stores Incorporated.

These changes are in place for 5055 Data Collection PCs, 700 Series Computers, and CV60 Vehicle Mount Computers. The registry keys for Text and Back are still in place for these terminals.

You must name the file ITCCOLOR.DAT and you may place this where the other TE 2000 configuration files are placed for discovery by the TE 2000 application.

The two registry keys for the default foreground (Text) and background colors are still used and are set *before* the color file is read from the following keys:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Intermec\TE2000\BackGroundColor
HKEY_LOCAL_MACHINE\SOFTWARE\Intermec\TE2000\ForeGroundColor
```

Both keys must exist or the default colors of black background and white text is used.

The color file contains lines defining the color Index and the Color for eight normal foreground (Text) and background (Back) color pairs and eight inverse color pairs for a total of 32 colors. Each line is a maximum of 80 characters. A line can be empty, have leading spaces, have a comment indicated by a semicolon character, have a pair of values (color Index and Color). All characters from a semicolon to the end of the line are ignored. A line is terminated by a carriage return, line feed character, or both. Invalid lines are ignored. You may define all, none, or any of the colors in the file and in any order. The file may exist or not. The normal Text colors are defaulted to black and the Inverse Text color is defaulted to black. If an Index-Color is not defined or the file does not exist, default colors are used.

The color Index is a decimal value of 0 through 31. It specifies the character attributes associated with Color. The index values are documented in the sample ITCCOLOR.DAT file on the next page.

Color is a 32-bit hex value used to specify an RGB color (0x00bbggrr). In RGB format, the low-order (rr) byte contains a value for the relative intensity of red; the second byte (gg)contains a value for green; and the third byte (bb) contains a value for blue. The high-order byte must be zero. The maximum value for a single byte is 0xFF.

Example

This is a sample color file:

```
Column   1         2         3         4         5         6         7
12345678901234567890123456789012345678901234567890123456789012345678901234567890
=================================================================================
  ; comment
; Normal
00 0x00000000   ;Text
01 0x007f7f7f   ;Back
02 0x000000ff   ;Text   Bold
03 0x007f7f00   ;Back   Bold
04 0x0000ff00   ;Text   Blink
05 0x007f007f   ;Back   Blink
06 0x0000ffff   ;Text   Bold    Blink
07 0x007f0000   ;Back   Bold    Blink
08 0x00ff0000   ;Text   Underline
09 0x00007f7f   ;Back   Underline
10 0x00ff00ff   ;Text   Bold    Underline
11 0x00007f00   ;Back   Bold    Underline
12 0x00ffff00   ;Text   Blink   Underline
13 0x0000007f   ;Back   Blink   Underline
14 0x00ffffff   ;Text   Bold    Blink   Underline
15 0x00000000   ;Back   Bold    Blink   Underline

; Inverse
16 0x00000000   ;Text
17 0x00ffffff   ;Back
18 0x0000007f   ;Text   Bold
19 0x00ffff00   ;Back   Bold
20 0x00007f00   ;Text   Blink
21 0x00ff00ff   ;Back   Blink
22 0x00007f7f   ;Text   Bold    Blink
23 0x00ff0000   ;Back   Bold    Blink
24 0x007f0000   ;Text   Underline
25 0x0000ffff   ;Back   Underline
26 0x007f007f   ;Text   Bold    Underline
27 0x0000ff00   ;Back   Bold    Underline
28 0x007f7f00   ;Text   Blink   Underline
29 0x000000ff   ;Back   Blink   Underline
30 0x007f7f7f   ;Text   Bold    Blink   Underline
31 0x007ffff7   ;Back   Bold    Blink   Underline
```

Downloading Files

2415, 2425, 2435A, 2455, 2475, 248X Terminals

You can use one of several methods to download a file to a 2415, 2425, 2435A, 2455, 2475, or 248X Terminal, including:

- LOADER.EXE file loader utility. *Note that using this utility automatically restarts the TE 2000 application.*
- T24FCOPY.EXE through a serial connection from your Trakker Antares terminal to your personal computer
- The Download Server feature on the Intermec Application Server to a Trakker Antares terminal loaded with UDP Plus
- A TFTP application on a personal computer or host to a Trakker Antares terminal loaded with TCP/IP

To use these methods, refer to your terminal's user manual for help.

To restart your TE application, do one of the following:

- Scan the following bar code label. You can also send the Reset Firmware command over the network. For help, refer to your terminal's user manual.

  Reset Firmware

  -.

- Use the Trakker Antares 2400 Menu System to configure the Resume Execution command to resume "not allowed." Choose Terminal Menu from the Configuration Menu and then choose Power Management. Each time you press ⏻ to turn on the Trakker Antares terminal, it boots and restarts your application. See the terminal's user manual.
- Access the Trakker Antares 2400 Menu System and select the TE application through the File Manager option. For help, see your terminal's user manual.

The Trakker Antares terminal restarts your TE application using the configuration saved in CONFIG.DAT.

5020, 700 Series, CK30, CK31, CV60 Terminals

From your web browser, use the *ftp://<IP address>* URL to download files. For the 700 Series Computer, use the Microsoft ActiveSync application like described on page 204.

6400, 5055 Terminals

Before you can download a file to a 6400 Computer or 5055 Data Collection PC, configure INTERLNK on a desktop or laptop PC. INTERLNK, part of MS-DOS, is a device driver that connects your 6400 Computer or 5055 PC and personal computer through their serial ports. This connection enables you to exchange files. It also enables you to edit the 6400 or 5055 configuration files, such as CONFIG.DAT.

INTERSVR is the INTERLNK server and is a communications option on your 6400 Computer or 5055 PC. INTERLNK and INTERSVR are provided with DOS and shipped with your 6400 or 5055 or toolkit. For complete installation instructions, refer to the README.TXT file provided with 6400 Computers and 5055 PCs.

Reprogramming Flash Memory

You can order Flash upgrades on a diskette from Intermec (contact a representative), or download the Flash upgrade from the Intermec Knowledge Central (see *Before You Begin*). Read all instructions before proceeding.

Note: Keep terminals on charge when setting up, reprogramming, or re-flashing.

Prerequisites for INTERLNK Flash Update

- A working 6400 Computer or 5055 PC to do this procedure (if the flash is corrupted, perform a serial master mode boot).
- A RAM drive (D:) of at least 960 KB.
- A disk file contains the flash archive, 50BDXXXX.EXE. The last four numbers indicate the flash version (*0129* indicates flash version 1.29).
- A standard host PC for connecting to the 6400 Computer or 5055 PC. INTERLNK.EXE must be loaded by the CONFIG.SYS file. For more detailed information on running INTERLNK, refer to a DOS manual.
- A NULL modem cable to connect the host PC's communications port to the 6400 Computer or 5055 PC with a single dock or communication adapter.

INTERLNK Installation

Use the following instructions if you have a version of flash that includes INTERSVR as a possible Comm option on your 6400 Computer or 5055 PC. If you do not have INTERSVR, you must update the flash using a serial master mode boot.

These instructions assume that you have placed all files from the self-extracting archive in a directory (on your host personal computer) called C:\PENKEY\FLASH. If you choose to place these files in a different location, adjust the instructions accordingly.

Note: Delete the self-extracting file from this directory once files are extracted.

Your host personal computer must be running INTERLNK, which is part of MS-DOS. Load INTERLNK as a device driver in your CONFIG.SYS file, using the following statement, at the end of the CONFIG.SYS file (after any other statement that creates a drive letter):

```
DEVICE=C:\DOS\INTERLNK.EXE /DRIVES:3
```

The previous statement assumes that MS-DOS is located in the host PC C:\DOS directory. The /DRIVES: 3 parameter allows mapping of three drives from the 6400 Computer or 5055 PC.

INTERLNK and INTERSVR

INTERLNK is a device driver that interconnects a 6400 Computer or 5055 PC and a host personal computer through serial ports. INTERSVR is the INTERLNK server, a communication option in the Norand Utilities program. These two resources are provided with ROM DOS 6.22 and are shipped with the 6400 Computer or 5055 PC toolkit. A standard null modem cable connects the personal computer to the 6400 Computer or 5055 PC. A TTY TCOM cable also works. A dock is needed for the 6400 Computer or 5055 PC or a communication adapter that plugs onto the bottom end of the terminal.

INTERLNK causes the 6400 Computer or 5055 PC drives to appear as virtual drives on the host personal computer, with drive letters immediately beyond the highest drive letter currently used on the host personal computer. Typing "INTERLNK" from the host personal computer command line displays the designations of the redirected drives. For details of INTERLNK and INTERSVR topics, refer to the DOS online help text.

INTERLNK is installed on a host PC, using the following statement in the CONFIG.SYS file:

```
device=c:\dos\interlnk.exe /drives:4
```

After installation, you can copy the application files to the 6400 Computer or 5055 PC. To terminate INTERSVR, press [ALT] + [F4].

59XX, 17XX, 11XX Terminals

For a 59XX, 17XX, or 11XX Terminal, use utility program CHECKCFG.EXE to verify the correctness of your configuration.

Using CHECKCFG to Compile and Decompile Custom Configurations

CHECKCFG reads your configuration and literal files, and reports any syntax errors. It also converts your data files to the proper format for the TE program.

The ASCII text of the configuration file converts to a compressed binary format to save space in the terminal. CHECKCFG can reverse the operation by converting a binary file into its ASCII source. CHECKCFG can also list set-up parameters, their types, and their allowable values.

To display the program version number and a short message that lists the different command line formats for the program, type `checkcfg`

Converting Files from ASCII to Binary

To convert an ASCII parameter file into binary format before downloading it to a terminal, use the following command line:

`checkcfg <input config file>cfglit.dat<output config file>`

- <*input config file*> is the name of your ASCII text parameter file
- <*output config file*> is the name of the file that you must append to your TE hex file. The output file must be named CONFIG.DAT.

Converting Files from Binary to ASCII

To convert a binary parameter file back into its ASCII equivalent, use the following command line:

`checkcfg -r <config file> cfglit.dat <output file>`

- <*config file*> is the name of your binary parameter file
- CFGLIT.DAT is the name of your terminal literal file
- <*output file*> is the name of the file that will contain the converted ASCII output

Listing Parameters and Values

To display a list of all possible setup parameters and their values, use the following command line: `checkcfg -p cfglit.dat`

Note: The output from this command is about seven hundred lines long. You may want to redirect it into another file for viewing.

Using FLSHCONV.EXE to Build Customized HEX Files

FLSHCONV.EXE is a utility program that creates Intel-hex files in the proper format for downloading to an 11XX, 17XX, or 59XX Terminal. FLSHCONV can do the following:

- Locate and append .EXE programs for download in an Intel-hex file
- Append data and configuration files to an existing Intel-hex file (FLSHCONV *cannot* locate and append .EXE programs to an existing hex file)

To display the program version number and a short message that lists command line formats, type: `flshconv`

The following lists FLSHCONV command line options, where <*hexnum*> represents a hexadecimal segment address and <*number*> represents a decimal number.

- **–f<*hexnum*>**
  <*hexnum*> is the starting address of Flash memory for the terminal. *Default: 8000 (absolute address 0x80000).*
- **–e<*hexnum*>**
  <*hexnum*> is the ending address of Flash. If you omit this parameter, FLSHCONV does not report an error if your Flash image is too big.
- **–d<*hexnum*>**
  <*hexnum*> is the starting address of memory space for .EXE programs. *Default: 200 (absolute address 0x2000)*. You should ordinarily use 60 (absolute address 0x600).

- **–o<*filename*>**
  <*filename*> is the Intel-hex output file name.
- **–v<*number*>**
  <*number*> indicates "verbosity." *Default: 0, meaning no information appears on the standard output device*. Intermec recommends a value of 1 to generate a report of where each file is located. You can use higher values, but they may not produce useful information for the end user.
- **–a**
  This option tells FLSNCONV to append data files to an existing Intel-hex file. The hex file must be the first file name on the command line.

The following chart lists FLSHCONV command line arguments.

Terminal	-f<*hexnum*>	-e<*hexnum*>	-d<*hexnum*>
11XX, 256K Flash	-f8000	-eC000	-d60
11XX, 512K Flash	-f8000	-eFFC0	-d60
17XX, 512K Flash	-f8000	-eFFC0	-d60
5928-5948, 384K Flash	-f9000	-eE000	-d60

Locating and Appending .EXE Files

As an example, suppose you are building a customized version of the 17XX Flash program FWP170H0.HEX. As a minimum, you must have the following files:

- 1700BIOS.EXE 17XX BIOS program
- KERNEL.EXE Intermec multitasking services
- FWP170H0.EXE 17XX VT/ANSI TE program
- NORAND.FNT Display character font file. This may be the standard font file or a customized user replacement.
- CFGLIT.DAT Terminal literal file. This may be the standard literal file or a customized user replacement.

To bind these files into an Intel-hex file that is ready for download to a 17XX, use this single command line to build a file called NEW.HEX:

```
flshconv -f8000 -effcO -d60 1700bios.exe kernel.exe
fwp170h0.exe norand.fnt cfglit.dat -onew.hex
```

Or, you can create a file that contains each file name on a separate line. Assuming that file was named 1700FILE.LST, use the following command line for the same results:

```
flshconv -f8000 -effc0 -d60 @1700file.lst
```

Appending Data Files To Intel-Hex Files

In the above example, you could have bound the .EXE files together by typing the following (single) command line:

```
flshconv -f8000 -effc0 -d60 1700bios.exe kernel.exe
fwp170h0.exe -o1700exe s.hex
```

You can then customize the 1700EXES.HEX file with different font files and literal files by typing the following (single) command line:

```
flshconv -effc0 -a 1700exes.hex norand.fntcfglit.dat
–onewlang.hex
```

You can provide keyboard translation file pairs to change the default key values. The (single) command line is:

```
flshconv -effc0 -a newlang.hex vt220eml.key vt220eml.xlt
-onewkeys.hex
```

You can specify more than one file pair. For example, you could provide all four file pairs (eight files) to modify the keyboard for each data stream.

Downloading a Hex File

Use these to download a .HEX file to 59XX, 17XX, 11XX Terminals:

- PROGDUX.EXE *(provided with the terminal's Flash)*
- Personal computer
- INTERMEC® cable P/N: 216-806-001, which is a powered Flash cable that plugs into the personal computer's COM port *(note that power is not required for download)*

To download a .HEX file:

1. Ensure the terminal is powered ON and PROGDUX.EXE is loaded on the personal computer.
2. Use cable P/N: 216-806-001 to connect the 11XX or 17XX Terminal to the PC. Use cable P/N: 216-831-001 to connect the 59XX Terminal to the personal computer. Power the terminal off. For help, refer to the terminal's user manual. *Power is not required for download.*
3. To receive the .HEX file, the terminal must be in download mode. To enter this mode, press and hold down the terminal's [I] key as you power up the terminal. For the 17XX 37-key keyboard, press and hold down the [F1] key as you power up the terminal.
4. At the DOS prompt, type: `progdux -?` to display a list of command line options.
5. Erase the terminal's original Flash and download the new .HEX file by typing: `progdux -e <newfile>` where *<newfile>* is the name of the .HEX file.

A successful download boots the terminal into the TE application. If communications is interrupted, PROGDUX.EXE sends out a negative acknowledgement (NAK) and reset itself to try sending again. No interaction is required except to restore communications.

6 Programming

This chapter describes programming for the terminals and contains the following information:

- The received codes the terminals support. Received codes include C0 and C1 control characters, character sets, and terminal modes *(page 279)*.
- The transmitted keyboard codes generated by the terminals' keys and sent to the host computer *(page 307)*.
- The capability of the terminals to emulate VT/ANSI terminal top-row function, main keypad, editing, and auxiliary keys *(page 308)*.
- VT340 applications supported by the terminals. Applications include working in local editing and interactive modes, and creating text forms *(page 302)*.

Character Encoding

The implementation of VT/ANSI terminal emulation supports both 7-bit and 8-bit communications environments. The implementation consists of an 8-bit asynchronous character encoding scheme and a 7-bit code extension technique so that the terminal is compatible with ANSI and ISO standards. All 8-bit codes can be referenced by using two-byte ESCape sequences in accordance with ANSI standard X3.41 -- 1974.

The document commonly referred to when ANSI is mentioned is ANSI X3.64 -- 1979, *Additional Controls for Use With American National Standard for Information Interchange*. The ANSI X3.64 standard controls character imaging devices such as the VT200 terminal. ANSI and ISO determine the current standards for character encoding in the communications industry.

Character Sets

The terminal processes most characters it receives from the host computer based on characters whose codes and functions are defined and standardized by ANSI. The types are 7-bit and 8-bit character codes.

Multinational Character Set

The DEC multinational character set consists of C0, GL, C1, and GR codes.

C0 and GL Codes

The left half of the multinational character set consists of control characters (C0 codes) and graphic characters (GL codes). Control characters are 7-bit compatible, nondisplayable single-byte characters that perform specific functions during communications and text processing. C0 codes range from 00 to 1F hexadecimal, and include 7F hexadecimal (DEL) and can be used in a 7- or 8-bit environment.

Graphic characters are 7-bit compatible, displayable characters that represent various alphanumeric characters, punctuation marks, and symbols that appear in the terminal's display. GL codes range from 21 to 7E hexadecimal. They can be used in a 7-bit or an 8-bit environment. The space character (20 hexadecimal) may be a graphic character or a control character, depending on the context.

The table on the next page shows the C0 and and GL codes recognized by the terminal. Ignored codes are parsed (removed) from the data stream with no action taken by the terminal. Codes that the terminal ignores are also indicated in the table. The "*C0 Control Characters and Terminal Action*" table starting on page 271 describes the action taken by the terminal when it receives a C0 code.

C0 and GL Codes

row	column	0		1		2		3		4		5		6		7	
	b8 bits b7 b6 b5 b4 b3 b2 b1	0 0 0 0		0 0 0 1		0 0 1 0		0 0 1 1		0 1 0 0		0 1 0 1		0 1 1 0		0 1 1 1	
0	0 0 0 0	NUL	0 00	DLE	16 10	SP	32 20	0	48 30	@	64 40	P	80 50	‘	96 60	p	112 70
1	0 0 0 1	SOH	1 01	DC1 (XON)	17 11	!	33 21	1	49 31	A	65 41	Q	81 51	a	97 61	q	113 71
2	0 0 1 0	STX	2 02	DC2	18 12	″	34 22	2	50 32	B	66 42	R	82 52	b	98 62	r	114 72
3	0 0 1 1	ETX	3 03	DC3 (XOFF)	19 13	#	35 23	3	51 33	C	67 43	S	83 53	c	99 63	s	115 73
4	0 1 0 0	EOT	4 04	DC4	20 14	$	36 24	4	52 34	D	68 44	T	84 54	d	100 64	t	116 74
5	0 1 0 1	ENQ	5 05	NAK	21 15	%	37 25	5	53 35	E	69 45	U	85 55	e	101 65	u	117 75
6	0 1 1 0	ACK	6 06	SYN	22 16	&	38 26	6	54 36	F	70 46	V	86 56	f	102 66	v	118 76
7	0 1 1 1	BEL	7 07	ETB	23 17	’	39 27	7	55 37	G	71 47	W	87 57	g	103 67	w	119 77
8	1 0 0 0	BS	8 08	CAN	24 18	(	40 28	8	56 38	H	72 48	X	88 58	h	104 68	x	120 78
9	1 0 0 1	HT	9 09	EM	25 19	)	41 29	9	57 39	I	73 49	Y	89 59	i	105 69	y	121 79
A	1 0 1 0	LF	10 0A	SUB	26 1A	*	42 2A	:	58 3A	J	74 4A	Z	90 5A	j	106 6A	z	122 7A
B	1 0 1 1	VT	11 0B	ESC	27 1B	+	43 2B	;	59 3B	K	75 4B	[	91 5B	k	107 6B	{	123 7B
C	1 1 0 0	FF	12 0C	FS	28 1C	,	44 2C	<	60 3C	L	76 4C	\	92 5C	l	108 6C	|	124 7C
D	1 1 0 1	CR	13 0D	GS	29 1D	-	45 2D	=	61 3D	M	77 4D	]	93 5D	m	109 6D	}	125 7D
E	1 1 1 0	SO	14 0E	RS	30 1E	.	46 2E	>	62 3E	N	78 4E	^	94 5E	n	110 6E	~	126 7E
F	1 1 1 1	SI	15 0F	US	31 1F	/	47 2F	?	63 3F	O	79 4F	_	95 5F	o	111 6F	DEL	127 7F

C0 Codes — **GL Codes (ASCII Graphics Character Set)**

Legend:

ENQ 5 05	decimal hexadecimal — **code recognized by the terminal**
NUL 0 00	decimal hexadecimal — **code ignored by the terminal**

C0 Control Characters and Terminal Action

Mnemonic	Hex	Name	Action
NUL	00	Null	Ignored.
SOH	01	Start of heading	Ignored.
STX	02	Start of text	Ignored.
ETX	03	End of text	Ignored.
EOT	04	End of transmission	Ignored.

C0 Control Characters and Terminal Action (continued)

Mnemonic	Hex	Name	Action
ENQ	05	Enquiry	Generates Answerback message. Set number of characters in the message (0–30) through the terminal's firmware. If the terminal is operating in ANSI mode, it ignores this character.
ACK	06	Acknowledge	Ignored.
BEL	07	Bell	Generates bell tone if bell is enabled.
BS	08	Backspace	Moves cursor one column to the left. If cursor is in Column 1, takes no action.
HT	09	Horizontal tab	Moves cursor to predetermined tab stop. Moves cursor to right margin if there are no tab stops.
LF	0A	Line feed	Causes a line feed or new line operation, depending on how the LNM received code is set.
VT	0B	Vertical tab	Processes as LF (line feed).
FF	0C	Form feed	Processes as LF (line feed).
CR	0D	Carriage return	Moves cursor to Column 1 of the current row.
SO (LS1)	0E	Shift out (Lock shift G1)	Invokes G1 character set into GL.
SI (LS0)	0F	Shift in (Lock shift G0)	Invokes G0 character set into GL.
DLE	10	Data link escape	Ignored.
DC1 (XON)	11	Device control 1	Clears DC3 if XOFF support is enabled, which causes the terminal to continue sending characters (keyboard unlocks).
DC2	12	Device control 2	Ignored.
DC3 (XOFF)	13	Device control 3	If XOFF support is enabled, causes the terminal to stop sending characters until it receives a DC1 control character.
DC4	14	Device control 4	Ignored.
NAK	15	Negative acknowledgment	Ignored.
SYN	16	Synchronous table	Ignored.
ETB	17	End transmission block	Ignored.
CAN	18	Cancel	Terminates and cancels any sequence in progress.
EM	19	End of medium	Ignored.
SUB	1A	Substitute	Terminates, cancels escape or control sequence, or terminates the device control string and displays reverse question mark.
ESC	1B	Escape	Processes as escape sequence introducer. Terminates any escape, control, or device control sequence in process.
FS	1C	File separator	Ignored.
GS	1D	Group separator	Ignored.
RS	1E	Record separator	If Guarded Area Transfer Mode (GATM) is reset, the record separator is processed as a protected field entry.
US	1F	Unit separator	Ignored.
DEL	7F	Delete	Ignored; it cannot be used as a fill character.

C1 and GR Codes

The right half of the DEC multinational character set consists of eight-bit control codes (C1 codes) and supplemental graphic characters (GR codes). C1 codes are nondisplayable codes that perform additional functions beyond those possible with C0 codes. C1 codes range 80–9F hexadecimal.

The supplemental graphic characters set (GR codes) range from A0 hexadecimal to FF hexadecimal. The set has alphabetic characters with accents and diacritical marks that appear in the major Western European alphabets. It also has other symbols not included in the ASCII graphics set.

The following table shows the C1 control characters and GR codes recognized by the terminal. Ignored codes are parsed (removed) from the data stream with no terminal action taken. Ignored codes are also indicated in the table. Note that some letters that are normally in uppercase are converted into lowercase. The hexadecimal values for the converted letters are C0, C1, C2, C8, CA, CB, CC, CD, CE, CF, D9, DA, and DB. *(These values may be supported correctly in later versions.)*

8		9		10		11		12		13		14		15		column	row
1 0 0 0		1 0 0 1		1 0 1 0		1 0 1 1		1 1 0 0		1 1 0 1		1 1 1 0		1 1 1 1		b8 bits b7 b6 b5 b4 b3 b2 b1	
	128 80	DCS	144 90	NBSP	160 A0	°	176 B0	à	192 C0	Ð	208 D0	à	224 E0	ð	240 F0	0 0 0 0	0
	129 81	PU1	145 91	¡	161 A1	±	177 B1	á	193 C1	Ñ	209 D1	á	225 E1	ñ	241 F1	0 0 0 1	1
	130 82	PU2	146 92	¢	162 A2	²	178 B2	â	194 C2	Ò	210 D2	â	226 E2	ò	242 F2	0 0 1 0	2
	131 83	STS	147 93	£	163 A3	³	179 B3	Ã	195 C3	Ó	211 D3	ã	227 E3	ó	243 F3	0 0 1 1	3
IND	132 84	CCH	148 94	¤	164 A4	‘	180 B4	Ä	196 C4	Ô	212 D4	ä	228 E4	ô	244 F4	0 1 0 0	4
NEL	133 85	MW	149 95	¥	165 A5	µ	181 B5	Å	197 C5	Õ	213 D5	å	229 E5	õ	245 F5	0 1 0 1	5
SSA	134 86	SPA	150 96	¦	166 A6	¶	182 B6	Æ	198 C6	Ö	214 D6	æ	230 E6	ö	246 F6	0 1 1 0	6
ESA	135 87	EPA	151 97	§	167 A7	·	183 B7	Ç	199 C7	X	215 D7	ç	231 E7	÷	247 F7	0 1 1 1	7
HTS	136 88		152 98	¨	168 A8	¸	184 B8	è	200 C8	Ø	216 D8	è	232 E8	ø	248 F8	1 0 0 0	8
HTJ	137 89		153 99	©	169 A9	¹	185 B9	É	201 C9	ù	217 D9	é	233 E9	ù	249 F9	1 0 0 1	9
VTS	138 8A		154 9A	ª	170 AA	º	186 BA	ê	202 CA	ú	218 DA	ê	234 EA	ú	250 FA	1 0 1 0	A
PLD	139 8B	CSI	155 9B	«	171 AB	»	187 BB	ë	203 CB	û	219 DB	ë	235 EB	û	251 FB	1 0 1 1	B
PLU	140 8C	ST	156 9C	¬	172 AC	¼	188 BC	ì	204 CC	Ü	220 DC	ì	236 EC	ü	252 FC	1 1 0 0	C
RI	141 8D	OSC	157 9D	—	173 AD	½	189 BD	í	205 CD	Ý	221 DD	í	237 ED	ÿ	253 FD	1 1 0 1	D
SS2	142 8E	PM	158 9E	®	174 AE	¾	190 BE	î	206 CE	Þ	222 DE	î	238 EE	þ	254 FE	1 1 1 0	E
SS3	143 8F	APC	159 9F	¯	175 AF	¿	191 BF	ï	207 CF	ß	223 DF	ï	239 EF	ÿ	255 FF	1 1 1 1	F

C1 Codes — GR Codes (DEC Supplemental Graphics)

Legend:

IND | 132 / 84 — decimal / hexadecimal — code recognized by the terminal

HTJ | 137 / 89 — decimal / hexadecimal — code ignored by the terminal

code not yet standardized by ANSI and ignored by the terminal

The following table describes the terminal action when it receives a C1 control code.

C1 Control Characters and Terminal Action

Mnemonic	Hex	Name	Action
	80–83		Ignored.
IND	84	Index	Moves cursor down one line in same column. If cursor is at bottom margin, display performs a scroll up.
NEL	85	Next line	Moves cursor to first position on next line. If cursor is at bottom margin, display performs a scroll up.
SSA	86	Start of selected area	Selects which current page characters the terminal can send to the host.
ESA	87	End of selected area	Ends the selected area that is sent to the host when forms are created for VT340 terminal emulation.
HTS	88	Horizontal tab set	Sets one horizontal tab stop at column with cursor.
HTJ	89	Horizontal tab w/justify	Ignored.
VTS	8A	Vertical tabulation set	Ignored.
PLD	8B	Partial line down	Ignored.
PLU	8C	Partial line up	Ignored.
RI	8D	Reverse index	Moves cursor up one line in same column. If cursor is at top margin, display performs a scroll down.
SS2	8E	Single shift 2	Temporarily invokes G2 character set into GL for the next graphic character. G2 is designated by a select character set (SCS) sequence.
SS3	8F	Single shift 3	Temporarily invokes G3 character set into GL for the next graphic character. G3 is designated by an SCS sequence.
DCS	90	Device control string	Processes as opening delimiter of a device control string for device control use.
PU1	91	Private use 1	Ignored.
PU2	92	Private use 2	Ignored.
STS	93	Set transmit state	Ignored.
CCH	94	Cancel character	Ignored.
MW	95	Message waiting	Ignored.
SPA	96	Start of protected area	Starts the protected area in page memory that cannot be edited when forms are created from the host.
EPA	97	End of protected area	Ends the protected area in page memory that cannot be edited when forms are created from the host.
	98–9A		Ignored.
CSI	9B	Ctrl sequence introducer	Processes as control sequence introducer.
ST	9C	String terminator	Processes as the string closing delimiter opened by DCS and processes code as the EOL of extended command characters.
OSC	9D	O/S command	Ignored.
PM	9E	Privacy message	Ignored.
APC	9F	App program command	Processes code as the SOL of extended command characters.

Display Controls Mode

The terminal does not support the VT/ANSI terminal display controls mode, which displays control codes as graphic characters for debugging.

Dynamically Redefinable Character Set

The terminal does not support the dynamically redefinable character set (DRCS), which is a 94-character set created on the VT/ANSI terminal and down-line loaded into the terminal DRCS buffer.

Special Graphics Character Set

The terminal supports most of the DEC special graphics character set. The set contains ASCII C0 codes and most of the GL codes. It also has special symbols and short line segments. You would normally use these characters to create a limited range of drawings while working in text mode.

This table shows special graphics characters recognized by the terminal. Ignored codes are parsed (removed) from the data stream with no action taken by the terminal. Ignored and unsupported codes are also indicated.

row	column	0		1		2		3		4		5		6		7	
	b8 bits b7 b6 b5 b4 b3 b2 b1	0 0 0 0		0 0 0 1		0 0 1 0		0 0 1 1		0 1 0 0		0 1 0 1		0 1 1 0		0 1 1 1	
0	0 0 0 0	NUL	00	DLE	10	SP	20	0	30	@	40	P	50		60		70
1	0 0 0 1	SOH	01	DC1 (XON)	11	!	21	1	31	A	41	Q	51		61	⎺ SCAN 5	71
2	0 0 1 0	STX	02	DC2	12	″	22	2	32	B	42	R	52		62		72
3	0 0 1 1	ETX	03	DC3 (XOFF)	13	#	23	3	33	C	43	S	53		63		73
4	0 1 0 0	EOT	04	DC4	14	$	24	4	34	D	44	T	54		64	├	74
5	0 1 0 1	ENQ	05	NAK	15	%	25	5	35	E	45	U	55		65	┤	75
6	0 1 1 0	ACK	06	SYN	16	&	26	6	36	F	46	V	56		66	┴	76
7	0 1 1 1	BEL	07	ETB	17	’	27	7	37	G	47	W	57		67	┬	77
8	1 0 0 0	BS	08	CAN	18	(	28	8	38	H	48	X	58		68	│	78
9	1 0 0 1	HT	09	EM	19	)	29	9	39	I	49	Y	59		69		79
A	1 0 1 0	LF	0A	SUB	1A	*	2A	:	3A	J	4A	Z	5A	⌡	6A		7A
B	1 0 1 1	VT	0B	ESC	1B	+	2B	;	3B	K	4B	[	5B	⌠	6B		7B
C	1 1 0 0	FF	0C	FS	1C	,	2C	<	3C	L	4C	\	5C	⌈	6C		7C
D	1 1 0 1	CR	0D	GS	1D	-	2D	=	3D	M	4D	]	5D	⌊	6D		7D
E	1 1 1 0	SO	0E	RS	1E	.	2E	>	3E	N	4E	^	5E	+	6E		7E
F	1 1 1 1	SI	0F	US	1F	/	2F	?	3F	O	4F		5F		6F		7F

C0 Codes (ASCII Nondisplayable Control Character Set)

GL Codes (DEC Special Graphics Character Set)

Legend:

	5F

code not supported and character displayed may change without notice

National Replacement Character Sets

The terminal supports the 7-bit national replacement character (NRC) sets for European languages. The NRC sets are similar to the 7-bit ASCII set, except for a few characters. You designate the character sets as hard using escape sequence formats as on page 277. This table lists characters in each NRC set that are different from the ASCII set. The terminal does not support "¾" (40 hexadecimal) in the Dutch NRC set.

	Hexadecimal											
Character Set	**23**	**40**	**5B**	**5C**	**5D**	**5E**	**5F**	**60**	**7B**	**7C**	**7D**	**7E**
ASCII	#	@	[	\	]	^	_	‘	{	|	}	~
British	£	@	[	\	]	^	_	‘	{	|	}	~
Dutch	£		ÿ	½	|	^	_	‘	¨	ƒ	¼	’
Finnish	#	@	Ä	Ö	Å	Ü	_	é	ä	ü	å	ü
French	£	à	º	ç	§	^	_	‘	é	ù	è	¨
French Canadian	#	à	â	ç	ê	î	_	ô	é	ù	è	û
German	#	§	Ä	Ö	Ü	^	_	‘	ä	ö	ü	ß
Italian	£	§	º	ç	é	^	_	ù	à	ò	è	ì
Norwegian/Danish	#	@	Æ	Ø	Å	^	_	‘	æ	ø	å	~
Portuguese	#	@	Ã	Ç	Ô	^	_	‘	ã	ç	õ	~
Spanish	£	§	í	Ñ	¿	^	_	‘	’	º	ñ	ç
Swedish	#	Ê	Ä	Ö	Å	Ü	_	é	ä	ö	å	ü
Swiss	ù	à	é	ç	ê	î	è	ô	ä	ö	ü	û

Greek National Replacement Character Set

(6400, 5020, 5055, 59XX, 17XX, 11XX)

row	column	0		1		2		3		4		5		6		7	
	b8 bits b7 b6 b5 b4 b3 b2 b1	0 0 0		0 0 1		0 1 0		0 1 1		1 0 0		1 0 1		1 1 0		1 1 1	
0	0 0 0 0		00		10		20	•	30	ΐ	40	Π	50	ΰ	60	Π	70
1	0 0 0 1		01		11	‘	21	±	31	A	41	P	51	α	61	ϱ	71
2	0 0 1 0		02		12	’	22	²	32	B	42		52	β	62	ς	72
3	0 0 1 1		03		13	£	23	³	33	Γ	43	Σ	53	Υ	63	σ	73
4	0 1 0 0		04		14		24	΄	34	Δ	44	T	54	δ	64	τ	74
5	0 1 0 1		05		15		25	΅	35	E	45	Y	55	ε	65	υ	75
6	0 1 1 0		06		16	¦	26	Ά	36	Z	46	Φ	56	ϛ	66	φ	76
7	0 1 1 1		07		17	§	27	·	37	H	47	X	57	η	67	χ	77
8	1 0 0 0		08		18	¨	28	Έ	38	Θ	48	Ψ	58	θ	68	Ψ	78
9	1 0 0 1		09		19	©	29	Ή	39	I	49	Ω	59	ι	69	ω	79
A	1 0 1 0		0A		1A		2A	Ί	3A	K	4A	Ϊ	5A	ϰ	6A	ϊ	7A
B	1 0 1 1		0B		1B	«	2B	»	3B	Λ	4B	Ÿ	5B	λ	6B	ϋ	7B
C	1 1 0 0		0C		1C	¬	2C	Ό	3C	M	4C	ά	5C	μ	6C	ό	7C
D	1 1 0 1		0D		1D	SHY	2D	½	3D	N	4D	έ	5D	ν	6D	ύ	7D
E	1 1 1 0		0E		1E		2E	Ύ	3E	Ξ	4E	ή	5E	ξ	6E	ώ	7E
F	1 1 1 1		0F		1F	—	2F	Ώ	3F	O	4F	ι	5F	ο	6F		7F

Character Set Selection

The terminal supports hard character sets. It does not support designating soft (down-line loadable) character sets.

Designating Hard Character Sets

Designate hard character sets using the escape sequence format in the following table.

Hard Character Set Escape Sequences

Escape Sequence			Designated As
Supplemental and special graphics sets:			
1B hexadecimal ESC	(	28 hexadecimal (Final)	G0
1B hexadecimal ESC	)	29 hexadecimal (Final)	G1
1B hexadecimal ESC	*	2A hexadecimal (Final)	G2
1B hexadecimal ESC	+	2B hexadecimal (Final)	G3
NRC sets:			
1B hexadecimal ESC	-	2D hexadecimal (Final)	G1
1B hexadecimal ESC	.	2E hexadecimal (Final)	G2
1B hexadecimal ESC	/	2F hexadecimal (Final)	G3

The final character in the escape sequence represents the character set you want to designate. For the terminal, the final characters are indicated in the following table.

Hard Character Set Final Characters

Character Set		Final Character (Hex)
ASCII		B (42)
Special graphics		0 (30)
National replacement	British	A (41)
	Dutch	4 (34)
	Finnish*	5 (35) *or* C (43)
	French	R (52)
	French Canadian*	9 (39) *or* Q (51)
	German	K (4B)
	Italian	Y (59)
	Norwegian/Danish*	‘ (60) *or* E (45)
	Portuguese	% (25)
	Spanish	Z (5A)
	Swedish*	7 (37) *or* H (48)
	Swiss	= (3D)
	Greek**	6 (36) (Private extension)
*	The first code shown is recommended.	
**	Applies only to 6400, 5020, 5055, 59XX, 17XX, 11XX Terminals.	

Locking Shifts

The terminal applies the locking shift (LS) control functions in the following table. Locking shifts LS1R, LS2, LS2R, LS3, and LS3R are not available in VT100 mode or ANSI mode.

Control Name	Code	Function
LS0 (Locking shift 0)	SI (0F hexadecimal)	Map G0 into GL *(default)*
LS1 (Locking shift 1)	SO (0E hexadecimal)	Map G1 into GL
LS1R* (Locking shift 1, right)	ESC ~ (1B, 7E hexadecimals)	Map G1 into GR
LS2* (Locking shift 2)	ESC n (1B, 6E hexadecimals)	Map G2 into GL
LS2R* (Locking shift 2, right)	ESC } (1B, 7D hexadecimals)	Map G2 into GR
LS3* (Locking shift 3)	ESC o (1B, 6F hexadecimals)	Map G3 into GL
LS3R* (Locking shift 3, right)	ESC | (1B, 7C hexadecimals)	Map G3 into GR
* *Available only in VT320 and VT340 modes.*		

Received Codes

Received codes are codes the terminal receives from an application or host computer. The following pages describe received codes, and the action taken by the terminal when it receives the codes from an application or host.

Select C1 Controls

Select C1 controls (code extension announcers) control the representation of C1 control codes returned to the application. The terminal supports select 7-bit and 8-bit C1 control transmission as shown in the following table.

Note: The terminal does not support DECSCL sequences.

Transmission	Sequence	Action
Select 7-bit C1 Control (S7C1T)	ESC sp F	Converts all C1 codes returned to the application to their equivalent 7-bit code extensions.
Select 8-bit C1 Control (S8C1T) *(Ignored in VT100 and ANSI modes.)*	ESC sp G	Returns C1 codes to the application without converting them to their equivalent 7-bit code extensions.

Terminal Modes

A mode is one of several operating states used by the terminal. The following table lists selectable terminal modes and the action taken by the terminal in set mode and reset mode.

Note: The last character of each reset mode sequence is lowercase L (6C hexadecimal).

Selectable Terminal Modes

Mode (Mnemonic)	Set Mode Reset Mode	Sequence	Action
Keyboard action (KAM)	Locked	CSI 2 h	Locks the keyboard for all following keystrokes.
	Unlocked	CSI 2 l	Unlocks the keyboard.
Insert/Replace (IRM)	Insert	CSI 4 h	Selects insert mode. New display characters move old display characters to the right. Characters moved past the right margin are lost. Text moved into a protected character field is lost. If erasure mode (ERM) is reset, text moved into a protected character field is lost.
	Replace	CSI 4 l	Selects replace mode. New display characters replace old display characters at cursor position. Old character is erased.
Send/Receive (SRM))	Off	CSI 1 2 h	Disables local echo. When the terminal sends characters to the host, the host must echo them back to the display.
	On	CSI 1 2 l	Enables local echo. When the terminal sends characters, they are automatically sent to the display.
Line feed/New line (LNM)	New line	CSI 2 0 h	Causes a received LF, FF, or VT code to move the cursor to the first column of the next line. “Return” sends both a CR and an LF code.
	Line feed	CSI 2 0 l	Causes received LF, FF, or VT code to move cursor to the next line in the current column. “Return” sends a CR code only.
Cursor key (DECCKM)	Application	CSI ? 1 h	Causes cursor keys to send application control functions.
	Cursor	CSI ? l l	Causes cursor keys to send ANSI cursor control sequences.
ANSI/VT52 (DECANM)	(None)	(None)	Not applicable.
	VT52	CSI ? 2 l	Ignored.
Column (DECCOLM)	132 column	CSI ? 3 h	Ignored.
	80 column	CSI ? 3 l	Selects 80 columns per line.
Scrolling (DECSCLM)	Smooth	CSI ? 4 h	Ignored.
	Jump	CSI ? 4 l	Lets the terminal add lines to the display as fast as possible.
Screen (DECSCNM)	Reverse	CSI ? 5 h	Ignored.
	Normal	CSI ? 5 l	Selects normal (light characters on a dark background).
Origin (DECOM)	Origin	CSI ? 6 h	Ignored.
	Absolute	CSI ? 6 l	Ignored.

Selectable Terminal Modes (continued)

Mode (Mnemonic)	Set Mode Reset Mode	Sequence	Action
Auto wrap (DECAWM)	On	CSI ? 7 h	Graphic display characters received when the cursor is at right margin appear on the next line. The display scrolls up if cursor is at end of the scrolling region.
	Off	CSI ? 7 l	Graphic display characters received when cursor is at right margin replace previously displayed characters.
Auto repeat (DECARM)	On	CSI ? 8 h	Ignored.
	Off	CSI ? 8 l	Ignored.
Print form feed (DECPFF)	On	CSI ? 18 h	Selects form feed (FF) as print termination character. The terminal sends this character to the printer after each print screen operation.
	Off	CSI ? 18 l	Selects no termination character. The terminal does not send an FF to the printer after each print screen operation.
Print extent (DECPEX)	Full screen	CSI ? 19 h	Selects full screen to print during a print screen operation.
	Scrolling region	CSI ? 19 l	Selects scrolling region to print during a print screen operation.
Text cursor enable (DECTCEM)	Visible	CSI ? 25 h	Makes the cursor visible.
	Not visible	CSI ? 25 l	Makes the cursor not visible.
Keypad (DECKPAM/DECPNM)	Application	ESC =	Keypad keys send application control functions.
	Numeric	ESC >	Keypad keys send characters that match the numeric, comma, period, and minus sign keys on main keypad. PF1-PF4 send control functions.
Character set (DECNRCM)	National	CSI ? 42 h	Ignored.
	Multinational	CSI ? 42 l	Ignored.
Back arrow key mode (DECBKM)	Backspace	CSI ? 6 7 h	The arrow key moves cursor back one space and deletes the character. It sends a BS character to the host.
	Delete	CSI ? 6 7 l	The arrow key deletes the character at the cursor position. It sends a DEL character to the host.

Cursor Positioning

The cursor indicates the position where the next character appears. The terminal supports all cursor positioning sequences as shown in the following table.

Note: Pn is a variable, ASCII-coded, numeric parameter.

Cursor Positioning

Name (Mnemonic)	Sequence	Action
Cursor up (CUU)	CSI Pn A	Moves cursor up Pn lines in the same column. Cursor stops at top margin.
Cursor down (CUD)	CSI Pn B	Moves cursor down Pn lines in the same column. Cursor stops at bottom margin.
Cursor forward (CUF)	CSI Pn C	Moves cursor right Pn columns. Cursor stops at right margin.
Cursor backward (CUB)	CSI Pn D	Moves cursor left Pn columns. Cursor stops at left margin.
Cursor position (CUP)	CSI Pl ; Pc H	Moves cursor to Line P1, Column Pc.
Horizontal and vertical positions (HVP)	CSI Pl ; Pc f	Moves cursor to Line P1, Column Pc.
Index (IND)	ESC D	Is an 8-bit control character (84 hexadecimal) that can be expressed as an escape sequence for a 7-bit environment. IND moves the cursor down one line in the same column. If cursor is at bottom margin, display scrolls up.
Reverse index (RI)	ESC M	Is an 8-bit control character (8D hexadecimal) that can be expressed as an escape sequence for a 7-bit environment. RI moves the cursor up one line in the same column. If the cursor is at top margin, the display scrolls down.
Next line (NEL)	ESC E	Is an 8-bit control character (85 hexadecimal) that can be expressed as an escape sequence for a 7-bit environment. NEL moves the cursor to the first position on the next line. If the cursor is at bottom margin, the display scrolls up.
Save cursor (DECSC)	ESC 7	Saves the following into memory: cursor position, graphic rendition, character set shift state, state of wrap flag, state of origin mode, state of selective erase.
Restore cursor (DECRC)	ESC 8	Restores the states described for DECSC. If none of these characteristics were saved the cursor moves to home position, origin mode is reset, no character attributes are assigned, and the default character set mapping is established.

Tab Stops

Tab stops are selected based on the vertical column of the display. When the terminal receives a horizontal tab code (HT, 09 hexadecimal), the cursor tabs to the next tab stop. If no tab stops exist, the cursor tabs to the right margin.

The terminal supports both tab stop sequences . The terminal supports “global” line tab stops only. It does not allow tab set and clear on every character on every line as for a VT/ANSI.

Name (Mnemonic)	Sequence	Action
Horizontal tab set (HTS)	ESC H	Sets a tab stop at the current column. HTS is an 8-bit control character (88 hexadecimal) that can also be expressed as an escape sequence when coding for a 7-bit environment.
Tabulation clear (TBC)	CSI g	Clears a horizontal tab stop at cursor position.
	CSI 0 g	Clears a horizontal tab stop at cursor position.
	CSI 3 g	Clears horizontal tab stops.

Character Rendition and Attributes

Character rendition and attributes affect how a character is displayed, without changing the character. Select graphic rendition sequences change character rendition. The select character attribute sequence designates characters as erasable or non-erasable.

Select Graphic Rendition (SGR)

The following table lists select graphic rendition sequences and the terminal action taken.

Graphic Rendition	Sequence and Ps (Single Parameter)	Action
All attributes off	CSI 0 m	Turns all attributes off.
Display bold	CSI 1 m	Translates bold to reverse video.
Display underscored	CSI 4 m	Displays underscored.
Display blinking	CSI 5 m	Ignored.
Display negative (reverse) image	CSI 7 m	Displays negative (reverse) image.
Display normal intensity	CSI 2 2 m	Displays normal intensity.
Display not underlined	CSI 2 4 m	Displays not underlined.
Display not blinking	CSI 2 5 m	Ignored.
Display positive image	CSI 2 7 m	Displays positive image.
Display black foreground*	CSI 30 m	Display black foreground
Display red foreground*	CSI 31 m	Display red foreground
Display green foreground*	CSI 32 m	Display green foreground
Display yellow foreground*	CSI 33 m	Display yellow foreground
Display blue foreground*	CSI 34 m	Display blue foreground
Display magenta foreground*	CSI 35 m	Display magenta foreground
Display cyan foreground*	CSI 36 m	Display cyan foreground
Display white foreground *(default)**	CSI 37 m	Display white foreground
Display black background *(default)**	CSI 40 m	Display black background
Display red background*	CSI 41 m	Display red background
Display green background*	CSI 42 m	Display green background
Display yellow background*	CSI 43 m	Display yellow background
Display blue background*	CSI 44 m	Display blue blackground
Display magenta background*	CSI 45 m	Display magenta background
Display cyan background*	CSI 46 m	Display cyan background
Display white background*	CSI 47 m	Display white background
* Supported on 700 Series, CK30, CK31, CV60 Terminals with color displays.		

Select Character Attributes (DECSCA)

The terminal ignores select character attributes.

Character Attribute	Sequence and Ps	Action
All attributes off	CSI 0 ″ q	Ignored
Designate characters as non-erasable by DECSEL/DECSED	CSI 1 ″ q	Ignored
Designate character as erasable by DECSEL/DECSED	CSI 2 ″ q	Ignored

Line Attributes

Line attributes affect an entire display line. The cursor selects the line affected by the attribute. It stays in the same character position when the attribute changes, unless the attribute would move the cursor past the right margin. In this case, the cursor stops at the right margin. When scrolling, the attribute moves with the line.

Double-height line sequences make the line with the cursor the top or bottom half of a double-height, double-width line. The terminal ignores these sequences.

Select Line Attributes

Line Attribute	Half	Sequence	Action
Double-height, double-width	Top	ESC # 3	Ignored
	Bottom	ESC # 4	Ignored

The terminal supports the single-width line.

Single-Width Line

Line Attribute	Sequence	Action
Single-width, single-height	ESC # 5	Makes the line with the cursor single-width, single-height. This is the line attribute for all new lines on the display.

Double-width line makes the line with the cursor double-width, single-height. The terminal ignores this sequence.

Double-Width Line

Line Attribute	Sequence	Action
Double-width, double-height	ESC # 6	Ignored

Erasure Mode

Erasure mode (ERM) determines whether erasing functions (ECH, erase character; EL, erase in line; and ED, erase in display) can edit protected characters. The following table lists erasure mode sequences.

Note: In edit mode (DECEDM), ERM affects editing functions IL, DL, ICH, and DCH.

Mode	Sequence	Comments
Set	CSI 6 h	Erasing functions ECH, EL, and ED can affect all protected and unprotected characters.
Reset	CSI 6 l	Erasing functions ECH, EL, and ED can affect only unprotected characters.

The following table lists the erasing and editing functions that ERM affects. ERM also affects the independent style of character protection.

Control Functions Affected by Character Protection

Always Affected	Affected if Edit Mode (DECEDM) is Set
Erase character (ECH)	Insert character (ICH)
Erase in line (EL)	Insert line (IL)
Erase in display (ED)	Delete character (DCH) Delete line (DL)

Editing

Editing sequences insert and delete characters and lines of characters at the cursor position. The position does not change when lines are inserted or deleted. The terminal supports all editing sequences.

Note: Pn is a variable, ASCII-coded, numeric parameter.

Name (Mnemonic)	Sequence	Action
Insert line (IL)	CSI Pn L	Inserts Pn lines at the cursor. If fewer than Pn lines remain from the current line to the end of the scrolling region, the number of lines inserted is the lesser number. Lines within the scrolling region at and below the cursor move down. Lines moved past bottom margin are lost. The cursor is reset to the first column. This sequence is ignored when the cursor is outside the scrolling region. In edit mode (DECEDM), if erasure mode (ERM) is reset, lines that move down into a line with a protected character field are lost.
Delete line (DL)	CSI Pn M	Deletes Pn lines, starting at the line with the cursor. If fewer than Pn lines remain from the current line to the end of the scrolling region, the number of lines deleted is the lesser number. As lines are deleted, the lines within the scrolling region and below the cursor move up, and blank lines are added at the bottom of the scrolling region. The cursor is reset to the first column. This sequence is ignored when the cursor is outside the scrolling region. In edit mode (DECEDM), if erasure mode (ERM) is reset, DL cannot delete lines that have protected characters. As lines are deleted, the area moved up is bounded by the bottom of the scrolling region, or by the next line with a protected character field.
Insert characters (ICH) *(Applies only to ANSI, VT220, VT320, and VT340 modes. Is ignored in VT100 mode.)*	CSI Pn @	Inserts Pn blank characters at the cursor position, with the character attributes set to normal. The cursor does not move and remains at the beginning of the inserted blank characters. A parameter of 0 or 1 inserts one blank character. Data on the line is shifted forward as in character insertion. In edit mode (DECEDM), if erasure mode (ERM) is reset, text moved into a protected character field is lost.
Delete character (DCH)	CSI Pn P	Deletes Pn characters, starting with the character at the cursor position. When a character is deleted, all characters to the right of the cursor move to the left. This creates a space character at the right margin for each character deleted. Character attributes move with the characters. Spaces created at the end of the line have all of their character attributes off. In edit mode (DECEDM), if erasure mode (ERM) is reset, DCH cannot delete protected characters.

Erasing

Erasing deletes characters in the terminal's display without affecting other characters. Erased characters are lost. Cursor positioning does not change when characters or lines are erased. The following table lists erasing sequences and the action taken by the terminal.

Name (Mnemonic)	Sequence	Action
Erase character (ECH) *(Applies only to ANSI, VT220, VT320, and VT340 modes. Is ignored in VT100 mode.)*	CSI Pn X	Erases characters at the cursor position and the next Pn-1 character. A parameter of 0 or 1 erases a single character. Character attributes are set to normal. No reformatting of data on the line occurs. The cursor remains in the same position. If erasure mode (ERM) is reset, ECH cannot erase protected characters.
Erase in line (EL)	CSI K	Erases from the cursor to the end of the line, including the cursor position. Line attribute is not affected. If erasure mode (ERM) is reset, EL cannot erase protected characters.
	CSI 0 K	Same as CSI K.
	CSI l K	Erases from the beginning of the line to the cursor, including the cursor position. Line attribute is not affected.
	CSI 2 K	Erases the complete line.
Erase in display (ED)	CSI J	Erases from cursor to the end of display, including the cursor position. Line attribute is single-height, single-width for all completely erased lines. If erasure mode (ERM) is set, ED cannot erase protected character positions.
Erase in display (ED)	CSI 0 J	Same as CSI J.
	CSI 1 J	Erases from the beginning of the display to the cursor, including the cursor position. Line attribute becomes single-height, single-width for all completely erased lines.
	CSI 2 J	Erases complete display. All lines are erased and changed to single-width. The cursor does not move.
Selective erase in line (DECSEL)	CSI ? K CSI ? 0 K CSI ? 1 K CSI ? 2 K	Ignored by the terminal.
Selective erase in display (DECSED)	CSI ? J CSI ? 0 J CSI ? 1 J CSI ? 2 J	Ignored by the terminal.

Scrolling Margins (Top and Bottom)

The scrolling region is the area of the terminal's display that can receive new characters by scrolling old characters off the display. The area is defined by the top and bottom display margins. The smallest scrolling region allowed is two lines. The number of the top margin must be at least one less than the number of the bottom margin.

Name (Mnemonic)	Sequence	Action
Set top and bottom margins (DECSTBM)	CSI Pt ; Pb r	Sets top and bottom scrolling margins. The value of Pt must be less than Pb. Moves the cursor to Column 1, Line 1 of the page.

Printing

Select print operations with control sequences. When characters are printed on the screen, printer tab stops are ignored. Print characters are spaced with the SP character. The terminal sends a carriage return and line feed, vertical tab, or form feed after the last printable character on a line (not a space character).

Note: The terminal ignores printer port DSR exchanges.

Name (Mnemonic)	Sequence	Action
Auto print mode	CSI ? 5 i	Turns on auto print mode. Display lines print when you move the cursor off the line with a line feed, form feed, vertical tab, or auto wrap. The printed line ends with a carriage return and the character that moved the cursor off the previous line (LF, FF, or VT). Auto wrap lines end with a line feed.
	CSI ? 4 i	Turns off auto print mode.
Printer controller	CSI 5 i	Turns on printer controller mode. The terminal sends received characters to the printer without displaying them on the screen. All characters and character sequences except NUL, XON, XOFF, CSI 5 i, and CSI 4 i are sent to the printer. The terminal does not insert or delete spaces, provide line delimiters, or select the correct printer character set. Keyboard activity is still directed to the host.
	CSI 4 i	Turns off printer controller mode.
Print cursor line	CSI ? l i	Prints the data on the display line with the cursor. Cursor position does not change. Print-cursor-line sequence is complete when the line prints. No CR/LF is attached to the line.
Print screen	CSI i	Prints the screen display (full screen or scrolling region, depending on the print extent DECPEX selection). Printer form feed mode (DECPFF) selects either a form feed (FF) or nothing as the print terminator. Print screen sequence is complete when the screen prints.
	CSI 0 i	Same as CSI i.

User-Defined Keys (DECUDK)

Note: The DECUDK command is ignored in VT100 mode.

The terminal has 20 user-defined keys (UDKs). You can define the codes of 15 of these keys. The keys are F6 through F14, F15 (Help), F16 (Do), and F17 through F20.

Use UDKs to store and recall text and commands that you often use with applications. You should refer to your application's software manual for the commands you can store in user-defined keys.

If you use dual sessions, you can define UDKs for each session. However, you can only save one set of UDK definitions. For each session you can use a total of 256 characters to define UDKs.

Using UDKs

To enter definitions for the 15 UDKs, you program the definitions with DECUDK device control strings. To use a UDK after you have defined it, the terminal must be in caps lock mode. For example, if you defined the [**F6**] key, you can use it by pressing the caps lock key for the terminal and then the key sequence for the [**F6**] key. The following chart shows key combinations for CAPS lock. *Note the host system can also define the function keys.*

Terminal	Key Sequence
2415	f U *(55-key keyboard)* f G *(37-key numeric keyboard)* f *(37-key alphanumeric keyboard)*
2425, 2455	f Z
2435A	*(57-key and 37-key function numeric keyboards)* [Orange] ▢ [Green] ▢ *(48-key keyboard)*
2475, 248X	f [quotation mark]
6400	[Blue] [space] (41-key keyboard); *not supported on 51-key keyboards*
5020	⇧ + function key
5055	[Caps Lock] on the external keyboard
59XX	Not supported
11XX, 17XX	[Black] [Gold]
700 Series	Alpha 1 Caps Send *(700 Series Numeric Keypad)* Alpha Cap Lock *(700 Color Alphanumeric Keypad)*
CK30	[Orange] ■⊐ [Shift] *(52-key keyboard)* [Func] [Shift] *(50-key keyboard)* [Orange] ■⊐ [A] *(42-key keyboard)*
CK31	[Orange] ■⊐ [Shift] *(52-key keyboard)*
CV60	[Caps Lock]

UDK Memory Space

There are 256 bytes of memory space available for the 15 UDKs. Space is supplied on a first-come, first-serve basis. When the 256 bytes are full you cannot define any more keys until you clear some of the memory space. Three ways that you can clear space are:

- Redefine one or more UDKs by using a DECUDK control string.
- Clear one or more UDKs by using a DECUDK control string.
- Clear all UDKs with a terminal power-up or hard terminal reset (RIS) operation. *Note that all UDK key definitions are lost when power is lost.*

Programming UDKs

Use the following Device Control String (DCS) format to load UDK definitions from the host.

DCS	Pc ; Pl	|	Ky1/St1;...Kyn/Stn	ST
Device control string introducer	Clear and lock parameters	Final character	Key definition string	String terminator

- **DCS** indicates the beginning of a device control string. DCS is an 8-bit C1 character (90 hexadecimal). You can use ESC P (1B and 50 hexadecimals) for a 7-bit environment.
- **Pc** is the clear parameter that selects how to clear key definitions.

Pc	Meaning
0 (default) or none	Clear all keys before loading new values.
1	Clear one key at a time, before loading a new value.

When Pc is 1, the terminal only clears the keys you are loading. By using a Pc value of 1, you can redefine some keys without redefining them all.

Note: There are 256 bytes of memory for all UDKs. A key definition can only use the number of bytes available when that key is loaded.

If Pc is 1, a key load may fail because no memory space is available. The reason for this is, with Pc set to 1, keys are cleared and loaded sequentially. If the new definition for a key is larger than the old one you may exceed the 256-byte limit.

Example

Suppose F6 contains 120 bytes, F7 contains 110 bytes, and F8 contains 20 bytes. You try to load F8 with 40 bytes, F6 with 1 byte, and F7 with 1 byte, in that order. This works if all keys are cleared first (Pc is 0), but not if keys are cleared one at a time (Pc is 1). When you try to load F8 with 40 bytes, the load fails because only 26 bytes are free at that time. (256 maximum — 120 in F6 — 110 in F7 = 26.)

Pl is the lock parameter. Pl determines whether the key definitions are locked or unlocked after you load them.

Pl	Meaning
0	Lock the keys. If you want to load new values into the keys, you must unlock the keys through the terminal's firmware menus.
1 *(default)* or none	Do not lock the keys. Keys are unlocked and can be redefined with another DECUDK string.

Note: If Pl is 1 and the keys are already locked, nothing happens. The terminal ignores UDK DSR exchanges.

The terminal uses a special lock to allow or prevent the programming of UDKs. You can turn on this lock through the terminal's firmware menus or from the host (with a DECUDK device control string). The lock affects all programmable keys. When using the lock follow these guidelines:

- Unlock the keys to define them. The keys must be unlocked before you can define them. You can only unlock the keys through the terminal's firmware menus. If a key is locked and an application tries to redefine the key with a DECUDK sequence, the terminal ignores the sequence.
- Lock the keys to prevent redefinition. You can lock the keys through the terminal's firmware menus or from the host (with a DECUDK sequence). New key definitions are unlocked by default.

The **vertical bar** (|, 7C hexadecimal) is the final character. It identifies this control string as a DECUDK.

Ky1/St1;…Kyn/Stn are the key definition strings. You include these strings between the final character (|) and the string terminator (ST). Each string consists of a key selector number (Kyn) and a string parameter (Stn), separated by a slash (/, 2F hexadecimal). A semicolon (3B hexadecimal) separates different strings.

The key selector number (Kyn) indicates which key you are defining. Following is a list of definable keys and their identifying values.

Key	Value	Key	Value
F6	17	F13	25
F7	18	F14	26
F8	19	Help	28
F9	20	Do	29
F10	21	F17	31
F11	23	F18	32
F12	24	F19	33
F13	25	F20	34
F14	26		

String parameters (Stn) are the encoded definition of the keys. String parameters consist of hex pairs in the following ranges:

- 30 through 39 hexadecimal (0 through 9)
- 41 through 46 hexadecimal (A through F)
- 61 through 66 hexadecimal (a through f)

When you combine these hexadecimal values they represent an 8-bit quantity. This method lets you use any of the 256 character codes in the key string. You can enter key definition strings in any order. The default for Stn is "empty." The key is undefined.

ST is the string terminator. ST (9C hexadecimal) is a C1 8-bit character. You can use ESC \ (1B and 5C hexadecimals) for a 7-bit environment.

Loading UDKs

Following are some guidelines for loading UDKs.

- Clear UDK memory space before loading new definitions. Use a DECUDK string to clear keys without locking them. Then you can use another DECUDK string to redefine the keys and lock them.
- If you redefine a key, the old definition is lost. This may clear some space if the new definition uses fewer bytes than the old one.
- There are two ways to lock UDKs, but only one way to unlock them. To lock UDKs, you can use either the terminal's firmware menus or a DECUDK control string. To unlock UDKs, you must use the terminal's firmware menus.
- The default value for each key definition is empty. When you clear UDKs, they are empty.
- An invalid hex pair in a DECUDK string is ignored.

Examples of Device Control Strings

This sequence clears UDKs:

```
DCS 0 ; 1 | ST
```

This sequence locks UDKs:

```
DCS 1 ; 0 | ST
```

Suppose you want to define the F20 key to be PRINT without clearing or locking any other keys and you are using 8-bit mode. The first part of the sequence would look like this:

```
É1;1|34/
```

where 34 is the code for the F20 key and "É" is the ASCII character for 90 hexadecimal.

After the slash character "/" (2F hexadecimal) you would include the definition. The rest of the sequence after the slash character would be,

```
5052494E54£
```

where the hex encoding for PRINT is:

50 = P
52 = R
49 = I
4E = N
54 = T

The ST ASCII character "£" (9C hexadecimal) marks the end of the control string. The complete string is:

```
É1;1|34/5052494E54£
```

Down-Line Loadable Character Set

The terminal does not support the ability to create and down-line load a character set of up to 94 characters. This character set is also called a dynamically redefinable character set (DRCS).

Function	Action
Down-line load DRCS characters	Ignored
Clear a down-line loaded character set	Ignored

Reports

The terminal sends reports in response to host computer requests. Reports provide identification (type of terminal). Two categories of reports are available: primary/secondary device attributes, and device status reports.

Device Attributes (DA)

The following table shows the action taken by the terminal when it receives primary and secondary device attribute exchanges. During a primary exchange, the host asks for the terminal's service class code. The terminal responds with "I am a service class 2 terminal." During a secondary exchange the terminal responds with "I am a VT (identification code of 1) family terminal."

Communication	DA Exchange	Sequence	Meaning
Host to VT220 (request)	Primary	CSI > c *or* CSI > 0 c	What type of terminal are you?
	Secondary	CSI c *or* CSI 0 c	What type of terminal are you?
VT220 to host (response)	Primary	CSI > c	I am a VT100 Terminal
		CSI > 1 c	I am a VT220 Terminal.
		CSI > 24 c	I am a VT320 Terminal.
		CSI > 19 c	I am a VT100 Terminal.
	Secondary	CSI ? 61 c	I am a VT100 Terminal.
		CSI ? 62 ; 8 ; 9 c	I am a VT220 Terminal supporting user-defined keys and national replacement character sets.
		CSI ? 63 ; 8 ; 9 c	I am a VT320 Terminal supporting user-defined keys and national replacement character sets.
		CSI ? 63 ; 8 ; 9 ; 13 c	I am a VT340 Terminal supporting user-defined keys, national replacement character sets, and local editing.

Device Status Reports (DSR)

The following table shows the action taken by the terminal when it receives device status report exchanges, when the host computer asks for the general operating status of the terminal or printer, or both. If the terminal is in printer controller mode, the printer receives the DSR request but cannot answer.

DSR Exchange	Communication	Sequence	Action
VT220	Host to VT220 (Request for status)	CSI 5 n	Ignores this code.
	VT220 to host (DA response)	CSI 0 n *or* CSI 3 n	Ignores these codes.
	Host to VT220 (Request for cursor position)	CSI 6 n	"Please report your cursor position using a CPR (not DSR) control sequence."
	VT220 to host (CPR response)	CSI Pv; Ph R	"My cursor is positioned at _____ (Pv); _____ (Ph)." (Pv=row, Ph=column)
Printer port	Request for printer status	CSI ? 15 n	What is the printer status?
	Response	CSI ? 13 n	No printer.
User-defined keys	Request for UDK status	CSI ? 25 n	Ignored in VT100 mode.
	Response	CSI ? 20 n	UDKs are unlocked.
		CSI ? 21 n	UDKs are locked.
Keyboard language	Request for keyboard language	CSI ? 26 n	What is the keyboard language?
	Response	CSI ? 27; Pn n	North American keyboard dialect.

Identification

The terminal supports the identification sequence.

Name (Mnemonic)	Sequence	Action
Identification (DECID)	ESC Z	Ignored

Terminal Reset

Terminal reset escape sequences cause either a soft terminal reset or a hard terminal reset.

Soft Terminal Reset (DECSTR)

Note: The DECSTR control function is available for all VT/ANSI modes.

DECSTR changes most of the terminal's current settings to the power-up default settings listed in the following table. The escape sequence is:

`CSI ! p`

DECSTR affects only those functions listed in the following table.

Soft Terminal Reset (DECSTR) States

Mode	Mnemonic	State After DECSTR
Text cursor enable	DECTCEM	Cursor enabled.
Insert/replace	IRM	Replace. ("Insert" if local editing mode.)
Origin	DECOM	Absolute (cursor origin at upper-left of screen).
Auto wrap	DECAWM	No auto wrap.
Keyboard action	KAM	Unlocked.
Numeric Keypad	DECNKM	Numeric characters.
Cursor keys	DECCKM	Normal (arrow keys).
Edit	DECEDM	Interactive.
Transmit execution	DECTEM	Immediate.
Erasure	ERM	All characters.
Guarded area transfer	GATM	All characters.
Multiple area transfer	MATM	All selected areas.
Selected area transfer	SATM	All areas.
Scanner lock		Reset.

The following table lists other control functions. All tab stops are reset. User-defined keys are cleared.

Soft Terminal Reset (DECSTR) States

Mode	Mnemonic	State After DECSTR
Set top and bottom margins	DECSTBM	Top margin = 1. Bottom margin = page length.
All character sets	G0, G1, G2, G3, GL, GR	VT/ANSI default settings.
Select graphic rendition	SGR	Normal rendition.
Start of selected area	SSA	Cleared.
End of selected area	ESA	Cleared.
Start of protected area	SPA	Cleared.
End of protected area	EPA	Cleared.
Save cursor state	DECSC	Home position with VT/ANSI defaults.

Hard Terminal Reset (RIS)

When the RIS is complete, the terminal sends XON to resume communication. The RIS sequence is:

ESC c

RIS resets values to factory default settings. It is the same as DECSTR, but also does the following:

- Clears the screen.
- Returns cursor to the upper-left corner of the screen.
- Sets SGR function to normal rendition.

Tests and Adjustments

The terminal has adjustment patterns you can invoke from the host computer with escape sequences. Adjustment sequences send uppercase Es to the terminal's display. Only qualified technicians perform adjustment procedures.

The following table shows the action taken by the terminal when it receives test and adjustment sequences.

Name (Mnemonic)	Sequence	Action
Tests (DECTST)	CSI 4 ; Ps ; ..... ; Ps y	Ignored
Adjustments (DECALN)	ESC # 8	Fills display with uppercase Es

VT52 Mode Escape Sequence

The terminal does not support VT52 mode, which allows the VT/ANSI Terminal to operate with DEC software written for VT52 Terminals.

Define Area Qualification

The define area qualification (DAQ) command indicates that the active position is the first character position of a qualified area. The end of a qualified area is indicated by the beginning of the following qualified area. The qualifications of the area are specified according to the parameter(s). The following table lists qualification sequences.

Note: DAQ is ignored unless the terminal is in VT340 mode.

Qualification	Sequence and Ps (Single Parameter)	Action
Accept all input	CSI 0 o	Accepts all input
Accept no input (protected) and do not transmit (guarded)	CSI 1 o	Accepts no input
Accept graphics	CSI 2 o	Accepts graphics
Accept numerics	CSI 3 o	Accepts numerics
Accept alphabetics	CSI 4 o	Accepts alphabetics
Right justify in area	CSI 5 o	Right justifies area
Zero fill in area	CSI 6 o	Fills area with zeros.
Horizontal tab stop at start of area	CSI 7 o	Puts horizontal tab stop at start of area
Accepts no input (protected), but select for transmission (unguarded)	CSI 8 o	Accepts no input
Space fill in area	CSI 9 o	Fills area with spaces
Invisible	CSI 1 0 o	Makes passwords invisible

Private Sequences

Private sequences enable or disable autosend.

Mode	Sequence*	Action
Set	ESC [= 3 l	Enables autosend. Transmits the screen when the last field is filled. If you are on the last defined field and get data from the bar code reader or RS-232 port, the display will also be automatically sent even if the field not filled.
Reset	ESC [= 3 h	Disables autosend. Only transmits when a terminating key is pressed.
*	*The last character of the set mode sequence is lowercase L (6C hexadecimal).*	

Proprietary Sequences

Following are INTERMEC® extensions to the data stream.

Line Edit and Character Modes

Two proprietary escape sequences enable the host to put the terminal into Line Edit (block) mode or Character mode. Note that the terminal enters Character mode when it is cold-started.

Mode	Sequence*
Line Edit	CSI = 1 l
Character	CSI = 1 h
*	*The last character of the Line Edit sequence is lowercase L (6C hexadecimal).*

Norcompress

The Norcompress function handles the norrc command, where “a” is the number of iterations that “b” occurs in the datastream. The sequence for Norcompress is **CSI a;bz**.

Scanner Lock Mode

Scanner lock mode is similar to the KAM function; however, you do not need to repeatedly send the Locked command (this command is assumed after each scan).

Mode	Sequence*	Action
Set	CSI = 4 h	The host sends this sequence, which puts the terminal into Scanner Lock mode. When the terminal is in this mode, only one scan is allowed; the scanner is then inhibited. After this sequence is sent, the user can scan only once (no additional scans are allowed). To re-enable the scanner, the host must send CSI 2 l to unlock the scanner.
Reset	CSI = 4 l	Resets Scanner Lock mode (default).
*	*The last character of the reset sequence is lowercase L (6C hexadecimal).*	

The scanner lock state can also be reset by the RIS command (ESC c) or the DECSTR command (CSI ! p).

VT340 Applications

VT340 Terminal applications supported by the terminal include setting the right margin, using control functions, and creating text forms.

Right Margin

The terminal's display contains 2 to 80 columns. To ensure that the cursor will not go beyond Column Pn, use the following sequence to set the number of columns (Pn is a number from 2 to 80):

```
CSI Pn $ ¦
```

Control Functions

In editing mode you can use the erasure, deletion, and insertion control functions. The character protection field lets you design text forms that cannot be changed or overwritten. In edit mode, character protection also depends on the setting of erasure mode (ERM):

- If ERM is set all characters can be changed, erased, and moved, regardless of protection.
- If ERM is reset only unprotected characters can be changed, erased, and moved. These control functions will not affect protected areas in page memory:
  - Insert line (IL)
  - Delete line (DL)
  - Insert character (ICH)
  - Delete character (DCH)
  - Erase in display (ED)
  - Erase in line (EL)
  - Erase character (ECH)

Text Forms

When using C1 control characters SPA, EPA, SSA, and ESA to create forms on the host, the rows and columns to which the cursor moves must be in sequential order. The following shows some sequences that create a text form, start with the left column.

Control Characters for Auto-Login Script File

Sequence	Definition	Sequence	Definition
ESC [1; 1 H	Home cursor	ESC V	Start protected area
ESC [2 J	Clear screen	ESC [4; 1 H	Move cursor to Row 4, Col 1
ESC [? 10 h	Start local editing mode	"Lot:"	Display literal
ESC V	Start protected area	ESC [1 D	Move cursor back 1 position
ESC [1; 2 H	Move cursor to Row 1, Col 2	ESC W	End protected area
"Manufacturing"	Display literal	ESC [1 C	Move cursor forward 1 position
ESC [1 ; 17 H	Move cursor to Row 1, Col 17	ESC F	Start selected area
"Receiving"	Display literal	ESC [4; 9 H	Move cursor to Row 4, Col 9
ESC [2; 1 H	Move cursor to Row 2, Col 1	ESC G	End selected area
"LIP:"	Display literal	ESC V	Negative Acknowledge
ESC W	End protected area	ESC [5; 1 H	Move cursor to Row 5, Col 1
ESC [1 D	Move cursor back 1 position	"Qty:"	Display literal
ESC W	End protected area	ESC [1 D	Move cursor back 1 position
ESC [l C	Move cursor forward 1 position	ESC W	End protected area
ESC F	Start selected area	ESC [1 C	Move cursor forward 1 position
ESC [2; 15 H	Move cursor to Row 2, Col 15	ESC F	Start selected area
ESC G	End selected area	ESC [5; 13 H	Move cursor to Row 5, Col 13
ESC V	Start protected area	ESC G	End selected area
ESC [3; 1 H	Move cursor to Row 3, Col 1	ESC V	Start protected area
"Item:"	Display literal	ESC [24; 80 H	Move cursor to Row 24, Col 80
ESC [1 D	Move cursor back 1 position	ESC W	End protected area
ESC W	End protected area	ESC [26 $ |	Set the number of Cols to 26
ESC [1 C	Move cursor forward 1 position	ESC [1; 8 r	Set top at 1, bottom at 8 Rows
ESC F	Start selected area	ESC [3 g	Clear tab stops
ESC [3; 16 H	Move cursor to Row 3, Col 16	ESC [2; 5 H	Move cursor to Row 2, Col 5
ESC G	End selected area		

If this information is entered on the form:

111111111 for "LIP:"
2222222222 for "Item:"
3333 for "Lot:"
44444444 for "Qty:"

The data stream will be sent to the host as indicated in the following chart. (If guarded area transfer mode (GATM) is reset, then the record separator is processed as a protected field entry.)

Sequence	Definition	Sequence	Definition
RS	Protected field Line 1	3333	Selected field Line 4
RS	First protected field Line 2	RS	Second protected field Line 4
111111111	Selected field Line 2	RS	First protected field Line 5
RS	First protected field Line 3	44444444	Selected field Line 5
RS	First protected field Line 3	RS	Second protected field Line 5
2222222222	Selected field Line 3	RS	Protected field Line 6
RS	Second protected field Line 3	RS	Protected field Line 7
RS	First protected field Line 4	RS	Protected field Line 8

IBM 330X Applications

The following escape sequences are supported for IBM 330X terminals:

Escape Sequence	Action
ESC n A	Moves cursor up “n” lines. Cursor stops at top margin.
ESC n B	Moves cursor down “n” lines. Cursor stops at bottom margin.
ESC n C	Moves cursor right “n” columns. Cursor stops at right margin.
ESC n D	Moves corsor left “n” columns. Cursor stops at left margin.
ESC I	Erase from the cursor to the end of the line, including the cursor position. Line attribute is not affected. If erasure mode (ERM) is reset, this function cannot erase protected characters.
ESC n O	Deletes “n” lines, starting at the line with the cursor. If fewer than “n” lines remain from the current line to the end of the scrolling region, the number of lines deleted is the lesser number. As lines are deleted, the lines within the scrolling region and below the cursor move up, and blank lines are added at the bottom of the scrolling region. The cursor is reset to the first column.
ESC L	Erases the entire display. All lines are erased and changed to single width. The cursor does not move.
ESC n P	Inserts “n” characters starting with the character at the cursor location, with the character attribute set to normal. The cursor does not move and remains at the beginning of the inserted characters. A parameter of “0” or “1” inserts one blank character. Data on the line is shifted forward as in character insertion. In edit mode (DECEDM), if erasure mode (ERM) is reset, text moved into a protected character field is lost.
ESC n Q	Deletes “n” characters, starting with the character at the cursor position. When a character is deleted, all characters to the right of the cursor move to the left. This creates a space character at the right margin for each character deleted. Character attributes move with the characters. Spaces created at the end of the line have all of the character attributes off. In edit mode (DECEDM), if erase mode (ERM) is reset, then this command cannot delete protected characters.
ESC n N	Inserts “n” lines at the cursor. If fewer than “n” lines remain, from the current line to the end of the scrolling region, the number of lines inserted is the lesser number. Lines within the scrolling region at and below the cursor move down. Lines past the bottom margin are lost. The cursor is reset to the first column. This sequence is ignored if the cursor is outside of the scrolling region. In edit mode (DECEDM), if erasure mode (ERM) is reset, lines that move down into a line with a protected character field are lost.
ESC n X	Moves the cursor to the “nth” column.
ESC n Y	Moves the cursor to the “nth” row.
ESC H	Moves the cursor to the top left of the memory screen.
ESC J	Erases from the cursor to the end of the display, including the cursor position. Line attributes become single height/single width for all completely erased lines.

ANSI Mode Sequences

Cursor Positioning

The terminal supports cursor positioning sequences in the following table.

Name (Mnemonics)	Sequence	Action
Cursor backward tab (CVT)	CSI Ps Z	Moves the cursor to previous Ps tab stop(s). If there is no previous tab stop, then the cursor moves to the left margin.
Cursor horizontal absolute (CHA)	CSI Ps G	Moves the cursor to the Ps column on the current line.
Cursor horizontal tab (CHT)	CSI Ps I	Moves the cursor to the next Ps tab stop(s). If there is not next tab stop, then the cursor moves to the right margin.
Cursor next line (CNL)	CSI Ps E	Moves the cursor down Ps lines. If at the bottom margin of the screen, then the cursor is not moved.
Cursor previous line (CPL)	CSI Ps F	Moves the cursor up Ps lines. If at the top margin of the screen, then the cursor is not moved.
Horizontal position absolute (HPA)	CSI Ps	Moves the cursor to Ps column on the current line.
Horizontal position relative (HPR)	CSI Ps a	Moves the cursor Ps columns from the current location. If past the right margin, then the cursor is stopped at the right margin.
Vertical position absolute (VPA)	CSI Ps d	Moves the cursor to Ps row using the current column.
Vertical position relative (VPR)	CSI Ps e	Moves the cursor Ps rows from the current location. If at the bottom margin, the cursor is stopped at the bottom margin.
Cursor vertical tab (CVT)	CSI Ps Y	Moves the cursor down Ps vertical tab stops. If at the bottom margin, then the cursor is stopped.

Cursor Tabulation Control

The following table lists cursor tabulation control (CBT) sequences in ANSI mode.

Sequence	Action
CSI 0 W	Sets horizontal tab stop at current location.
CSI 1 W	Sets vertical tab stop at current location.
CSI 2 W	Clears horizontal tab stop.
CSI 3 W	Clears vertical tab stop.
CSI 4 W	Clears all horizontal tab stops this line.
CSI 5 W	Clears all horizontal tabs stops in the machine.
CSI 6 W	Clears all vertical tab stops

Scrolling

The following table lists scrolling sequences in ANSI mode.

Name (Mnemonics)	Sequence	Action
Scroll up (SU)	CSI Ps S	Scrolls display up Ps lines.
Scroll down (SD)	CSI Ps T	Scrolls display down Ps lines.

Transmitted Keyboard Codes

Transmitted codes are generated by the terminal's keys and sent to the host computer or software application in use. The following pages describe the capability of the terminals to emulate codes generated by the VT/ANSI terminal keyboard's main keypad, editing keypad, auxiliary keypad, and top-row function keys. Codes are sent via Line Edit (block) mode or optimized Character mode selected through the keyboard function labeled MODE on the overlay.

Line Edit (Block) Mode

Line Edit (block) mode is a synchronous condition where the terminal temporarily stores or "buffers" keys you press. It sends the cumulative data to the host computer when you press one of these terminating keys:

- [**Enter**]
- [**F6**] through [**F20**], [**PF1**] through [**PF4**]
- [**CTRL**]+[**A**] through [**CTRL**]+[**Z**]
- Forward Tab
- DEL (7F hexadecimal)
- Backspace

The following also apply to Line Edit (block) mode:

- When you press [**PF1**], the following key will also be transmitted directly to the host computer.
- When scanning, the terminal automatically enters Line Edit (block) mode for each individual scan. When it completes scanning, it returns to the mode it was set at before it started scanning.

For codes generated by the cursor control key, see page 309. For codes generated by the auxiliary keypad keys, see page 309.

Character Mode

Character mode (the default) is a condition where the terminal sends, to the host computer, each key as you press it. You should place the terminal into Character mode during these situations:

- When the terminal should immediately send information to the host computer. This operation is called "type-ahead."
- When the terminal's keyboard sends a character to the display as well as to the host. This operation is called "local echo." If local echo is disabled, the host receives the character from the terminal and then sends the return response.

To alternate between Line Edit (block) mode and Character mode, press the mode key as defined under "Transmission Mode" in Chapter 3, "*Using the Terminal's Keyboard*."

Transmitted Keyboard Keys

The following pages describe codes generated by main keypad keys, editing keys, auxiliary keys, and top-row function keys.

Main Keypad

The terminal emulates all of the standard and most of the special function keys on the VT/ANSI main keypad. The standard keys generate letters, numbers, and symbols, either alone or in combination with other keys. The function keys generate special function codes.

The following table lists the codes generated by the special function keys.

VT/ANSI Key	Code
Ctrl	Does not send a code when used alone. Is always used in combination with another key to send a control code.
Delete	DEL (7F hexadecimal).
Lock	None.
Return	CR (0D hexadecimal) or CR (0D hexadecimal) LF (0A hexadecimal).
Shift	Does not send a code when used alone; sends uppercase characters when used with other standard keys.
Space bar	SP (20 hexadecimal).
Tab	HT (09 hexadecimal).

Editing Keypad

The terminal has editing keys and cursor control keys. Editing keys have functions assigned to them by the application software in use. Refer to your VT/ANSI application software manual for the uses of the editing keys.

Editing Keys

The following table lists the codes generated by the editing keys.

Note: The editing keys do not send codes in VT100 mode.

VT/ANSI Key	Code
Find	CSI 1 ~
Insert here	CSI 2 ~
Next screen	CSI 6 ~
Prev screen	CSI 5 ~
Remove	CSI 3 ~
Select	CSI 4 ~

Cursor Keys

The following table lists codes generated by the terminals' cursor keys.

Key	Cursor Key Mode Reset (Normal)	Cursor Key Mode Set (Application)
Down arrow	CSI B	SS3 B
Left arrow	CSI D	SS3 D
Right arrow	CSI C	SS3 C
Up arrow	CSI A	SS3 A

Sending Host Cursor Keys

In keyboard unshifted and shifted modes, the cursor control key sends a host cursor key to the host computer. The cursor control key emulates the arrow keys of a VT/ANSI Terminal in either their normal arrow key mode or Application mode, depending on the state set by the programmer.

To Send	Press Terminal Keys
Host cursor down key	[▼]
Host cursor left key	[◀]
Host cursor right key	[▶]
Host cursor up key	[▲]
Host cursor down key	[SFT]+[▼]
Host cursor left key	[SFT]+[◀]
Host cursor right key	[SFT]+[▶]
Host cursor up key	[SFT]+[▲]

Auxiliary Keypad

Auxiliary keypad keys enter numeric data. The application software in use can also assign functions to these keys; refer to your VT/ANSI application software manual for their uses. The following table shows codes generated by the auxiliary keys in keypad Application mode.

VT/ANSI Key	Keypad Mode	VT/ANSI Key	Keypad Mode
0	SS3 p	9	SS3 y
1	SS3 q	- (hyphen)	SS3 m
2	SS3 r	, (comma)	SS3 l
3	SS3 s	. (period)	SS3 n
4	SS3 t	Enter	SS3 M
5	SS3 u	PF1	SS3 P
6	SS3 v	PF2	SS3 Q
7	SS3 w	PF3	SS3 R
8	SS3 x	PF4	SS3 S

Top-Row Function Keys

The following table lists function keys and the codes generated.

Key	VT220/320/340 Mode	VT100 Mode
F5 (Break)	No code	No code
F6	CSI 1 7 ~	No code
F7	CSI 1 8 ~	No code
F8	CSI 1 9 ~	No code
F9	CSI 2 0 ~	No code
F10	CSI 2 1 ~	No code
F11	CSI 2 3 ~	Esc
F12	CSI 2 4 ~	BS
F13	CSI 2 5 ~	LF
F14	CSI 2 6 ~	No code
F15	CSI 2 8 ~	No code
F16	CSI 2 9 ~	No code
F17	CSI 3 1 ~	No code
F18	CSI 3 2 ~	No code
F19	CSI 3 3 ~	No code
F20	CSI 3 4 ~	No code

Local Edit Mode

If your application software program supports local editing, the terminal can be programmed to operate in Local Edit mode. Local Edit mode is a feature of the VT340 Terminal. Use the mode to send characters to page memory instead of to the host. The terminal sends a block of edited text to the host after you press a terminating key. Terminating keys in Local Edit mode are:

- [**Enter**]
- [**F1**] through [**F20**]

Edit Mode and Interactive Mode

The edit mode control function (DECEDM) selects edit mode or interactive mode. The function determines when the terminal sends data to the host. The following Local Edit Modes table describes the modes.

Mode	Sequence*	Action
Set	CSI ? 1 0 h	Selects edit mode. (Turns on the annunciator in the display.) The terminal stores all typed characters in page memory for local editing. After the data is edited, it can be sent in a block to the host.
Reset	CSI ? 1 0 l	Selects interactive mode. (Turns off the annunciator in the display.) The terminal immediately sends typed characters to the host.
*	*The last character in the reset sequence is lowercase L (6C hexadecimal).*	

Local Editing Setup

To use the terminal in Local Edit mode, the local editing features must be set up for the application software as described in the following table.

Feature	Setting	Description
Edit mode	Edit	Edited text is stored in memory until you press a terminating key, which sends the text to the host.
Edit key execution mode		Not supported.
Transmit execution mode	Immediate	The terminal sends data to the host immediately after you press a terminating key.
Local editing application keys	Suffix transmit	When you press [F1] through [F20], the terminal sends that function to the host after sending a block of data.
Line transmit mode	Disabled	The terminal sends a full page of data to the host after you press a terminating key.
Transfer termination mode	Enabled	After you press a terminating key, the terminal sends the scrolling region, which is the area inside the scrolling margins.
VT131 transfer mode		Not supported.
Space compression	Disabled	Terminal sends a space character for each unused character position
End of line characters		On the terminal, no characters indicate the EOL in a data block.
End of block characters		On the terminal, no characters indicate the end of a data block.

Selecting Characters to Send

Three control functions allow you to define which characters the terminal can send to the host. The following table shows how the control functions select which characters the terminal sends.

Selecting Character Fields for Transmission

Fields Selected	GATM	SATM	MATM
All fields	Set	Set	Unavailable
Unprotected fields only	Reset	Set	Unavailable
Selected fields only	Set	Reset	Set
Selected field with cursor only	Set	Reset	Reset
Unprotected and selected fields	Reset	Reset	Set
Selected field with cursor only	Reset	Reset	Reset

Guarded Area Transfer Mode (GATM)

The GATM control function selects whether the terminal sends all characters or only unprotected characters to the host. When GATM is unprotected (reset), the terminal sends a record separator (RS, 1E hexadecimal) to the host in place of a protected field. The followint table lists GATMs.

Mode	Sequence*	Action
Set (All)	CSI 1 h	Selects all characters. During block transmission, the terminal can send all protected and unprotected characters to the host.
Reset (Unprotected)	CSI 1 l	Selects unprotected characters. During a block transmission, the terminal can send only unprotected characters to the host.
*	*The last character of the reset sequence is lowercase L (6C hexadecimal).*	

Selected Area Transfer Mode (SATM)

The SATM control function determines whether the terminal can send all characters or only selected characters to the host. Selected characters are characters defined as eligible to send to the host. The following table lists SATMs.

Mode	Sequence*	Action
Set (All)	CSI 1 7 h	Selects all characters. The terminal can send selected and unselected characters on the current page to the host.
Reset (Unprotected)	CSI 1 7 l	Selects only selected characters. The terminal can only send selected characters on the current page to the host.
*	*The last character of the reset sequence is lowercase L (6C hexadecimal).*	

Multiple Area Transfer Mode (MATM)

The MATM control function determines what selected character areas the terminal can send to the host. MATM work only when SATM is reset. The following table describes MATMs.

Mode	Sequence*	Action
Set (All)	CSI 1 5 h	The terminal can send all selected areas on the page to the host.
Reset (Unprotected)	CSI 1 5 l	Selects one area. The terminal can send only the selected area with the cursor. If the cursor is not in a selected field, cursor moves to the next selected field.

* *The last character of the reset sequence is lowercase L (6C hexadecimal).*

Defining Selected Areas

Start selected area (SSA) and end selected area (ESA) control functions select which characters on the current page the terminal can send to the host. SSA and ESA are 8-bit C-1 control characters that can also be coded as 7-bit escape sequences. The following conditions apply to SSA and ESA:

- They work only when SATM is reset.
- If the terminal receives ESA before SSA, it ignores ESA.
- If SSA is not followed by ESA on the same page, the SSA has no effect on that page. Selected areas must always end with ESA.
- Selected areas cannot be changed by the ED, EL, or ECH control functions.

The following table describes SSA and ESA.

Name (Mnemonic)	8-Bit	7-Bit Equivalent	Action
SSA	SSA (86 hex)	ESC F (1B, 46 hex)	Marks the cursor position as the first of a string of character positions the terminal can send to the host.
ESA	ESA (87 hex)	ESC G (1B, 47 hex)	Defines the cursor position as the last of a string of character fields the terminal can send to the host.

Local Edit Mode Keys

Keys with special functions in Local Edit mode are described in this table.

Keys	Function
Find	Advances cursor to the top margin, Column 1.
Tab	Advances cursor to the next tab stop. If in protected area, it advances to the next selectable field. If tab stop is selected, it advances to the next selectable field.
Insert here	Default mode is "insert." The key toggles between insert and overstrike. If in insert mode, all following characters in the field are shifted right one position. If the field is full the last character is deleted.
Remove	If in protected area, terminal beeps and the cursor advances to the first position of the next selectable field. If no selectable field is found, it advances to the bottom margin (the default is Row 24, Column 80). If in unprotected field, the field is cleared and the cursor is positioned to the beginning of the selectable field.
Prev screen	Ignores this key.
Next screen	Ignores this key.
Select	Ignores this key.
Backspace	Moves cursor one position to the left until it reaches the left margin.
Delete	Deletes the previous selectable character.
A-Z, 0-9, Auxiliary keypad	If one of these keys is pressed while in a protected area, the terminal beeps, advances the cursor to the next selectable field, and enters the characters. If no other selectable field is found, the cursor advances to the bottom margin.
Back Tab	Cursor moves back to the first occurrence of the following: • Previous tab stop. • Beginning of the current unprotected field. • Beginning of the previous unprotected field. • Beginning of scrolling region. (Also called top margin.)
Cursor [▲]	Cursor moves up one line until it reaches the top margin. The terminal beeps when the cursor reaches the top margin.
[▼]	Cursor moves down one line until it reaches the bottom margin. The terminal beeps when the cursor reaches the bottom margin.
[▶]	Cursor moves right one character position until it reaches the right margin. The terminal beeps when the cursor reaches the right margin.
[◀]	Cursor moves left one character position until it reaches the left margin. The terminal beeps when the cursor reaches the left margin.

Scanning in Local Edit Mode

When scanning is enabled, data from the scanner is placed into the field where the cursor is located. If the cursor is not in an input field, the data from the scanner is placed into the next input field. If the data from the scanner fills the first input field, the remaining characters are placed into the next input field.

When the bar code does not fill the input field, the cursor stays where it ended. If autotab scanning is enabled, the cursor is placed at the beginning of the next input field. If the next input field is not found, extra data will be lost.

Set Transmit Termination Character (DECTTC)

The terminal supports the set transmit termination character (DECTTC) control function. Use the control function to select a character to indicate the end of a block transmission. You do not need to use an end-of-block character. The terminal sends the end-of-block character to the host at the end of each block transmission.

The control sequence is:

```
CSI Ps |
```

Ps is the end-of-block character in the following chart.

Ps	End-of-Block Character	Action
0 (default)	No character (DECTTC disabled)	
1	FF (0C hexadecimal)	Form feed
2	ETX (03 hexadecimal)	End of text
3	EOT (04 hexadecimal)	End of transmission
4	CR (0D hexadecimal)	Carriage return
5	DC3 (13 hexadecimal)	XOFF

Use an extended form of DECTTC to select a string of characters to indicate the end of a block. The extended form uses decimal codes to represent characters. You can use the extended form to send a control function at the end of a block transmission, instead of a single character. You can send a control sequence of up to six characters (Pn1 through Pn6) at the end of a block.

The control sequence is:

```
CSI ? Pn1 ; 0 Pn6 |
```

Pn1 through Pn6 are decimal codes for characters you can define as end-of-block. For example, the decimal code for ESC is 27 (1B hexadecimal). A code outside the range of 0 to 254 is ignored. The "C*0 and GL Codes*" table on page 271 and "*C1 and GR Codes*" table on page 273 contain decimal codes for characters.

For example, to send the default code of the [**PF1**] key on the terminal's numeric keypad at the end of a block transmission, use the following procedure.

1 The [**PF1**] key sends this default code:

```
ESC O P
```

2 Translate each character in the sequence to decimal code.

```
ASCII characters:    ESC O P
Decimal codes:       27 79 80
```

3 Insert the decimal codes into the extended DECTTC sequence:

```
CSI ? 27 ; 79 ; 80 |
```

Telxon Private Use

Telxon has defined its set of private use 2 escape sequences. For more information about these sequences, see the *AIRVU ANSI — AE User's Guide* (Telxon Part Number: 24627-000) from Telxon Corporation.

Each escape sequence is introduced by either:

- PU2 in 8-bit mode (0x 92) or
- ESC,R in 7-bit mode

The two bytes that follow the introducer are interpreted as an ASCII decimal value that describes the specific type of escape operation.

Intermec supports the following escape sequence for Telxon private use only:

```
(PU2 0x92 is ESC 7 (1B 37 in 7 bit mode), ST  0x9c is ESC \ (1B and 5C) in 7
bit mode))
```

Note: PU2 0 0 0 0 ST through PU2 0 0 0 5 ST are for 700 Series, CK30, and CK31 Terminals only.

PU2 0 0 0 0 ST	Sets screen size to 26x16 instead of 21x16 (Intermec's closest match)
PU2 0 0 0 1 ST	Sets screen size to 16x16
PU2 0 0 0 2 ST	Sets screen size to 26x8 instead of 21x8 (Intermec's closest match)
PU2 0 0 0 3 ST	Sets screen size to 16x8
PU2 0 0 0 4 ST	(16x4 screen size) Ignored, not supported by Intermec
PU2 0 0 0 5 ST	(21x4 screen size) Ignored, not supported by Intermec
PU2 0 5 0 0 ST	Disables scanner
PU2 0 5 0 2 ST	Enables scanner without Auto Enter
PU2 0 5 0 3 ST	Enables scanner with Auto Enter *
ESC R 1 3 ST	Data entry allowed from scanner only
ESC R 1 4 ST	Data entry allowed from keyboard and scanner only*
* Default mode	

7 Extended Commands

Extended commands govern abilities unique to terminals. You can use extended commands to transmit or receive data over the terminal's RS-232 port, send information to an RS-232 device (such as a printer or bar code printer), or collect data. The following chart lists the commands.

Name	Characters
Transmit and Receive On RS-232 Port	#F
Transmit Only On RS-232 Port	#P
Receive Only On RS-232 Port	#G
Set Parameters *(supported on 6400, 5055, 59XX, 17XX, 11XX)*	#H
Return Version	#V
Tone	#T
Scan	#S
Get Optical Inputs *(supported on 248X)*	#I
Read, Set, and Reset Relay Commands *(supported on 248X)*	#R
Magnetic Card Reader *(supported on 700 Series)*	#M

To use extended commands, you must enable the extended command option through the TE configuration menus. See Chapter 4, "*Using the Terminal Emulation Menus*," for information about enabling the command on a terminal.

Transmit and Receive On RS-232 Port (#F)

Use the #F extended command to transmit and receive data on the terminal's RS-232 port.

When constructing a Transmit and Receive command, the data to be sent should be placed at Line 2, Column 1. The data must be less than 1840 bytes in length (after "=yy" compression, where "yy" is the hexadecimal representation of the output byte). The last character must be a "#" (pound sign). The terminal sends the data to the RS-232 port until it detects a "#" character.

Due to possible system fragmentation of a data stream, the "#" in Line 1, Column 2, should be the last character placed on the screen. This assures that all data is present before the extended command is parsed (removed).

There are two ways to send the #F extended command. The conventional method involves writing the command to the screen on line one, writing the data to be printed on the second line, then writing a "#" character on the first line to activate the print. The other method is to use the control characters APC (0x9F) and ST (0x9C) to encapsulate the command. Using the control characters method is faster since they are not written to the display.

Conventional Method

This is an example of Transmit and Receive using the conventional method. *Note that the descriptions for the "This is the Data to be sent" command are listed under the control character sequence method.*

Command	Action
`CSI 2J`	Clears the screen.
`CSI 1;3H`	Move the cursor to top row, Column 3.
`F4N8100005500A0102bb00`	Start the print command.
`CSI 2;1HThis is the Data to be sent#`	Moves cursor to Row 2, Column 1 and sends the data to be printed
`CSI 1;2H#`	Move the cursor to top row, Column 2 and start the print job.

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

Control character sequences for mnemonics APC (Application Program Command) and ST (String Terminator) can also start and end data. The last data character must be a "#" (pound sign). The terminal sends the data to the RS-232 port until it detects a "#" character and the string terminator sequence.

Below are the descriptions of each group of characters. Note that "b" indicates a 1-byte space.

^9F#F4N8100005500A0102bb00This is the Data to be sent#^9C

Data to send

- ^9F — APC character 0x9F
- #F — Extended command for transmit and receive
- 4N81 — 9600 baud, no parity, 8 data bits, 1 stop bit
- 000 — Flow control options *(disabled)*
- 05 — Flow timeout *(5 seconds)*
- 50 — Maximum receive characters
- 0A — Delimiting character
- 01 — Number of delimiting characters to wait for
- 02 — Start character *(STX)*
- b — Start character return *(do not return start character)*
- b — Parity error flags *(do not flag parity errors)*
- 00 — Receive timeout *(use 5-second default)*
- *Data to send*
- # — Data termination character
- ^9C — ST character 0x9C

The output stream appears in ASCII character format. For bytes that are not displayable ASCII characters, you may insert the "=yy" characters, where "yy" is the hexadecimal representation of the output byte.

The following table describes the line and columns where characters must appear, and their meanings. Note that "b" indicates a 1-byte space.

Transmit and Receive Characters — Line 1, Columns 2–24

Column	Description	Character
2	Extended command	#
3	Transmit and Receive on RS-232 Port command	F
4	Speed (bits per second)	1=1200; 2=2400; 3=4800; 4=9600; 5=19200; 6=38400
5	Data parity	N=None; 0 (zero)=None; b=None; E=Even; O=Odd
6	Data bits	7=Seven; 8=Eight
7	Stop bits	1=One; 2=Two
8	*For 6400, 5020, 5055, 59XX, 17XX, 11XX:* CTS flow control	0=Disable; 1=Enable
	For 2415, 2425, 2435A, 2455, 2475, 248X: Reserved	b
9	*For 5020, 5055, 59XX, 17XX, 11XX:* DTR flow control	0=Disable; 1=Enable
	For 2415, 2425, 2435A, 2455, 2475, 248X, 6400: Reserved	b
10	XON/XOFF flow control	0=Disable; 1=Enable
11–12	Flow control timeout value	XX=Number of seconds
13–14	Maximum characters to receive	dd *or* Xd…dX, where: dd=00-99. *Default: 99.* d…d=Any number of decimal digits from 0–2000, inclusive. *Default: 99.*
15–16	Delimiter character	AA=Hexadecimal ASCII code that marks the end of data to be received. Range: 00–7E. *Default of 00 or bb implies no start character.*
17–18	Number of delimiter characters	XX=Number of characters accepted before sending return code to host. Range: 00–99. *Default of 00 or bb implies no start character.*
19–20	Start character	AA=Hexadecimal ASCII code. Range: 00–99. *Default of 00 or bb implies no start character.*
21	Return start character to host	F=Return character; b = Do not return character
22	Flag parity errors	P=Flag; b = Do not flag
23–24	Receive timeout length	XX=Number of seconds the terminal waits for input from the RS-232 port before it sends a timeout error. *Uses a 5-second default when field contains spaces.*

Flow Control

The Transmit command supports these types of flow control:

- RTS/CTS *(6400, 5020, 5055, 59XX, 17XX, 11XX)*
- DTR/DSR *(59XX only)*
- XON/XOFF

Use CTS and DSR flow control lines to show XON/XOFF conditions from the output device. Also use them to prevent output when the terminal has no output device. The output device DTR should connect to either the DSR or CTS lines. On the 59XX Terminal, DTR is normally low and is raised to indicate that the terminal is prepared for an RS-232 data exchange.

XON/XOFF is the same XON/XOFF flow control most devices support. The timeout value tells the terminal how long to wait for the flow control handshake before returning a one-byte error value.

Return Codes for Transmit and Receive

The Transmit and Receive return code is the status sent to the host computer. The terminal returns data and the extended command's status to the host computer in the **\\X\CC\DATA<CR>** or **\\X\CCCC\DATA<CR>** format.

- **X** The return code listed in the following chart.
- **CC** or **CCCC** The character count of the data returned. **CC** is 00–99. **CCCC** is 100–2000.
- **DATA** The RS-232 data received from the RS-232 device attached to the terminal (if any data was received). The terminal simulates the [Enter] key to return the code to the host.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits or stop bits, or flow control timeout.	4, 6, 7, 11–12
2	No delimiter (#) on data stream.	(None)
3	Timeout while using CTS flow control *(6400, 5020, 5055, 59XX, 17XX, 11XX)*.	(None)
4	Timeout while using DTR flow control *(6400, 5020, 5055, 59XX, 17XX, 11XX)*.	(None)
5	Timeout while using XON/XOFF flow control.	(None)
6	Improper return field.	(None)
7	Hexadecimal value is outside the range of 00-0F.	15–16, 19–20
8	Reserved.	(None)
9	Incorrect setting for maximum characters to receive.	13–14
A	Incorrect setting for delimiter character.	15–16
B	Incorrect setting for number of delimiter characters.	17–18
C	Incorrect setting for CTS, DSR, or XON/OFF flow control.	8, 9, 10
D	Incorrect setting for start character.	19-20
E	Incorrect setting for data parity.	5, 22
f/F*	Timeout.	(None)
o/O*	Overrun of UART receive register; an error from the RS-232 device.	(None)
p/P*	Data parity or framing error.	(None)
R	Syntax error from RD5500 Remote Display (not the expected character; no character error was detected). *(Applies only to the 17XX Terminal.)*	(None)
*	*An uppercase letter indicates an error from the RS-232 device. A lowercase letter indicates an error from the RD5500 Remote Display (applies only to the 17XX Terminal).*	

Transmit Only On RS-232 Port (#P)

The Transmit Only On RS-232 Port extended command lets the terminal send information to a slaved RS-232 device, such as a receipt printer or bar code printer. The command uses the RS-232 communications port to send data to the device. The terminal checks data from the host computer for a transmit sequence, then sends the requested data. The host computer signals the terminal for a transmit command by inserting the characters "#P" into the display at Line 1, Columns 2 and 3. Characteristics of the transmission immediately follow the #P command.

When constructing a Transmit Only command, the data to be sent should be placed at Line 2, Column 1. The data must be less than 1840 bytes in length (after "=yy" compression). The last character must be a "#" (pound sign). The terminal sends the data to the RS-232 port until it detects a "#" character.

Conventional Method

This is an example of Transmit Only using the conventional method. *Note that the descriptions for the "Data to send" command are listed under the control character sequence method.*

Command	Action
`CSI 2J`	Clears the screen.
`CSI 1;3HP5E72010008Data to send=0A=0D#`	Moves the cursor to top row, Column 3
`CSI 1;2H #`	Moves the cursor to the beginning.

Due to possible system fragmentation of a data stream, the "#" in Line 1, Column 2, should be the last character placed on the screen. This will assure that all data is present before the extended command is parsed (removed).

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

Control character sequences for mnemonics APC (application program command) and ST (string terminator) can also start and end data. The last data character must be a "#" (pound sign). The terminal sends the data to the RS-232 port until it detects a "#" character and the string terminator sequence.

Below are the descriptions of each group of characters.

^9P#P5E7201008Data to send=0A=0D#^9C

- ^9P PC character 0x9F
- #P Extended command for transmit only
- 5E72 19200 baud, even parity, 7 data bits, 2 stop bits
- 010 Enable DTR Flow control
- 08 Wait up to 8 seconds for DSR to be returned
- Data to send Sending string with CR, LF
- # Extended command terminating character
- ^9C ST character 0x9C

The output stream takes the form of ASCII characters. For nondisplayable ASCII characters, you may insert the "=yy" characters, where "yy" is the hexadecimal representation of the output byte.

The following table describes the line and columns where characters must appear, and their meanings. Note that "b" indicates a 1-byte space.

Transmit Only Characters — Line 1, Columns 2–12

Column	Description	Character
2	Extended command	#
3	Transmit Only On RS-232 Port command	P
4	Speed (bits per second)	1=1200; 2=2400; 3=4800; 4=9600; 5=19200; 6=38400
5	Data parity	N=None; 0 (zero)=None; b=None; E=Even; O=Odd
6	Data bits	7=Seven; 8=Eight
7	Stop bits	1=One; 2=Two
8	*For 6400, 5020, 5055, 59XX, 17XX, 11XX:* CTS flow control	0=Disable; 1=Enable
	For 2415, 2425, 2435A, 2455, 2475, 248X: Reserved	b
9	*For 5020, 5055, 59XX, 17XX, 11XX:* DTR flow control	0=Disable; 1=Enable
	For 2415, 2425, 2435A, 2455, 2475, 248X, 6400: Reserved	b
10	XON/XOFF flow control	0=Disable; 1=Enable
11-12	Flow control timeout value	XX=Number of seconds

Flow Control

Transmit Only supports RTS/CTS, DTR/DSR, and XON/XOFF. For descriptions, see page 321.

Return Codes for Transmit Only

The Transmit Only return code is the status sent to the host computer. The terminal returns the extended command's status to the host computer in the \\X<CR> format. **X** is the return code listed in the following chart. The terminal simulates the [Enter] key to return the code to the host.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits, number of stop bits, or flow control timeout.	4, 6, 7, 11–12
2	No delimiter (#) on data stream.	(None)
3	Timeout while using CTS flow control *(6400, 5055, 59XX, 17XX, 11XX)*.	(None)
4	Timeout while using DTR flow control *(6400, 5055, 59XX, 17XX, 11XX)*.	(None)
5	Timeout while using XON/XOFF flow control.	(None)
6	Improper return field.	(None)
C	Incorrect setting for CTS, DTR, or XON/OFF flow control.	8, 9, 10
E	Incorrect setting for data parity.	5
f	Timeout. No acknowledgment was received from the RD5500 Remote Display *(applies to the 17XX Terminal)*.	(None)
o/O*	Overrun of UART receive register.	(None)
p/P*	Data parity or framing error.	(None)
R	Syntax error from RD5500 Remote Display (not the expected character; no character error was detected). *(Applies to the 17XX Terminal.)*	(None)
*	*An uppercase letter indicates an error from the RS-232 device. A lowercase letter indicates an error from the RD5500 Remote Display (applies only to the 17XX Terminal).*	

Receive Only On RS-232 Port (#G)

Note: There are no flow control settings for extended command #G.

The Receive Only On RS-232 Port extended command provides a way to use the RS-232 port on the terminal to collect data. A scale is one example of a use for this command. The host computer sends "#G" characters to alert the terminal for activity on the port.

Conventional Method

This is an example of Receive Only using the conventional method. *Note that the descriptions for the middle command are listed under the control character sequence method and that "~~b~~" indicates a 1-byte space.*

Command	Action
CSI 2J	Clears the screen.
CSI 1;3HG3E81~~bbbbb~~X1000X03010202FP06	Moves the cursor to the top row, Column 3
CSI 1,2H #	Moves the cursor to the beginning.

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background. Note that "~~b~~" indicates a 1-byte space.

^9F#G3E81~~bbbbb~~X1000X03010202FP06^9C

- ^9F — APC character 0x9F
- #G — Extended command for receive only
- 3E81 — 9600 baud, even parity, 8 data bits, 1 stop bit
- ~~bbbbb~~ — Reserved
- X1000X — Receive 1000 bytes
- 03 — Delimiting character *(ETX)*
- 01 — One delimiting character
- 02 — Start character *(STX)*
- 02 — Number of start characters *(2)*
- F — Return start characters
- P — Flag parity errors
- 06 — Receive all data within 6 seconds
- ^9C — ST character 0x9C

The following table describes the line and columns where characters must appear, and their meanings. Note that "b" indicates a 1-byte space.

Receive Only Characters — Line 1, Columns 2–24

Column	Description	Character
2	Extended command	#
3	Receive Only On RS-232 Port command	G
4	Speed (bits per second)	1=1200; 2=2400; 3=4800; 4=9600; 5=19200; 6=38400
5	Data parity	N=None; 0 (zero)=None; b=None; E=Even; O=Odd
6	Data bits	7=Seven; 8=Eight
7	Stop bits	1=One; 2=Two
8–12	Reserved	bbbbb
13–14	Maximum characters to receive	dd *or* Xd…dX, where: dd=00–99. *Default: 99.* d…d=Any number of decimal digits from 0–2000, inclusive. *Default: 99.*
15–16	Delimiter character	AA=Hexadecimal ASCII code that marks end of valid data to be received. Range: 00–7E. *Default: 00.*
17–18	Number of delimiter characters	XX=Delimiter characters received before transmitting return code to host. Range: 00–99. *Default: 00.*
19–20	Start character	AA=Hexadecimal ASCII code for start character. Range: 00–99. *Default of 00 or bb implies no start character.*
21	Return start character to host	F=Return character; b=Do not return character
22	Flag parity errors	P=Flag; b=Do not flag
23–24	Receive timeout length	XX=Number of seconds the terminal waits for input from the RS-232 port before it sends a timeout error. *Uses 5-second default when this field contains spaces.*

Return Codes for Receive Only

The Receive Only return code is the status sent to the host computer. The terminal returns data and the extended command's status to the host computer in the **\\X\CC\DATA<CR>** or **\\X\CCCC\DATA<CR>** format.

- **X** The return code listed in the following chart.
- **CC** or **CCCC** The character count of the received data. **CC** is 00–99. **CCCC** is 100–2000.
- **DATA** The RS-232 data received from the RS-232 device attached to the terminal (if any data was received). The terminal simulates the [Enter] key to return the code to the host.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits, or number of stop bits.	4, 6, 7
2	No delimiter (#) on data stream.	(None)
6	Improper return field.	(None)
7	Hexadecimal value is outside the range of 00–0F.	15–16, 19–20
8	Reserved.	(None)
9	Incorrect setting for maximum characters to receive.	13–14
A	Incorrect setting for delimiter character.	15–16
B	Incorrect setting for number of delimiter characters.	17–18
D	Incorrect setting for start character.	19–20
E	Incorrect setting for data parity.	5, 22
f/F*	Timeout.	(None)
o/O*	Overrun of UART receive register.	(None)
p/P*	Data parity or framing error.	(None)
R	Syntax error from RD5500 Remote Display (not the expected character; no character error was detected). *(Applies only to the 17XX Terminal.)*	(None)
*	*An uppercase letter indicates an error from the RS-232 device. A lowercase letter indicates an error from the RD5500 Remote Display (applies only to the 17XX Terminal).*	

Set Parameters (#H)

Note: This extended command is supported only on 6400, 5055, 59XX, 17XX, and 11XX Terminals.

Use Set Parameters to set TE configuration parameters that you would otherwise set at the terminal. The parameters are part of the configuration menus.

Set most of the parameters once per terminal. You can set them when you install a network or when you add terminals to the network. Unless the terminal fails (perhaps a dead battery) or a user does something destructive (such as a RAM test), you probably will not need to set them again. Note that "b" indicates a 1-byte space.

Conventional Method

When constructing a Set Parameters command, the data to be sent should be placed at Line 2, Column 1. *Note that the descriptions for the middle command are listed under the control character sequence method.*

Command	Action
CSI 2J	Clears the screen.
CSI 1;3H H099bbb3b12550220031000100160080 20	Moves the cursor to the top row, Column 3
CSI 1;2H #	Moves the cursor to the beginning.

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

^9F#H099bbb3b12550220031000100160080 20^9C

- ^9F — APC character 0x9F
- #H — Extended command for setting terminal parameters
- 099 — Set backlight timer to 99 seconds
- bbb — *Three 1-byte spaces*
Do not change sleep time
- 3 — Set cursor mode to block
- b — Do not change screen mode
- 1 — Remote display is attached
- 255 — Set beeper volume to 255
- 022 — Set beeper frequency to 22
- 003 — Set beeper length to 3 seconds
- 1 — Delete key returns 0x9F to host

- 0 Enter key returns ON 0x0D to host
- 0 Host will echo characters back to terminal
- 010 Set screen size to 10 rows
- 016 Set screen size to 16 columns
- 008 Alternate screen size is 8 rows
- 020 Alternate screen size is 20 columns
- ^9C ST character 0x9C

The following table lists columns in which characters must appear. Note that "b" indicates a 1-byte space.

Note: Some parameters do not apply to all terminal models. Refer to the terminal's user manual for applicable parameters.

Set Parameters Characters — Line 1, Columns 2–36 (6400, 5055, 59XX, 17XX, 11XX)

Column	Description	Character
2	Extended command	#
3	Set Parameters command	H
4–6	Backlight timer	bbb=No change from current setting; 000=On continuously; 001–255=Seconds to remain on
7–9	Sleep timer delay *(for legacy RT3210 Terminals)*	bbb=No change from current setting; 000=Off; 001–255=Seconds of inactivity before sleep
10	Cursor mode	b=No change from current setting, 1=Underline *(default)*; 2=Underline blink; 3=Block; 4=Block blink
11	Screen mode *(value must be sent, but it is ignored)*	b=No change from current setting; 1=Center cursor; 2=Corner; 3=Page
12	Remote display *(17XX, 11XX)*	b=No change from current setting; 0=Not attached; 1=Attached
13–15	Beeper volume	bbb=No change from current setting; 000–255=Range from quiet to loud
16–18	Beeper frequency	bbb=No change from current setting; 000–030=Range from low to high
19–21	Beeper length	bbb=No change from current setting; 000–010=Duration in seconds from short to long *(keyboard response time)*
22	Delete key mapping	b=No change from current setting; 0=Delete key is delete (7F hex); 1=Delete key is backspace (08 hex)
23	CR expansion mapping	b=No change from current setting; 0=CR; 1=CR/LF
24	Local host echo	b=No change from current setting; 0=Host echo; 1=Local echo
25–27	Primary screen row size	bbb=No change from current setting; 000–255=Number of rows per display screen
28–30	Primary screen column size	bbb=No change from current setting 000–255=Number of columns per display screen

Set Parameters Characters — Line 1, Columns 2–36 (6400, 5055, 59XX, 17XX, 11XX) (continued)

Column	Description	Character
31–33	Alternate screen row size	~~bbb~~=No change from current setting 000–255=Number of rows per display screen
34–36	Alternate screen column size	~~bbb~~=No change from current setting 000–255=Number of columns per display screen

Return Codes for Set Parameters

Line 24, Column 1, has the return status field. The code returned in this position tells the host the status of the extended command. The Set Parameters return code is the status sent to the host computer.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Backlight timer parameter invalid.	4–6
2	Sleep mode timer parameter invalid.	7–9
3	Normal cursor set parameter invalid.	10
4	Insert cursor set parameter invalid.	11
5	Remote display parameter invalid.	12
6	Shift key unlock parameter invalid.	13
7	Keyboard lock parameter invalid.	14
8	Beeper volume parameter invalid.	15–17
9	Beeper frequency parameter invalid.	18–20
A	Beeper length parameter invalid.	21–23
B	Stream scan parameter invalid.	24
E	Incorrect setting for number of rows.	25–27
F	Incorrect setting for number of columns.	28–30

Return Version (#V)

The Return Version extended command returns the current terminal emulation name and version to the host computer. The following table lists columns in which characters must appear.

Return Version Characters — Line 1, Columns 2–3

Column	Description	Character
2	Extended command	#
3	Return Version command	V

The return code is the status sent to the host computer and indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the following format.
For example: **\\0\FWP240H0 V6.52 <CR>**

\\0\<Program name> <Version> <CR>

- **0**
  Return code, which indicates "good status, transaction complete."
- **<Program name>**
  TE program name.
- **<Version>**
  Program version.

Conventional Method

Note: The descriptions for the second command are listed under the control character sequence method.

Command	Action
CSI 2J	Clears the screen.
CSI 1;2H #V#	Moves the cursor to the top row, Column 2

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

^9F#V#^9C

- ^9F APC character 0x9F
- #V# Extended command to get program name and version
- ^9C ST character 0x9C

Tone (#T)

The Tone extended command causes the terminal to make a tone of a specified volume, frequency, and length ().

Note: For Trakker Antares terminals, volume and frequency are ignored. The volume is user-selectable via the Trakker Antares firmware menus. The frequency is set to 1200 Hz.

Conventional Method

Note that the descriptions for the middle command are listed under the control character sequence method.

Command	Action
CSI 2J	Clears the screen.
CSI 1;3HT25015008	Moves the cursor to the top line, Column 3
CSI 1,2H #	Moves the cursor to the beginning.

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

^9F#T125015008^9C

- ^9F APC character 0x9F
- #H Extended command for the tone command
- 125 Sets beeper volume to 125
- 015 Sets beeper frequency to 15
- 008 Set beeper length to 8 seconds
- ^9C ST character 0x9C

The following table describes the line and columns where characters must appear, and their meanings. *Note that a "␣" indicates a 1-byte space.*

Tone Options — Line 1, Columns 2–12

Column	Description	Character
2	Extended command	#
3	Tone command	T
4–6	Volume	~~␣␣␣~~=No change from current setting; 000–255=Range from quiet to loud
7–9	Frequency	~~␣␣␣~~=No change from current setting; 000–030=Range from low to high
10–12	Length	~~␣␣␣~~=No change from current setting; 001–010=Duration in 500 ms from short to long *(keyboard response time)*

Return Codes for Tone

The return code is the status sent to the host computer; the code indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the **\\X<CR>** format. X is the return code listed in the following chart.

Code	Description	Column
0	Good status, transaction complete.	(None)
8	Incorrect setting for volume.	4–6
9	Incorrect setting for frequency.	7–9
A	Incorrect setting for length.	10–12

Scan (#S)

The Scan extended command allows host systems to have the same capabilities as terminals using the Native data stream to set bar code parameters and scan.

By inserting characters "#S" in the display buffer at Line 1, Columns 2 and 3, the host computer tells the terminal to expect a Bar Code Scanner extended command. Appropriate descriptive characteristics should follow the "#S" characters. The terminal returns a code to indicate if the command was successful. Then it simulates the [Enter] key to return a value to the host computer. *Note that "b" indicates a 1-byte space.*

Conventional Method

Note that the descriptions for the middle command are listed under the control character sequence method.

Command	Action
`CSI 2J`	Clears the screen.
`CSI 1;3H S07F3201221132001208010806bbbbb#`	Moves the cursor to the top line, Column 3
`CSI 1;2H #`	Moves the cursor to the beginning.

Control Character Sequence Method

This is the same example using the control character sequence method. You do not need to clear the screen or move the cursor in the example because the print command executes in the background.

^9F#S08F3201221132001208010806bbbb#^9C

- ^9F — APC character 0x9F
- #S — Extended command for setting scan parameters
- 0 — Laser with no redundancy
- 7 — Auto enter scan
- F — Enable stream scanning, return bar code type and concatenate bar code
- 32 — Set maximum length for all bar codes to 32 characters
- 01 — Set minimum length for all bar codes to 1 character
- 2 — Decode UPC-E system 0 and UPC-A bar codes
- 2 — Enable EAN bar code symbology
- 1 — Enable Encoded 39 bar code symbology
- 1 — Enable Plessey bar code symbology
- 3 — Keep MOD 10 first check digit for Plessey symbology
- 2 — Enable ABC Codabar bar code symbology

- 0 Disable Code 11 bar code symbology
- 0 Disable Code 93 bar code symbology
- 1 Enable Code 128 bar code symbology
- 2 Enable Straight 2 of 5 bar code symbology
- 08 Set maximum length to 8 characters
- 01 Set minimum length to 1 character
- 08 Set first fixed length to 8 characters
- 06 Set second fixed length to 6 characters
- 0 Disable Interleave 2 of 5 bar code symbology
- ~~bbbb#~~ Keep current value
- ^9C ST character 0x9C

Due to possible system fragmentation of a data stream, the "#" in Line 1, Column 2, should be the last character placed on the screen. This will ensure that all data is present before the extended command is parsed (removed). The following table lists the command. Other tables list options.

Scan Bar Code Parameters — Line 1, Columns 2–3

Column	Description	Character
2	Extended command	#
3	Scan command	S

CC Byte 1

Control Character Byte 1 (CC Byte 1) implementation differs among the terminals. The tables below and on the next page show the CC Byte 1 options for scanning. *A "b" indicates a 1-byte space.*

CC Byte 1 Options Supported by Characters — Line 1, Column 4 (2415, 2425, 2435A, 2455, 2475, 248X)

CC Byte 1	Laser	Disable Scanner	No Change From Current Setting
0	X		
1	X		
2			
3	X		
4			
5	X		
6			
7	X		
8			
9	X		
A			
B	X		
C			
D	X		
E			
F		X	
b			X

Note: 6400 Computers do not support HP Wand Select.

CC Byte 1 Options Supported by Characters — Line 1, Column 4 (6400, 5020, 5055, 59XX, 17XX, 11XX)

CC Byte 1	HP Wand Select	Redundancy	Laser	No Redundancy
0			X	X
1		X	X	
2		X		
3		X	X	
4	X			X
5	X	X	X	
6	X	X		
7	X	X	X	
8				X
9		X	X	
A		X		
B		X	X	
C	X			X
D	X	X	X	
E	X	X		
F	Disable scanner.			
~~b~~	No change from current setting.			

CC Byte 2

CC Byte 2 implementation differs among the types of terminals. The following tables show CC Byte 2 options. *Note that "b" indicates a 1-byte space.*

CC Byte 2 Options Supported by Characters (2415, 2425, 2435A, 2455, 2475, 248X)

CC Byte 2	Scan Termination Character
0–3	None
4–7	Auto Enter Scan
8–F	Auto Tab Scan
b	No change from current setting

CC Byte 2 Options Supported by Characters — Line 1, Column 5 (6400, 5020, 5055, 59XX, 17XX, 11XX)

CC Byte 2	Scan Termination Character	Modulo 10 Check Digit
0	None	
1		X
2		
3		X
4	[Enter] key	
5		X
6		
7		X
8	[Tab] key	
9		X
A		
B		X
C		
D		X
E		
F		X

CC Byte 3

Note that "b" indicates a 1-byte space.

CC Byte 3 Options Supported by Characters — Line 1, Column 6 (6400, 5020, 5055, 59XX, 17XX, 11XX)

CC Byte 3	Enable Stream Scanning	Reserved	Return Bar Code Type	Bar Code Concatenated
0				
1				X
2			X	
3			X	X
4		X		
5		X		X
6		X	X	
7		X	X	X
8	X			
9	X			X
A	X		X	
B	X		X	X
C	X	X		
D	X	X		X
E	X	X	X	
F	X	X	X	X
b	No change from current setting.			

Bar Code Length

Bar Code Length sets the minimum and maximum character lengths for all types of bar codes scanned. Setting the minimum and maximum values to their optimum can increase scanning performance. If the terminal scans bar codes that are outside the minimum and maximum value, the terminal ignores the bar code. *Note that a "b" indicates a 1-byte space.*

Bar Code Length — Line 1, Columns 7–10 (6400, 5020, 5055, 59XX, 17XX, 11XX)

Column	Character and Description
7–8	XX=Bar code length. Maximum length: 99. bb=No change from current setting
9–10	XX=Bar code length. Minimum length: 00. bb=No change from current setting

UPC

Note: 6400 Computers do not support UPC-E Number System 1.

Use the UPC command to select the combinations of characters listed in the following table. *Note that a "b" indicates a 1-byte space.*

UPC Bar Code Characters (6400, 5020, 5055, 59XX, 17XX, 11XX)

Character	UPC-E # System 1	Expand UPC-E to UPC-A	UPC-E # System 0	Add-ons	UPC-A
0	Disables all.				
1				X	X
2			X		X
3			X	X	X
4		X			X
5		X		X	X
6		X	X		X
7		X	X	X	X
8	X				X
9	X			X	X
10	X		X		X
11	X		X	X	X
12	X	X			
13	X	X		X	X
14	X	X	X		X
15	X	X	X	X	X
b	No change from current setting.				

EAN Algorithms

Use EAN Algorithms to select combinations of EAN options. *Note that a "b" is a 1-byte space.*

EAN Algorithms — Line 1, Column 12 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	EAN disabled
1	EAN with Add-ons enabled
2	EAN enabled
3	EAN and EAN with Add-ons enabled
b	No change from current setting

Code 39

Code 39 sets the scanner to read simple Code 39 bar codes that do not include extended or encoded sequences. *Note that a "b" is a 1-byte space.*

Extended Code 39 is a superset of Code 39 and scans all regular Code 39 bar codes. You cannot select both Code 39 and Extended Code 39. Encoded Code 39 combines key presses with normal bar code data.

Appendix A, "*Bar Code Scanning*," contains Encoded Code 39 sequences.

Code 39 Algorithms Characters — Line 1, Column 13 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	Code 39 disabled
1	Encoded Code 39 enabled
2	Extended Code 39 enabled
3	Code 39 enabled
b	No change from current setting

Plessey

Note: 6400 Computers do not support Plessey alpha characters.

If the Plessey bar code scanning algorithm is enabled, set its check digits according to your requirements. Refer to the manufacturer's bar code specifications for more information on check digits. *Note that a "b" indicates a 1-byte space.*

Plessey Characters — Line 1, Column 14 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	Plessey disabled
1	Plessey enabled
b	No change from current setting

The Xs in the following table indicate the Plessey check digits the characters support.

Plessey Check Digit Characters — Line 1, Column 15

Character	Keep 2nd Digit Check	Do Not Validate 1st Check Digit	Keep 1st Check Digit	Mod 10 1st Check Digit	Mod 11 1st Check Digit
0					X
1				X	
2			X		X
3			X	X	
4		X			X
5		X		X	
6		X	X		
7		X	X	X	
8			X		X
9			X	X	
A	X		X		X
B	X		X	X	
C		X	X		X
D		X	X	X	
E	X	X	X		X
F	X	X	X	X	X
b	No change from current setting.				

Codabar

The Codabar options (Codabar and ABC Codabar) are mutually exclusive coding algorithms and cannot be selected at the same time. *Note that a "b" indicates a 1-byte space.*

Codabar Characters — Line 1, Column 16 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	Codabar disabled
1	Codabar enabled
2	ABC Codabar enabled
b	No change from current setting

Code 11

The following table lists Code 11 characters. *Note that a "b" indicates a 1-byte space.*

Code 11 Characters — Line 1, Column 17 (59XX, 17XX, 11XX)

Character	Description
0	Code 11 disabled
1	Code 11 enabled
b	No change from current setting

Code 93

Code 93 and Code 128 options can be enabled. *Note that a "b" indicates a 1-byte space.*

Code 93 Characters — Line 1, Column 18 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	Code 93 disabled
1	Code 93 enabled
b	No change from current setting

Code 128

The following table lists Code 128 characters. *Note that a "b" indicates a 1-byte space.*

Code 128 Characters — Line 1, Column 19 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
0	Code 128 disabled
1	Code 128 enabled
b	No change from current setting

Straight or Computer Identics 2 of 5

If the Straight or Computer Identics bar code is enabled, select the maximum and minimum lengths and the first and second fixed bar code lengths according to your requirements. *Note that a "b" indicates a 1-byte space. Refer to the manufacturer's bar code specifications for more information.*

2 of 5 Characters (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
20	0=Straight and Computer Identics 2 of 5 disabled; 1=Computer Identics 2 of 5 enabled; 2=Straight 2 of 5 enabled; b=No change from current setting
21–22	XX=Maximum length Straight or Computer Identics 2 of 5; bb=No change from current setting
23–24	XX=Minimum length Straight or Computer Identics 2 of 5; bb=No change from current setting
25–26	XX=1st fixed bar code length for Straight or Computer Identics 2 of 5; bb=No change from current setting
27–28	XX=2nd fixed bar code length for Straight or Computer Identics 2 of 5; bb=No change from current setting

Interleaved 2 of 5

If Interleaved 2 of 5 is enabled, select the maximum and minimum lengths and the first and second fixed bar code lengths according to requirements. *Note that a "b" indicates a 1-byte space. Refer to the manufacturer's bar code specifications for more information.*

Interleaved 2 of 5 Characters — Line 1, Columns 29-37 (6400, 5055, 59XX, 17XX, 11XX)

Character	Description
29	0=Interleaved 2 of 5 disabled; 1=Interleaved 2 of 5 enabled; b=No change from current setting
30–31	XX=maximum length Interleaved 2 of 5; bb=No change from current setting
32–33	XX=minimum length Interleaved 2 of 5; bb=No change from current setting
34–35	XX=1st fixed length for Interleaved 2 of 5 Bar Code; bb=No change from current setting
36–37	XX=2nd fixed length for Interleaved 2 of 5 Bar Code; bb=No change from current setting

Return Codes for Scan Bar Code

The Scan Bar Code Parameters return code is the status sent to the host computer; the code indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the **\\X<CR>** format where **X** is the return code listed in the following chart. The terminal simulates the [ENTER] key to return a value to the host computer. If a hexadecimal number is entered wrong, the return code defaults to "0."

Code	Description
0	Good status, transaction complete
1	Bad status, transaction incomplete

Get Optical Inputs (#I)

Note: This extended command is supported on 248X Terminals only.

The Get Optical Inputs extended command returns a value representing the state of all four optical inputs. This value is represented by an ASCII character in the A–P range. If the ASCII value of the letter "A" is subtracted from the value returned, the result will be a number from 0 to 15, representing the state of the four inputs by bit positions: bit 0 is the optical input 1; bit 1 is the optical input 2; etc. If a bit is "0" (or off), then the input is off. If a bit is "1" (or on), then that input is on. The following table itemizes all possible combinations.

Get Optical Input Returned Values

Value Returned	Optical Inputs:	1	2	3	4
A		Off	Off	Off	Off
B		On	Off	Off	Off
C		Off	On	Off	Off
D		On	On	Off	Off
E		Off	Off	On	Off
F		On	Off	On	Off
G		Off	On	On	Off
H		On	On	On	Off
I		Off	Off	Off	On
J		On	Off	Off	On
K		Off	On	Off	On
L		On	On	Off	On
M		Off	Off	On	On
N		On	Off	On	On
O		Off	On	On	On
P		On	On	On	On

Line 1, Columns 2 and 3, contains the extended command "#I". Line 2, Column 1, receives the returned data in the following format, where "X" is the return value:

```
\\0X<cr>
```

The status value returned here will be "0" (the character for zero, not the value zero) for a good status, indicating that the transaction is complete and without error. An error will occur if this command is attempted from the wrong type of terminal. However, no error is detected when you have a 248X Terminal without terminal blocks. The status value returned when an error occurs is "1" (the character, not the value).

Relay (Set, Reset, Read) Commands (#R)

Note: These extended commands are supported on 248X Terminals only.

There are three relay commands: **Set**, **Reset** and **Read**. All three use the same extended command "#R" followed by two numeric characters. The first character is the relay number and the second is a command byte. The relay number can be "1", "2", "3" or "4", since there are four relays in a 248X Terminal equipped with terminal blocks. Also, the relay number can be "5" when you want to choose all four relays at once. The command byte will be "0" for **Reset**, "1" for **Set**, and "2" for **Read**.

Each **Set** and **Reset** command includes a **Read**, which provides verification that the chosen operation was successful. The **Read** command returns a value represented by an ASCII character in the A–P range. If the ASCII value of the letter "A" is subtracted from the value returned, the result will be a number from 0 to 15, representing the state of the four relays by bit positions: bit 0 is relay 1; bit 1 is relay 2; etc. If a bit is "0," that relay is reset (or off); if "1," it is set (or on).

If you **Set**, **Reset** or **Read** a single relay, the value returned represents only the state of that relay, and not the state of the other three relays. If all four relays are **Set**, **Reset**, or **Read** as a group, the value returned represents all relays. The following table itemizes all possible combinations:

Relay Commands Returned Values

Value Returned	Optical Inputs:	1	2	3	4
A		Off	Off	Off	Off
B		On	Off	Off	Off
C		Off	On	Off	Off
D		On	On	Off	Off
E		Off	Off	On	Off
F		On	Off	On	Off
G		Off	On	On	Off
H		On	On	On	Off
I		Off	Off	Off	On
J		On	Off	Off	On
K		Off	On	Off	On
L		On	On	Off	On
M		Off	Off	On	On
N		On	Off	On	On
O		Off	On	On	On
P		On	On	On	On

Line 1, Columns 2 and 3, contains the extended command "#R". Line 2, Column 1, receives the returned data in the following format, where "X" is the return value:

```
\\0X<cr>
```

The status value returned here will be "0" (the character for zero, not the value zero) for a good status, indicating that the transaction is complete and without error. An error will occur if this command is attempted from the wrong type of terminal. However, no error is detected when you have a 248X Terminal without terminal blocks. The status value returned when an error occurs is "1" (the character, not the value).

Magnetic Card Reader (#M)

Note: The Magnetic Card Reader (#M) command for Magnetic Card Reader support is included in software build versions 7.12 and greater.

On the following Intermec printers, you can access the Magnetic Card Reader from the host by sending an extended #M command to the TE 2000 application.

- 782T CR
- PW40 with CR
- 6808 CR

The Magnetic Card Reader extended command is supported for 3270, 5250, and VT/ANSI terminal emulations but not the Native terminal emulation. 3270 and 5250 terminal emulations require an input field to hold the card data. Data beyond the size of the field will be discarded.

When the 700 Series Computer with the TE 2000 application receives the Magnetic Card Reader (#M) command, the display will show:

```
Please SWIPE Card
NOW!
(Press any key)
to cancel.)
```

The operator should then swipe the card through the reader to cancel the process. The card reader data buffer is cleared just after displaying the waiting message, thus do not swipe the card until prompted by the display.

Pressing a key instead of swiping a card will cancel the process *(see return code "K" on the next page).*

Extended Command Syntax

The Magnetic Card Reader extended command syntax is in the #Mttddd format.

Magnetic Card Reader Options — Line 1, Columns 2–8

Column	Description	Character
2	Extended command	#
3	Magnetic Card Reader command	M
4–5	Timeout	01–99=2-digit data receive timeout in seconds. *Default is 30 seconds when "tt" has two blank characters.*
6–8	Maximum characters to accept	001–250=Limit of maximum characters to accept. *Default is 250 when "ddd" has three blank characters.* Data characters received past the maximum are discarded. For 3270 and 5250 emulation, data characters past the input field size are discarded.

Return Codes for Magnetic Card Reader

The return code is the status sent to the host computer; the code indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the **\\X<CR>** format. X is the return code listed in the following chart.

Code	Description
0	Good status, transaction complete.
1	Not enough memory for card data buffer.
6	No 3270 or 5250 input field available to hold the magnetic card data.
9	Incorrect setting for maximum characters to receive.
C	Incorrect setting for timeout value.
F	Timeout error, no data.
K	Key pressed to abort card read.
P	Communication with the Magnetic Card Reader failed, check cabling, reader power, no data.
T	OK, the data is returned, but is truncated by the lesser of the input field size (for 3270 and 5250) or "ddd."

#M will return the data in the following format:

```
"{T1:" <Track 1> "|T2:" <Track 2> "|T3:" <Track 3> "}"
```

where <*Track n*> is:

- 0 to 81 alphanumeric data characters for Track 1.
- 0 to 42 numeric data digits for Track 2.
- 0 to 109 alphanumeric or numeric data characters *(depending on ISO or AAMVA conformance)* for Track 3.

Note: If the track data is "B," then the track was not read. An "N" means the track is not on the magnetic card.

The maximum possible characters is 245.

Magnetic Card Reader CAB File

For the Magnetic Card Reader to work, the MAGCARD.CAB file must be installed (which installs and registers the MAGCARD.DLL file). Contact your Intermec Representative to get this file, then install this file in your 700 Series Computer. The TE 2000 application will only look for the MAGCARD.DLL file when it gets a Magnetic Card Reader (#M) extended command from the host.

A Bar Code Scanning

This appendix lists bar code labels for TE 2000 VT/ANSI commands and functions. It also contains Encoded Code 39 key press sequences.

Note: To scan the bar code labels, configure the terminal to use Code 39 in Full ASCII mode.

Note: For the 2415, 2425, 2435A, 2455, 2475, or 248X Terminal, configure the mode through the TRAKKER Antares® 2400 Menu System. See the terminal's user manual for help.

DK, Display Column Spacing

The spacing parameters define the number of pixels to be added between each row or column of characters. Note that font arrays have one or two lines built in for character separation.

`DK<param1><param2><param3>`

where:

- *param1* represents the font type and is one character
- *param2* represents column spacing and is two characters
- *param3* represents row spacing and is two characters

2415 and 2425 Terminal Displays

Below are the examples that apply to the 2415 and 2425 Terminal displays:

10 Columns

10 columns x 8 rows

$+DK20000

12 Columns

12 columns x 4 rows

$+DK90116

12 columns x 6 rows

$+DK90105

12 columns x 8 rows

$+DK90100

12 columns x 10 rows

$+DK80502

12 columns x 12 rows

$+DK80500

12 columns x 16 rows

$+DK70700

17 Columns

17 columns x 4 rows

*$+DK80122”

17 columns x 6 rows

$+DK80111

17 columns x 8 rows

$+DK80106

17 columns x 10 rows

$+DK80102

17 columns x 12 rows

$+DK80100

17 columns x 16 rows

$+DK70300

17 columns x 21 rows

$+DK60400

20 Columns

20 columns x 8 rows

$+DK10000

20 columns x 16 rows

$+DK00000

22 Columns

22 columns x 4 rows

$+DK70124

22 columns x 6 rows

$+DK70113

22 columns x 8 rows

$+DK70108

22 columns x 10 rows

$+DK70104

22 columns x 12 rows

$+DK70102

22 columns x 16 rows

$+DK70100

22 columns x 21 rows

$+DK60200

26 Columns

26 columns x 4 rows

$+DK70024

26 columns x 6 rows

$+DK70013

26 columns x 8 rows

$+DK70008

26 columns x 10 rows

$+DK70004

26 columns x 12 rows

$+DK70002

26 columns x 16 rows

$+DK70000

26 columns x 21 rows

$+DK60100

32 Columns

32 columns x 21 rows

$+DK60000

2435A Terminal Display

Below are the examples that apply to the 2435A Terminal display:

9 or 10 Columns

Note: *For 2435A Terminals with TE 2000 application version 6.60 or greater and TE 2000 application version 7.10 or greater,* if icons are enabled in the firmware, then the 2435A Terminal uses the 9 columns x 8 rows bar code. If the icons are disabled in the firmware, then the 2435A Terminal uses the 10 columns x 8 rows bar code.

9 Columns

9 columns x 4 rows

$+DK20016

9 columns x 6 rows

$+DK20005

9 columns x 8 rows

$+DK20000

10 Columns

10 columns x 4 rows

$+DK20016

10 columns x 6 rows

$+DK20005

10 columns x 8 rows

$+DK20000

12 Columns

12 columns x 4 rows

$+DK90116

12 columns x 6 rows

$+DK90105

12 columns x 8 rows

$+DK90100

12 columns x 10 rows

$+DK80502

12 columns x 12 rows

$+DK80500

12 columns x 16 rows

$+DK70700

17 Columns

17 columns x 4 rows

$+DK80122

17 columns x 6 rows

$+DK80111

17 columns x 8 rows

$+DK80106

17 columns x 10 rows

$+DK80102

17 columns x 12 rows

$+DK80100

17 columns x 16 rows

$+DK70300

17 columns x 21 rows

$+DK60400

19 or 20 Columns

Note: *For 2435A Terminals with TE 2000 application version 6.60 or greater and TE 2000 application version 7.10 or greater,* if icons are enabled in the firmware, then the 2435A Terminal uses the 19 columns x 8 rows bar code. If the icons are disabled in the firmware, then the 2435A Terminal uses the 20 columns x 8 rows bar code.

19 Columns

19 columns x 8 rows

$+DK10000

19 columns x 16 rows

$+DK00000

20 Columns

20 columns x 8 rows

$+DK10000

20 columns x 16 rows

$+DK00000

22 Columns

22 columns x 4 rows

$+DK70124

22 columns x 6 rows

$+DK70113

22 columns x 8 rows

$DK70108

22 columns x 10 rows

$+DK70104

22 columns x 12 rows

$+DK70102

22 columns x 16 rows

$+DK70100

22 columns x 21 rows

$+DK60200

26 Columns

26 columns x 4 rows

$+DK70024

26 columns x 6 rows

$+DK70013

26 columns x 8 rows

$+DK70008

26 columns x 10 rows

$+DK70004

26 columns x 12 rows

$+DK70002

26 columns x 16 rows

$+DK70000

26 columns x 21 rows

$+DK60100

31 or 32 Columns

31 Columns

31 columns x 16 rows

$+DK60002

32 Columns

32 columns x 16 rows

$+DK60002

Note: *For 2435A Terminals with TE 2000 application version 6.60 or greater and TE 2000 application version 7.15 or greater.* If icons are enabled in the firmware, then the 2435A Terminal uses the 31 columns x 16 rows bar code. If the icons are disabled in the firmware, then the 2435A Terminal uses the 32 columns x 16 rows bar code.

31 Columns

31 columns x 16 rows

$+DKB0000

31 columns x 21 rows

$+DK60000

32 Columns

32 columns x 16 rows

$+DKB0000

32 columns x 21 rows

$+DK60000

2455 Terminal Display

Note: The following bar codes are for 2455 Terminals with TE 2000 application version 6.73 or greater and TE 2000 application version 7.15.09, 7.15.77, or greater.

Below are the examples that apply to the 2455 Terminal display:

20 Columns

20 columns x 8 rows

$+DK21509

20 columns x 12 rows

$+DK21500

20 columns x 16 rows

$+DKC2000

33 Columns

33 columns x 8 rows

$+DK20309

33 columns x 12 rows

$+DK20300

33 columns x 16 rows

$+DKC0700

40 Columns

40 columns x 8 rows

$+DK200009

40 columns x 12 rows

$+DK20000

40 columns x 16 rows

$+DKC0400

53 Columns

53 columns x 12 rows

$+DK90000

53 columns x 16 rows

$+DKC0000

80 Columns

80 columns x 12 rows

$+DK10000

80 columns x 20 rows

$+DK80000

80 columns x 25 rows

$+DK00000

2475 and 248X Terminal Displays

Below are the examples that apply to the 2475 and 248X Terminal displays:

10 Columns

10 columns x 8 rows

$+DK20000

12 Columns

12 columns x 4 rows

$+DK90116

12 columns x 6 rows

$+DK90105

12 columns x 8 rows

$+DK90100

12 columns x 10 rows

$+DK80502

12 columns x 12 rows

$+DK80500

12 columns x 16 rows

$+DK70700

17 Columns

17 columns x 4 rows

$+DK80122

17 columns x 6 rows

$+DK80111

17 columns x 8 rows

$+DK80106

17 columns x 10 rows

$+DK80102

17 columns x 12 rows

$+DK80100

17 columns x 16 rows

$+DK70300

17 columns x 21 rows

$+DK60400

20 Columns

20 columns x 8 rows

$+DK10000

20 columns x 12 rows

$+DK20000

20 columns x 16 rows

$+DK0000

22 Columns

22 columns x 4 rows

$+DK70124

22 columns x 6 rows

$+DK70113

22 columns x 8 rows

$+DK70108

22 columns x 10 rows

$+DK70104

22 columns x 12 rows

$+DK70102

22 columns x 16 rows

$+DK70100

22 columns x 21 rows

$+DK60200

26 Columns

26 columns x 4 rows

$+DK70024

26 columns x 6 rows

$+DK70013

26 columns x 8 rows

$+DK70008

26 columns x 10 rows

$+DK70004

26 columns x 12 rows

$+DK90000

26 columns x 16 rows

$+DK70000

26 columns x 21 rows

$+DK60100

32 Columns

32 columns x 21 rows

$+DK60000

40 Columns

40 columns x 12 rows

$+DK10000

40 columns x 20 rows

$+DK80000

40 columns x 25 rows

$+DK00000

53 Columns

53 columns x 25 rows

$+DK70000

64 Columns

64 columns x 25 rows

$+DK60000

Cursor Keys

Window/Viewport up *(up one line)*

%UP

Window/Viewport down *(down one line)*

%DN

Window/Viewport right *(right one character)*

%RT

Window/Viewport left *(left one character)*

%LF

Paging Keys

Page up

%PGUP

Page down

%PGDN

Page right

%PGRT

Page left

%PGLT

Tab Keys

Back Tab

%BTAB

Forward Tab

%TAB

Special Function Keys

Backspace

%BKSP

Delete (Del)

%DEL

Editing Keys

Note: The following keys apply only to VT220/320 Terminals.

Find

%FIND

Insert

%INS

Next Screen

%NEXT

Previous Screen

%PREV

Remove

%REM

Select

%SEL

Top-Row Function Keys

Note: VT220/320 Terminals only support function keys F1 (PF1) through F20. VT100 Terminals only support function keys F11, F12, and F13.

F1

%F1

F2

*%F2

F3

%F3

F4

%F4

F5

%F5

F6

%F6

F7

%F7

F8

*%F8

F9

%F9

F10

%F10

F11

%F11

F12

%F12

F13

%F13

F14

%F14

F15

%F15

F16

%F16

F17

%F17

F18

%F18

F19

%F19

F20

%F20

Transmission Mode

Scan the following bar code label to toggle between Line Edit (block) mode and Character mode:

F21

%F21

VT/ANSI Additional Functions

TE configuration menus

%TECFG

Bar codes are not supported for these functions:

- Toggling between **Application** mode and **Numeric Keypad** mode
- Transmitting the **AnswerBack** field to the host

To enter these functions, see the key sequence in Chapter 3, "*Using the Terminal's Keyboard*."

Auto-Login Restart

Auto-Login Restart

%ALRS

Encoded Code 39

The following table lists escape characters and key press sequences for Encoded Code 39. The "(t)" in the table indicates a terminating key. Any bar code data following this key code is ignored. The "t" sequences, therefore, should be located only at the end of the bar code. If you attempt to use an invalid sequence (termed "reserved" in the table) the terminal beeps and the data stream is flushed.

Key Press Sequences for Encoded Code 39

Sequence	Key	Sequence	Key
$space	Find (t)	+space	09 hexadecimal (t)
$-	Insert here (t)	+–	0A hexadecimal (t)
$.	Remove (t)	+.	0B hexadecimal (t)
$0	Keypad 0 (t)	+0	0C hexadecimal (t)
$1	Keypad 1 (t)	+1	0D hexadecimal (t)
$2	Keypad 2 (t)	+2	0E hexadecimal (t)
$3	Keypad 3 (t)	+3	0F hexadecimal (t)
$4	Keypad 4 (t)	+4	10 hexadecimal (t)
$5	Keypad 5 (t)	+5	11 hexadecimal (t)
$6	Keypad 6 (t)	+6	12 hexadecimal (t)

Key Press Sequences for Encoded Code 39 (continued)

Sequence	Key	Sequence	Key
$7	Keypad 7 (t)	+7	13 hexadecimal (t)
$8	Keypad 8 (t)	+8	14 hexadecimal (t)
$9	Keypad 9 (t)	+9	15 hexadecimal (t)
$A	New Line (t)	+A	a
$B	Delete (t)	+B	b
$C	Forward Tab (t)	+C	c
$D	Forward Tab (t)	+D	d
$E	Reserved	+E	e
$F	Reserved	+F	f
$G	Reserved	+G	g
$H	Backspace (t)	+H	h
$I	Reserved	+I	i
$J	Reserved	+J	j
$K	Reserved	+K	k
$L	Reserved	+L	l
$M	Enter (t)	+M	m
$N	Reserved	+N	n
$O	Reserved	+O	o
$P	Reserved	+P	p
$Q	PF1 (t)	+Q	q
$R	PF2 (t)	+R	r
$S	PF3 (t)	+S	s
$T	PF4 (t)	+T	t
$U	F5 (t)	+U	u
$V	F6 (t)	+V	v
$W	F7 (t)	+W	w
$X	F8 (t)	+X	x
$Y	F9 (t)	+Y	y
$Z	F10 (t)	+Z	z
%space	Select (t)	/space	16 hexadecimal (t)
%-	Previous screen (t)	/–	17 hexadecimal (t)
%.	Next screen (t)	/.	18 hexadecimal (t)
%0	Enter (t)	/0	19 hexadecimal (t)
%1	00 hexadecimal (t)	/1	1A hexadecimal (t)
%2	01 hexadecimal (t)	/2	1B hexadecimal (t)
%3	02 hexadecimal (t)	/3	1C hexadecimal (t)

Key Press Sequences for Encoded Code 39 (continued)

Sequence	Key	Sequence	Key
%4	03 hexadecimal (t)	/4	1D hexadecimal (t)
%5	04 hexadecimal (t)	/5	1E hexadecimal (t)
%6	05 hexadecimal (t)	/6	1F hexadecimal (t)
%7	06 hexadecimal (t)	/7	Reserved
%8	07 hexadecimal (t)	/8	Reserved
%9	08 hexadecimal (t)	/9	Reserved
%A	Reserved	/A	! (exclamation mark)
%B	F11 (t)	/B	” (double quote)
%C	F12 (t)	/C	# (pound)
%D	Reserved	/D	$ (dollar)
%E	Reserved	/E	% (percent)
%F	; (semicolon)	/F	& (ampersand)
%G	< (less than)	/G	’ (single quote)
%H	= (equal)	/H	((left parenthesis)
%I	> (greater than)	/I	) (right parenthesis)
%J	? (question mark)	/J	* (asterisk)
%K	[(left brace)	/K	+ (plus)
%L	\ (backslash)	/L	, (comma)
%M	] (right brace)	/M	- (hyphen)
%N	^ (circumflex)	/N	F14 (t)
%O	_ (underscore)	/O	/ (forward slash)
%P	{ (left brace)	/P	F15 (t)
%Q	| (vertical bar)	/Q	F16 (t)
%R	} (right brace)	/R	F17 (t)
%S	~ (tilde)	/S	F18 (t)
%T	Keyboard delete (t)	/T	F19 (t)
%U	Reserved	/U	F20 (t)
%V	@ (at)	/V	Reserved
%W	′ (grave accent)	/W	Reserved
%X	Reserved	/X	Reserved
%Y	Reserved	/Y	Reserved
%Z	F13 (t)	/Z	: (colon)

Terminating Keys

Terminating keys are the nonprintable ASCII sequences and action keys. When the terminal encounters them in a bar code, an action is taken, and the terminal sends the data in the buffer to the host computer. Terminating keys should appear only at the end of the bar code. If they are located in the middle of a bar code, they are executed normally, but the data following them in the bar code is ignored. Terminating keys cause a terminal-to-base station transmission. The terminal ignores data in the bar code buffer following these keys once a transmission takes place.

For example, the terminal interprets the following sequence:

123$V456

as

123F6

The terminal will not send "456" to the host computer, because it follows terminating key F6.

ASCII sequences can be used any time before a terminating key. For example, the terminal interprets

+H+E+L+L+O$M

as

hello<Enter>

Escape Characters

The four escape characters in the previous table yield a VT220 data stream key press equivalent when followed by another character. The escape characters are:

$	(dollar sign)
%	(percent)
+	(plus)
/	(forward slash)

For example:

- If a bar code contains the sequence "%U" somewhere within it, the terminal converts this sequence to an [ENTER] key and processes it as soon as encountered in the scanning buffer.
- "+B" is converted to the lower case "b."
- "%B" is converted to an F11 key press.

If you want the Encoded Code 39 option but the bar codes to be scanned already contain the "$," "%," "+," or "/," character, then each place where these characters occur must be expanded to a special "/" sequence:

- Every bar code where the "$" is maintained must be expanded to a "/D" sequence.
- Percent signs (%) must be expanded to "/E".
- Forward slashes (/) must be expanded to the letter "/O".
- Plus signs (+) must be expanded to "/K".

B Bar Code Symbologies

This appendix contains a brief explanation of each bar code symbology that the VT/ANSI TE 2000 application decodes. It explains some of the general characteristics and uses of these bar code types.

Bar Code Algorithms

You can enable specific bar code algorithms using the setup menus or the host computer. Once the computer correctly decodes a bar code, the computer encodes data with descriptive information about the symbol. Response time is improved by limiting the computer to bar codes being used.

Bar Code Data String Formats

Bar Code Type Character	Symbology Type	Data Format	Data Length
"0"	UPC short (UPC-E)	ndddddddc	8
"1"	EAN short (EAN-8)	fnddddddc	8
"2"	UPC long (UPC-A)	nddddddddddc	12
"3"	EAN long (EAN-13)	fnddddddddddc	13
"4"	UPC short add-on 2	ndddddddcaa	10
"5"	EAN short add-on 2	fnddddddcaa	10
"6"	UPC long add-on 2	nddddddddddcaa	14
"7"	EAN long add-on 2	fnddddddddddcaa	15
"8"	UPC short add-on 5	ndddddddcaaaaa	13
"9"	EAN short add-on 5	fnddddddcaaaaa	13
":" (colon)	UPC long add-on 5	nddddddddddcaaaaa	17
";" (semicolon)	EAN long add-on 5	fnddddddddddcaaaaa	18
"<" (less than)	Interleaved 2 of 5	d.....d	Scan device dependent
"=" (equal sign)	Standard 2 of 5	d.....d	Scan device dependent
">" (greater than)	Plessey	d.....dc	Scan device dependent
"@" (ampersand)	Codabar	sd....ds	Scan device dependent
"S"	Code 11	d.....d	Scan device dependent
"P"	Code 39	d.....d	Scan device dependent
"Q"	Extended Code 39	d.....d	Scan device dependent
"R"	Code 93	d.....d	Scan device dependent
"J"	Code 128	d.....d	Scan device dependent

Note: These bar code data definitions apply to the Data Format column in the previous table:

- a Add-on code digits
- c Check digits
- d Bar code digits
- f EAN flag 1 characters
- n Number system digits
- s Start and stop digits

If MOD 10 or MOD 11 check digits are enabled, the digit falls at the end of a bar code data string. Each check digit enabled extends the bar code data string length by one character.

The VT/ANSI TE 2000 application recognizes eleven of the most widely used bar code symbologies. With bar code symbologies, like languages, there are many different types. A bar code symbology provides the required flexibility for a particular inventory tracking system.

A symbology may be for particular industries, such as food and beverage, automotive, railroad, or aircraft. Some of these industries have established their own bar code symbology because other symbologies did not meet their needs.

Without going into great detail on the bar code structure, note that no two products use the same bar code. Each product gets a unique bar code.

Industries that use a particular type of bar code symbology have formed regulating committees or are members of national institutes that issue and keep track of bar codes. This ensures that each organization that contributes to a particular industry conforms to its standard. Without some form of governing body, bar coding would not work.

- UPC (Universal Product Code) with/without add-ons
- EAN (European Article Numbering Code) with/without add-ons
- Codabar
- C11 (Code 11)
- C39 (Code 39)
- C93 (Code 93)
- C128 (Code 128)
- I 2 of 5 (Interleaved 2 of 5 Code)
- S 2 of 5 (Standard 2 of 5)
- Plessey
- MSI (a variant of Plessey)

UPC

The UPC (Universal Product Code) is the symbology used throughout the grocery and retail industries. This bar code symbology contains two pieces of numerical information encoded on the bar code, producer identification, and product identification information.

The UPC symbol is 12 characters long. The first character of the UPC symbol is a number system character, such as “0” for grocery items and “3” for drug- and health-related items.

The UPC symbology is for retail environments such as grocery stores, convenience stores, and general merchandise stores.

Some retail items are so small that a standard UPC bar code cannot fit on the packaging. When this occurs there is a permitted shorter version of the UPC symbology, referred to as UPC-E. UPC-E is six characters long (eight including number system and check digit), approximately half the size of a standard UPC bar code.

EAN

EAN (European Article Numbering) symbology is similar to UPC symbology, except that it contains 13 characters and uses the first two to identify countries.

The EAN symbology is used throughout most of Europe in the retail environment. Although similar to UPC symbology, the two are not interchangeable.

Codabar

Codabar was for retail price-labeling systems. Today it is widely accepted by libraries, medical industries, and photo finishing services.

Codabar is a discrete, self-checking code with each character represented by a stand-alone group of four bars and three intervening spaces.

Four different start or stop characters get defined and designated “a”, “b”, “c”, and “d”. These start and stop characters are constructed using one wide bar and two wide spaces. A complete Codabar symbol begins with one of the start or stop characters followed by some number of data characters and ending in one of the start or stop characters.

Any of the start or stop characters may be used on either end of the symbol. It is possible to use the 16 unique start or stop combinations to identify label type or other information.

Since Codabar is variable-length, discrete, and self-checking, it is a versatile symbology. The width of space between characters is not critical and may vary significantly within the same symbol. The character set consists of “0” through “9”, “-”, “$”, “:”, “/”, “.”, and “+”.

The specific dimensions for bars and spaces in Codabar optimize performance of certain early printing and reading equipment. Codabar has 18 different dimensions for bar and space widths. So many different dimensions often result in labels printed out of specification and cause Codabar printing equipment to be more expensive.

Code 11

Code 11 satisfies the requirements for a very high density, discrete numeric bar code. The name Code 11 derives from 11 different data characters that can be represented, in addition to a start or stop character.

The character set includes the 10 digits and the dash symbol. Each character is represented by a stand-alone group of three bars and two intervening spaces. Although Code 11 is discrete, it is not self-checking. A single printing defect can transpose one character into another valid character. One or two check digits obtain data security.

The specifications for Code 11 suggest that this code should have a narrow element width of 7.5 mils. This results in an information density of 15 characters per inch.

Code 39

Code 39 (C39) is the most widely used symbology among the industrial bar codes. Most major companies, trade associations, and the federal government find this code to fit their needs. The main feature of this symbology is the ability to encode messages using the full alphanumeric character set, seven special characters, and ASCII characters.

Programming for this symbology can be for any length that the application requires. The application program handles symbology that is at least one character but no more than 32 characters in length.

When programming the computer for Code 39, it is important to set the symbology limit as close as possible (minimum and maximum bar code lengths being scanned). Doing so keeps the computer bar code processing time to a minimum and conserves battery power.

Bar code readers can respond to Uniform Symbology Specification symbols in non-standard ways for particular applications. These methods are not for general applications, because of the extra programming required. Code 39 Full ASCII is one example of non-standard code.

Encoded Code 39 (Concatenation)

If the first data character of a symbol is a space, the reader may be programmed to append the information contained in the remainder of the symbol to a storage buffer. This operation continues for all successive symbols that contain a leading space, with messages being added to the end of previously stored ones. When a message is read which does not contain a leading space, the contents are appended to the buffer, the entire buffer is transmitted, and the buffer is cleared.

Encoded Code 39 (Full ASCII)

If the bar code reader is programmed for the task, the entire ASCII character set (128 characters) could be coded. This is done using two character sequences made up of one of the symbols (“$”,“.”,“%”,“/”) followed by one of the 26 letters.

Code 93

The introduction of Code 93 provided a higher density alphanumeric symbology designed to supplement Code 39. The set of data characters in Code 93 is identical with that offered with Code 39. Each character consists of nine modules arranged into three bars and three spaces.

Code 93 uses 48 of the 56 possible combinations. One of these characters, represented by a square, is reserved for a start or stop character, four are used for control characters, and the remaining 43 data characters coincide with the Code 39 character set. An additional single module termination bar after the stop character concludes the final space.

Code 93 is a variable length, continuous code that is not self-checking. Bar and spaces widths may be one, two, three, or four modules wide. Its structure uses edge-to-similar-edge decoding. This makes the bar code immune to uniform ink spread, which allows liberal bar width tolerances.

Code 93 uses two check characters. Its supporters believes this makes it the highest density alphanumeric bar code. The dual check digit scheme provides for high data integrity. All substitution errors in a single character are detected for any message length.

Code 128

Code 128 (C128) is one of the newest symbologies used by the retail and manufacturing industries. It responds to the need for a compact alphanumeric bar code symbol that could encode complex product identification.

The fundamental requirement called for a symbology capable of being printed by existing data processing printers (primarily dot-matrix printers) that produce daily, work-in-progress, job, and product traceability documents. The ability to print identification messages between 10 and 32 characters long, on existing forms and labels deemed an important requirement.

Code 128 uniquely addresses this need as the most compact, complete, alphanumeric symbology available.

Additionally, the Code 128 design with geometric features, improves scanner read performance, does self-checking, and provides data message management function codes.

Code 128 encodes the complete set of 128 ASCII characters without adding extra symbol elements. Code 128 contains a variable-length symbology and the ability to link one message to another for composite message transmission. Code 128, being a double-density field, provides two numeric values in a single character.

Code 128 follows the general bar code format of start zone, data, check digit, stop code, and quiet zone. An absolute minimum bar or space dimension of nine mils (0.010 inch minimum nominal ± 0.001 inch tolerance) must be maintained.

Characters in Code 128 consist of three bars and three spaces so that the total character set includes three different start characters and a stop character.

UCC/EAN-128 Shipping Container Labeling is a versatile tool that can ease movement of products and information. The Shipping Container Labeling bar code can take any form and usually has meaning only within the company or facility where applied.

Because this *random* data can get mistaken later for an industry standard code format, the UCC and EAN chose a symbology uniquely identified from these other bar codes. This standard is for maximum flexibility, to handle the diversity of distribution in global markets by cost efficiency.

The UCC/EAN-128 Container Labeling specification calls for a FUNC1 to immediately follow the bar code's start character. FUNC1 also follows any variable-length application field. The specification also calls for the computer to send "]C1" for the first FUNC1. The specification requires that the computer send a "<GS>" (hex 1D) for subsequent FUNC1 codes in the bar code.

Because "<GS>" is not compatible with computer emulation data streams, the Uniform Code Council has been asked to change the specification. This change is made to send the same three character sequence "]C1" to identify the embedded FUNC1 codes.

This implementation should provide for clean application coding by identifying the same sequences for the same scanned codes. If the communication of Norand bar code types is enabled, the Shipping Container Label codes precede with a "J". These strings will appear on the computer display. The application may have to allow for strings longer than 48 characters (maximum length indicated in the specification). Actual length variance depends on the number of variable-length data fields. Allowing for 60 characters should be sufficient. Within the Code 128 specification, the computer can link bar codes together. If this is to happen, allow for more characters (computer limit is 100 characters).

The Application Identifier Standard, that is part of the UCC/EAN Shipping Label concept, complements, rather than replaces, other UCC/EAN standards. Most UCC/EAN standards primarily identify products.

Several industries expressed the need to standardize more than product identification. The UCC/EAN Code 128 Application Identifier Standard supplies this tool. The standard adds versatility for inter-enterprise exchanges of perishability dating, lot and batch identification, units of use measure, location codes, and several other information attributes.

For more detailed information on Code 128 UCC/EAN Shipping Label bar code and Application Identifier Standard, refer to the UCC/EAN-128 Application Identifier Standard specification.

I 2 of 5 (Interleaved)

I 2 of 5 (Interleaved 2 of 5 Code) is an all-numeric symbology, widely used for warehouse and heavy industrial applications. Its use has been particularly prevalent in the automobile industry. The I 2 of 5 symbology can be placed on smaller labels than what the standard UPC symbology requires.

I 2 of 5 also provides a little more flexibility on the type of material it can print on. Interleaved 2 of 5 Code has its name because of the way the bar code is configured.

I 2 of 5 bars and spaces both carry information. The bars represent the odd number position digits, while spaces represent the even number position digits. The two characters are interleaved as one. Messages encoded with this symbology have to use an even number of characters since two numeric characters always get interleaved together.

S 2 of 5 (Standard 2 of 5)

The code S 2 of 5 (Standard 2 of 5 Code) is designed primarily for:

- Warehouse inventory handling
- Identification of photo finishing envelopes
- Airline tickets
- Baggage and cargo handling

The code S 2 of 5 is simple and straightforward. All information is contained in the widths of the bars, with the spaces serving only to separate the individual bars.

Bars can either be wide or narrow, and the wide bars are usually three times the widths of the narrow bars. Spaces may be any reasonable width but are typically equal to the narrow bars. Narrow bars are identified as zero bits and wide bars as one bits.

Remember the code structure by associating the bar positions from left to right with weighting factors 1, 2, 4, 7, and parity. Exceptions to this rule are zero, start, and stop. This code is a discrete code, since the white spaces between the characters are not part of the code. Because the white spaces carry no information, their dimensions are not critical.

The S 2 of 5 code is self-checking, meaning a scanner passing through a printing void would detect the proper ratio of wide bars to total bars. When the scanner spots an error, a non-read will occur.

Plessey

Plessey finds its origin in the pulse width modulated (PWM) code developed in England. It is widely used for shelf markings in grocery stores. Pulse width modulated codes represent each bit of information by a bar and space pair. A zero bit consists of a narrow bar followed by a wide space, while a one bit consists of a wide bar followed by a narrow space. It is mainly a numeric symbology (0–9) with six extra characters available for assigning any symbol or letter desired.

Plessey codes are not self-checking and employ a variety of check characters. Plessey employs a polynomial-based Cyclic Redundancy Check (CRC). For start and stop characters, Plessey employs a 1101 and previously used a 0101.

This symbology is very limited about what information can be encoded. It is not considered for new applications.

MSI Code (Variant of Plessey)

In addition to Plessey characteristics, the MSI Code employs a Modulus 10 Check. For start and stop checks, MSI employs a single bit pair of 1 as a start symbol and a single bit pair of 0 as a stop symbol. MSI reverses the 1-2-4-8 BCD pattern for bit pair weighting to 8-6-2-1.

C Full ASCII Table

The following table lists the ASCII characters and their binary, hexadecimal, and Code 39 equivalents.

Full ASCII Characters

Binary[0]	Hex[1]	Dec[2]	C39[3]	Char[4]	Binary[0]	Hex[1]	Dec[2]	C39[3]	Char[4]
00000000	00	00	%U	NUL	00100000	20	32	SP	SP[5]
00000001	01	01	$A	SOH	00100001	21	33	/A	!
00000010	02	02	$B	STX	00100010	22	34	/B	”
00000011	03	03	$C	ETX	00100011	23	35	/C	#
00000100	04	04	$D	EOT	00100100	24	36	/D	$
00000101	05	05	$E	ENQ	00100101	25	37	/E	%
00000110	06	06	$F	ACK	00100110	26	38	/F	&
00000111	07	07	$G	BEL	00100111	27	39	/G	’
00001000	08	08	$H	BS	00101000	28	40	/H	(
00001001	09	09	$I	HT	00101001	29	41	/I	)
00001010	0A	10	$J	LF	00101010	2A	42	/J	*
00001011	0B	11	$K	VT	00101011	2B	43	/K	+
00001100	0C	12	$L	FF	00101100	2C	44	/L	,
00001101	0D	13	$M	CR	00101101	2D	45	/M	-
00001110	0E	14	$N	SO	00101110	2E	46	/N	.
00001111	0F	15	$O	SI	00101111	2F	47	/O	/
00010000	10	16	$P	DLE	00110000	30	48	/P[6]	0
00010001	11	17	$Q	DC1	00110001	31	49	/Q	1
00010010	12	18	$R	DC2	00110010	32	50	/R	2
00010011	13	19	$S	DC3	00110011	33	51	/S	3
00010100	14	20	$T	DC4	00110100	34	52	/T	4
00010101	15	21	$U	NAK	00110101	35	53	/U	5
00010110	16	22	$V	SYN	00110110	36	54	/V	6
00010111	17	23	$W	ETB	00110111	37	55	/W	7
00011000	18	24	$X	CAN	00111000	38	56	/X	8
00011001	19	25	$Y	EM	00111001	39	57	/Y	9
00011010	1A	26	$Z	SUB	00111010	3A	58	/Z	:
00011011	1B	27	%A	ESC	00111011	3B	59	%F	;
00011100	1C	28	%B	FS	00111100	3C	60	%G	<
00011101	1D	29	%C	GS	00111101	3D	61	%H	=
00011110	1E	30	%D	RS	00111110	3E	62	%I	>
00011111	1F	31	%E	US	00111111	3F	63	%J	?
01000000	40	64	%V	@	01100000	60	96	%W	‘
01000001	41	65	A	A	01100001	61	97	+A	a
01000010	42	66	B	B	01100010	62	98	+B	b
01000011	43	67	C	C	01100011	63	99	+C	c
01000100	44	68	D	D	01100100	64	100	+D	d
01000101	45	69	E	E	01100101	65	101	+E	e
01000110	46	70	F	F	01100110	66	102	+F	f
01000111	47	71	G	G	01100111	67	103	+G	g
01001000	48	72	H	H	01101000	68	104	+H	h
01001001	49	73	I	I	01101001	69	105	+I	i
01001010	4A	74	J	J	01101010	6A	106	+J	j
01001011	4B	75	K	K	01101011	6B	107	+K	k
01001100	4C	76	L	L	01101100	6C	108	+L	l
01001101	4D	77	M	M	01101101	6D	109	+M	m
01001110	4E	78	N	N	01101110	6E	110	+N	n
01001111	4F	79	O	O	01101111	6F	111	+O	o

Full ASCII Characters (continued)

Binary[0]	Hex[1]	Dec[2]	C39[3]	Char[4]	Binary[0]	Hex[1]	Dec[2]	C39[3]	Char[4]
01010000	50	80	P	P	01110000	70	112	+P	p
01010001	51	81	Q	Q	01110001	71	113	+Q	q
01010010	52	82	R	R	01110010	72	114	+R	r
01010011	53	83	S	S	01110011	73	115	+S	s
01010100	54	84	T	T	01110100	74	116	+T	t
01010101	55	85	U	U	01110101	75	117	+U	u
01010110	56	86	V	V	01110110	78	118	+V	v
01010111	57	87	W	W	01110111	77	119	+W	w
01011000	58	88	X	X	01111000	78	120	+X	x
01011001	59	89	Y	Y	01111001	79	121	+Y	y
01011010	5A	90	Z	Z	01111010	7A	122	+Z	z
01011011	5B	91	%K	[	01111011	7B	123	%P	{
01011100	5C	92	%L	\	01111100	7C	124	%Q	|
01011101	5D	93	%M	]	01111101	7D	125	%R	}
01011110	5E	94	%N	^	01111110	7E	126	%S	~
01011111	5F	95	%O	-	01111111	7F	127	%T[7]	n[8]

Notes for the Full ASCII Table:

0 Bit positions are 76543210.
1 Hexadecimal value
2 Decimal value
3 Code 39 character(s)
4 ASCII character
5 SP is the SPACE character.
6 The Code 39 characters /P through /Y may be interchanged with the numbers 0 through 9.
7 May be interchanged with %X or %Y or %Z.
8 n is the DELETE character.

I Index

The General Index covers all topics. Those in italics are figures, those in bold are tables.

The Files Index is to assist you in locating descriptions for device drivers, applications, utilities, batch files, or other files within this publication.

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Files Index

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