

*This quick reference guide provides instructions for using your JANUS hand-held computer with 900 MHz terminal emulation. The JANUS user's manual, which is shipped with this guide, provides complete instructions for using the JANUS as a personal computer. Refer to the 2.4 GHz installation kit for information about 2.4 GHz terminal emulation software.*

## ***Introduction to JANUS 900 MHz Terminal Emulation***

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Your JANUS™ device with terminal emulation is a fully DOS-compatible, hand-held data collection computer that emulates an IBM 3270 or 5250 terminal. In addition to the software shipped with all JANUS readers, the JANUS TE contains a special keypad and software package that provide all the commands available in an IBM 3270 or 5250 system.

Your JANUS TE reader gives you the flexibility you need to work in conditions that require a portable, hand-held data collection device operating in an IBM environment. Using the JANUS TE reader you can:


- view IBM terminal screens (3270 or 5250) on your JANUS display.
- enter data into the screens using the scanner or keypad.
- access IBM host commands and perform host functions.
- automatically transmit the data to your IBM host.

In addition, by exiting the terminal emulation program, you can use your JANUS TE as a personal computer.

**Note to IRL Users:** *Your JANUS user's manual provides instructions for using IRL Desktop on the JANUS. Your JANUS with terminal emulation does not contain IRL Desktop, even when you use it as a personal computer.*

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### ***Preliminary Setup***

You can use or modify the TE.BAT file installed on drive C as a shortcut for starting the terminal emulation program. TE.BAT can be customized when the install process shells out to DOS. To use the TE.BAT file, type `te` and press  at the DOS prompt to start terminal emulation.

You can make the following changes to the TE.BAT file:

- The JANUS configuration utility (IC.EXE) is called in TE.BAT and allows you to configure the RF (radio frequency) environment parameters such as device address, frequency, and network ID used in your operating environment. This does not need to be in the TE.BAT file.

- ICYESNO.EXE calculates a cyclical redundancy check (CRC) of the TE executable and displays the version number of the software installed on the reader. This program is not required to run JRTE and can be removed from the TE.BAT file.
- The RWTSR.EXE is required for reader wedge communications, and must be loaded before JRTE.EXE.

Your JANUS user's manual provides detailed information for customizing drives C and D. The *JANUS 2010 and 2020 Radio Frequency Option Quick Reference Guide* provides information for configuring the reader for 900 MHz RF communications.

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## ***Starting Terminal Emulation***

Before you can begin using the JANUS TE as an IBM terminal, you must start the terminal emulation program. You only need to start the program the first time you use it, or if you exit it. The JANUS TE will resume terminal emulation for each data collection session. Use the following commands to start terminal emulation if you did not customize the TE.BAT file as described above.

To start terminal emulation

1. At the DOS prompt, type the following commands and press Enter.

d: rwtsr (first time startup only)

d: jrte /3270 if you use 3270 terminals

or

d: rwtsr (first time startup only)

d: jrte /5250 if you use 5250 terminals

**Note:** Press  and then  at the DOS prompt to enter the "/" character.

2. Wait a few seconds while the JANUS TE display clears and the JANUS TE starts its terminal emulation program.

## Optional Login Features

### Search and Locate


You can use the search and locate viewport feature to search the main host screen for the specified search string where the upper left corner of the viewport will be located. The cursor is positioned at the first input field of the viewport if it is not in the newly located viewport. You can specify two character strings with a maximum of eight alphanumeric case sensitive characters including spaces.

Search character strings are specified at the DOS command prompt in the following format:

```
te /s1xxxxxxxx /s2xxxxxxxx
```

### User-Definable Keys

You can also use the M0, M1, and M2 switches to define a string of data characters and command keys that are processed whenever you press the macro key. These are typically repetitive commands (name/badge number/work center) that are stored for the terminal session. There are three macro keys on the keypad: Esc, M1, and M2. Macro keys are defined using the M0, M1, and M2 switches respectively.

For example, assigning the following command to the M1 key lets you enter My\_ID in the current input field, tab over (\$I) to the next field and enter My\_Work\_Center, and Enter (\$M) with a M1   command .

```
jrte /M1My_ID$IMy_Work_Center$M
```

### Append Macro Key

You can also append the M0 Macro key using the M0 switch to all bar code data by adding the /apnd switch when you start TE.

### Viewport Size

To specify a different viewport display size, enter /jan1 for 8 x 20 or /jan2 for 16 x 10. The default viewport display size (/jan0) is 16 x 20.

**Note:** When more than one switch is used, do not include spaces in front of the "/>.

**Note:** A maximum of 128 characters can be entered from the DOS prompt.

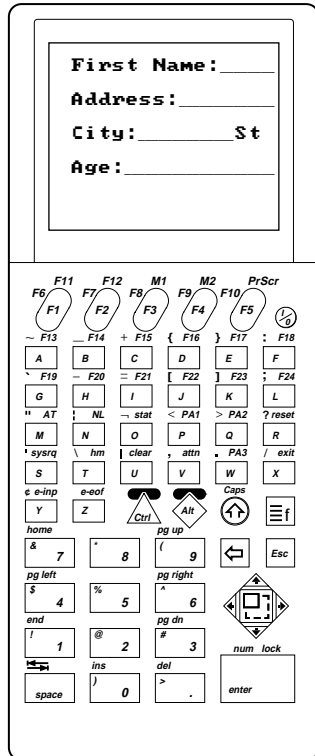
### Line Wrap

To specify line wrap mode, enter /line. The default is viewport mode.

```
jrte /line
```

### Beep Mode

To enable emitting of a hi-lo-hi-lo beep when the keyboard is explicitly locked by the host application, enter /alm.



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Once the display on the JANUS TE shows your IBM terminal's screen, you are ready to use your JANUS TE as a terminal within your system. For all terminal emulation information, refer to this quick reference guide. For all other information on the JANUS device, see your JANUS user's manual.

### Exiting Terminal Emulation

If you wish to use your JANUS TE as a personal computer, you must exit the terminal emulation program. To do this, press **Exit** (⌘ X). You can then use your JANUS TE as a personal computer. See the JANUS user's manual for details.

Pressing (I/O) will NOT exit terminal emulation, but toggles the reader between an operating state and a suspend state. Once you have started terminal emulation, your JANUS TE resumes the terminal emulation program every time you switch it to the operating state by pressing (I/O) .

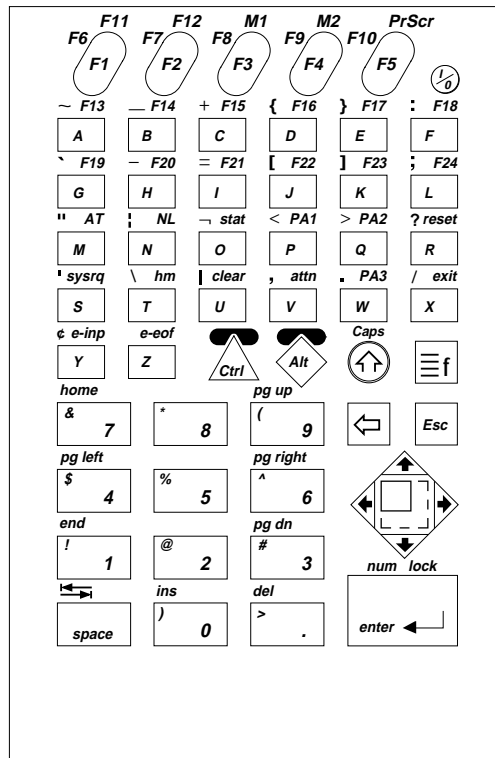
**Note:** After you exit the TE program, bar code configuration mode is disabled. To use this feature again, you need to configure the reader using the JANUS configuration utility (IC.EXE).

## Using the JANUS TE Keypad

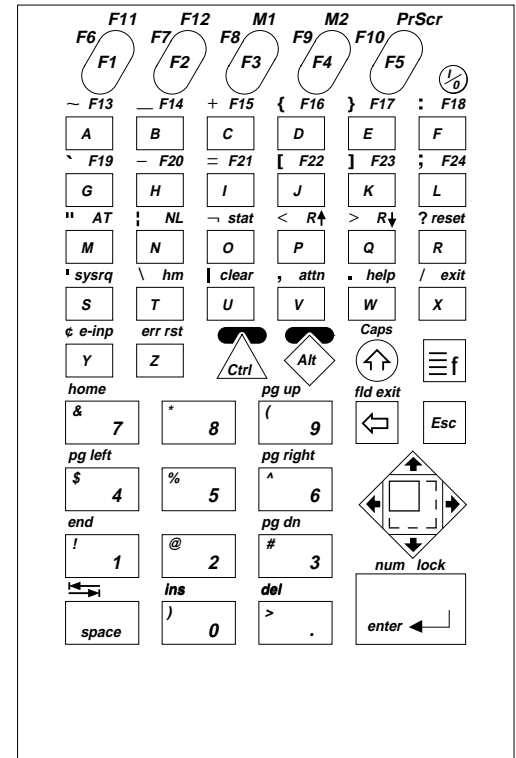
Your JANUS TE comes with a keypad that contains most of the keys available on an IBM 3270 or 5250 keyboard. The TE keypads are similar to the regular JANUS keypads, but have additional commands that are specific to IBM 3270 or 5250 systems. Many of these additional commands are accessed through a combination of keys, which are described on the following pages.

The following illustration shows the 3270 and 5250 keypads.

3270 keypad



5250 keypad







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
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## Accessing the Commands on the Keypad





As on all terminal keyboards, the keys on the JANUS TE keypad have their main function marked directly on the key itself. To access that character or function, just press the key. Your JANUS TE provides access to additional keys and commands. These keys are described below.





**Note:** When you enter a key combination on the JANUS device, you do not need to press and hold the , , , or  keys. Once you press a key, the keystroke is stored in memory and is used with the next keystroke as a key combination.



### **Shift Key**

The Shift key accesses uppercase letters. For example, for the letter "A" you press  . This key also accesses the mathematical symbols printed on the number keys.









### **Ctrl and Alt Keys**

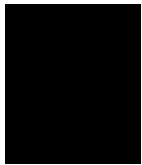
The  and  keys let you access characters or commands on the keypad that are printed above the letter keys and function keys. The  key has the color green above it and activates the commands printed in green. Similarly, the magenta  key activates commands printed in magenta.



To use the  and  keys, simply press and release the key, and then press the corresponding key that has the desired command or character printed above it. For example, to create an equal sign (=), press  and then press .

**Note:** When you exit TE and return to the DOS prompt, the  key will no longer be accessing the characters printed above the letter keys. Use the  key instead.

### **Compound Function Key**

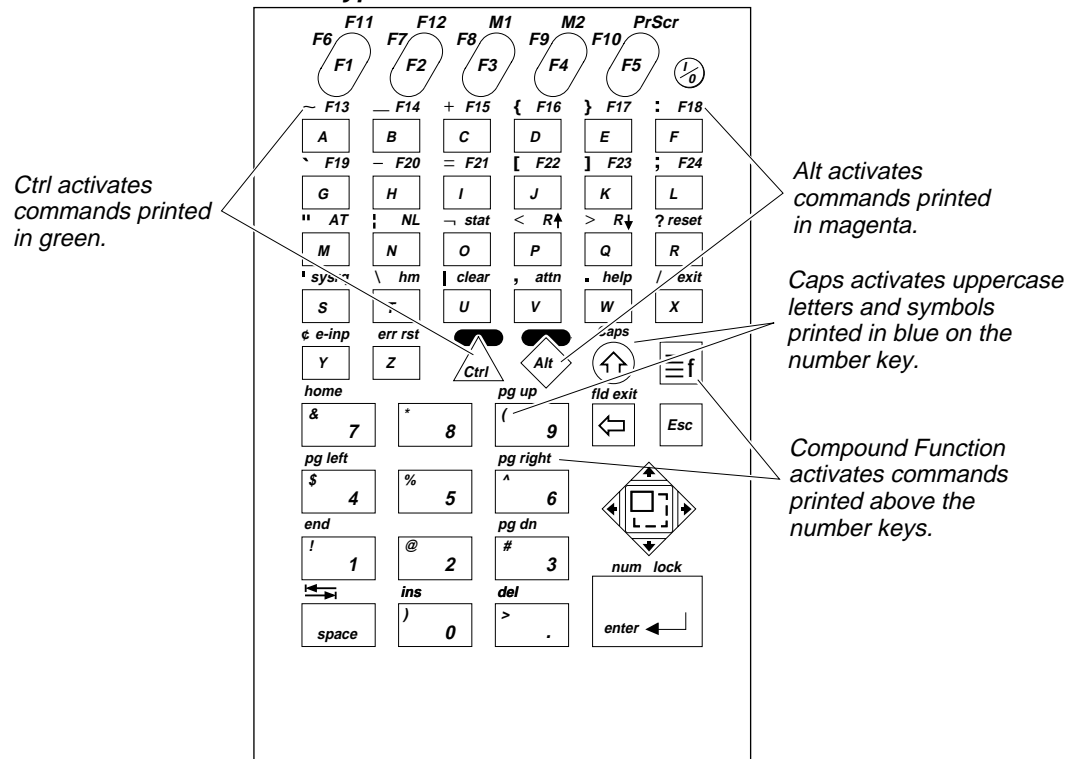
To provide even more commands on your keypad, the JANUS features a  key. This key works similarly to the  and  keys by activating a different command when pressed. For terminal emulation keypads, use the  key to access the commands printed above the numeric keys. For example, for the Insert command, you press  and then . For a tab, you press  and then .



On a regular JANUS keypad, the  key can be pressed multiple times to access even more sets of commands. You can press the  key up to three times to access different sets of commands. These commands, listed in the General Reference section of the JANUS user's manual, are not available with terminal emulation.

**Note:** Your JANUS user's manual describes key sequences and commands that are not shown on the terminal emulation keypads. If you exit terminal emulation, the key sequences shown in the JANUS user's manual become available. For information on acquiring other keypads, contact your Intermec sales representative.

**5250 keypad**




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## Keeping Track of Your Key Sequences

When you use Ctrl, Alt, Shift, Caps, and the compound function keys, an icon appears at the top of the JANUS TE display, indicating you pressed one of these keys and have its commands activated.

### **Ctrl**

This icon appears when you press the  key. When you press a second key, you activate the command you accessed with both keys and the icon disappears.



### **Alt**

This icon appears when you press the  key. When you press a second key, you activate the command you accessed with both keys and the icon disappears.





### **Shift**

This icon appears when you press the  key. When you press a second key, you activate the command you accessed with both keys (usually an uppercase letter) and the icon disappears.

### **Caps Lock**

This icon appears when you enable the caps lock function by pressing  and then . Pressing this key sequence again disables the caps lock function and the icon disappears.

### **Compound Function**

This icon appears when you press the  key. The four lines next to the icon indicate the number of times in a row you pressed this key. With terminal emulation, you only need to press the  key once to access commands. Pressing it two or three times will cause more lines to appear next to the icon, but the additional commands are disabled. If you press the  key more than once, you will need to exit the command levels. To do this, press the compound function key a total of four times until the icon disappears. You can also exit the command levels by pressing .



## ***Viewing the Input Screen With the JANUS TE Display***

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When you start terminal emulation, you see part of an input screen on the JANUS TE display. This section describes how you access other parts of the input screen and how to enter data into input fields.

The JANUS TE 16 x 20 display only shows part of each 25 x 80 screen that appears on a full-sized terminal. You can use the JANUS TE display to access the full screen by following the instructions on the following pages. Throughout this guide, two displays will be referenced regularly using the following terms:

**Screen** refers to a full 25 x 80 screen that appears on a standard terminal display.

**Viewport** refers to the 16 x 20 JANUS TE display. The viewport shows part of the 25 x 80 screen and can be moved around to show different areas of the same screen.

***Note:** There are several display exceptions for non-EBCDIC keypad characters when you are working in TE mode. Brackets [ ]— Ctrl J and Ctrl K are displayed as parentheses (.). The ^ character\_Shift 6 cannot be used in TE mode.*

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### ***How the Viewport Works***



The viewport lets you view screens and enter data by showing the part of the screen you are using. When you need to access part of a screen that does not appear on the viewport, the viewport changes its display to show the part of the screen you need. The viewport acts as a window to the larger screen, and when it changes its display, it behaves as if it is "moving" across the screen.

You can move the viewport in three ways:

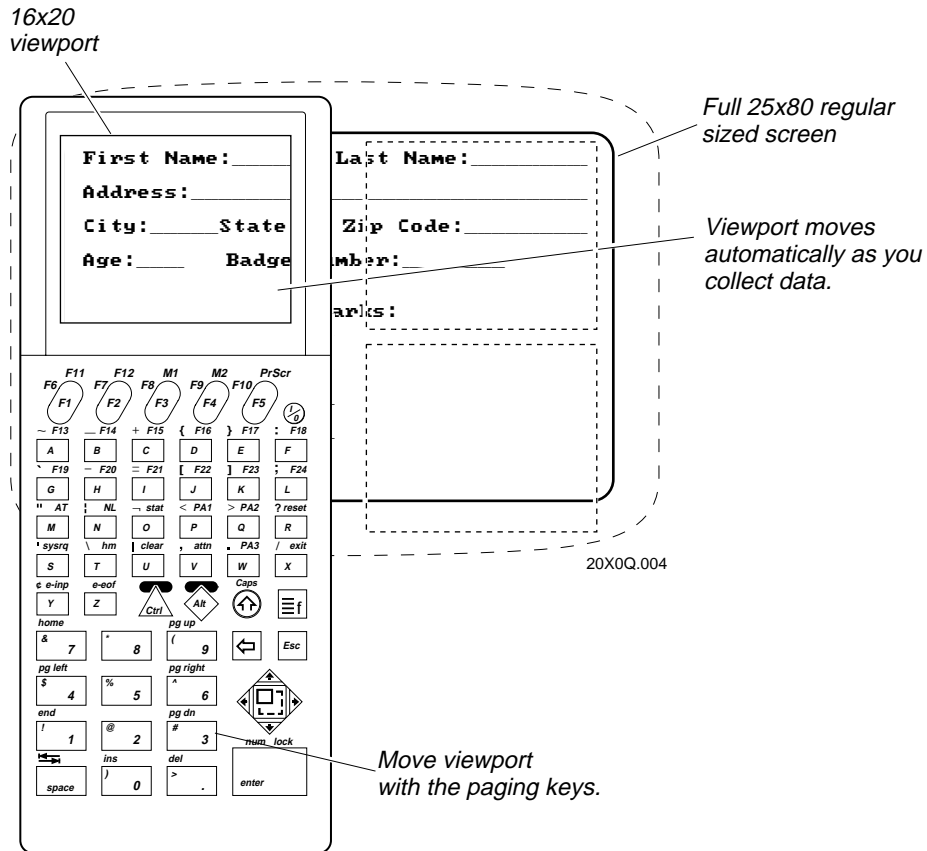
- **Let the Viewport Move Automatically**  
The viewport automatically follows the cursor. Whenever you tab the cursor to a field outside the viewport, the viewport moves automatically to where the cursor is located. When you use the arrow keys to move the cursor, the viewport moves along with it, keeping the cursor always within the display.
- **Move the Viewport With the Paging Keys**  
If you want to view another part of the screen but leave the cursor in its current position, use the paging keys to move the viewport. The paging keys move the viewport far enough to show the next full adjacent page (a "page" is one viewport display). When you use the paging keys, the viewport "jumps" a full page in the specified direction. Paging is shown in the illustration on the next page.

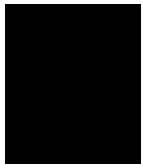
Use the Home command, to bring you back to where you left the cursor when you started paging. You can also use the Cursor Home command to return both the cursor and the viewport to the first input field on the screen. Use the End command to move the cursor to the current viewport.

• **Move the Viewport With the Arrow Keys**

When you press  , the cursor toggles between an underscore and a solid block representation on the screen. When the cursor is displayed as a solid block, the arrow keys move the viewport, leaving the cursor in place.

*Note: Paging keys are used to move the viewport during terminal emulation only. If you exit terminal emulation, you use different keys, described in the JANUS user's manual, to move the viewport. During terminal emulation, the viewport icon does not appear when you page.*

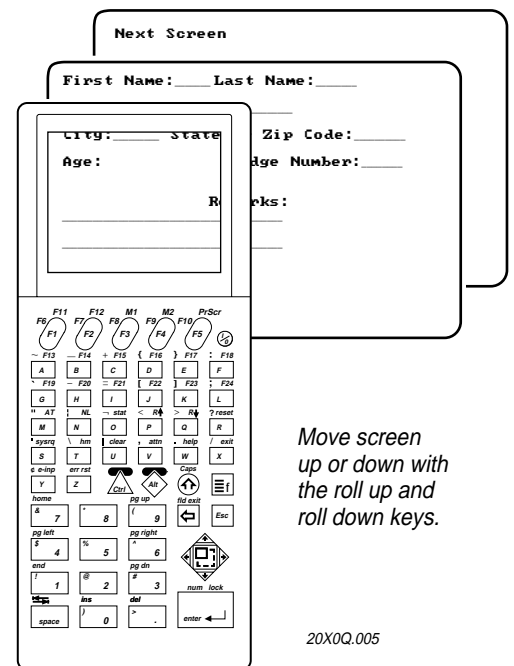
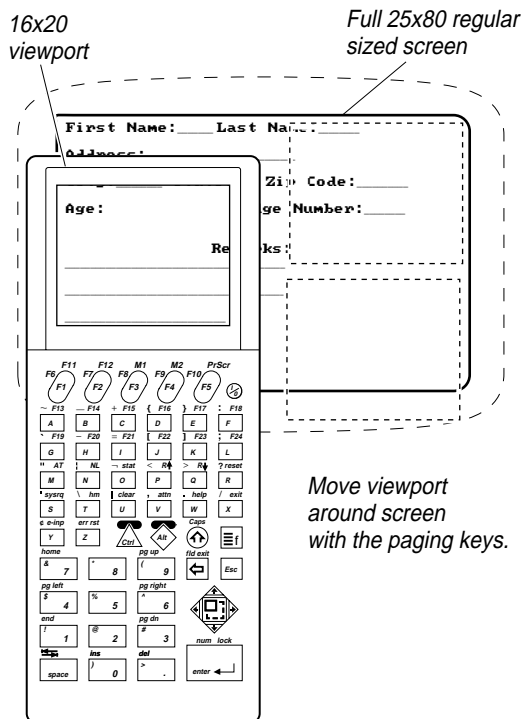




## Roll Up/Roll Down Keys

**Note:** This information applies to 5250 users only.

5250 terminals have a roll up and roll down feature that lets you scroll the screen up or down. The paging keys move the viewport within one screen; they do not move the screen itself. The roll keys move the screen, but not the viewport. You can see the screen scroll through the viewport when you roll up or down, but the viewport itself remains stationary.



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## Entering Data Automatically

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You can use two features to enter data automatically into IBM data entry screens. These features automate many keystrokes so you can continue to scan in data without stopping to perform tasks that are not part of data collection.

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### ***Auto Field Exit/AutoEnter (AT Command)***

The Auto Field Exit/AutoEnter command lets you scan bar coded data continuously without entering it or tabbing the cursor to the next field. Once you have scanned a bar code, the cursor moves to the next field automatically. If you have scanned data into the last or only field on the display, the data is sent to the host automatically and the display moves to the next set of fields. This feature works by appending a Field Exit, Tab, or Enter character to all bar codes you scan. It works independently of the AutoEnter field attribute that causes data to be sent when an entry is made in a field with the AutoEnter attribute set. You may activate it at any time during data collection.

To activate Auto Field Exit/AutoEnter

1. Press the AT command on your keypad ( $\diamond$   $\square$  M).
2. Resume scanning. All input you scan will be entered automatically until you deactivate the command by pressing  $\diamond$   $\square$  M again.

*Note: The AT command is enabled by default.*

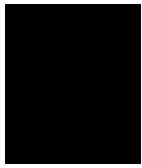
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### ***AutoEnter Field Attribute***

The AutoEnter field attribute is another method of entering data automatically. Instead of entering all input, this feature works by defining AutoEnter for a specific field. Data entered into a field with the AutoEnter attribute will automatically be sent to the host when you move the cursor out of the field.

To activate AutoEnter

1. Locate the field that will contain the AutoEnter attribute.
2. Find your terminal in one of the lists below. For the field you selected, set the attributes listed in your screen definitions.




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<i>For this terminal</i>	<i>Set these attributes</i>
3270	yellow underscore
5250	high intensity column separator underscore

## ***3270 and 5250 Commands***

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
The following pages list all of the commands you use with your 3270 and 5250 system. These commands are listed in alphabetical order, and each command is listed with its description, key sequence, and bar code. Function and Program Attention keys are listed with their bar codes, but no description is provided since each Function or Program Attention key is programmed differently for each application.

You enter data into screens that are designed for the application running on your host, using the same commands on your JANUS TE that you would use with an IBM terminal.

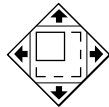
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### ***Arrow Keys***

**Purpose:** Arrow keys move the cursor one space up, down, right, or left. You can move the cursor to any place on the display, even within protected fields. To select a specific arrow key, press one of the arrows on the edges of this key.

You can also press   first if you want to scroll the viewport up, down, left or right. The cursor does not move in this operation. A blinking block cursor indicates that you have enabled the viewport scrolling feature.

**Keypad:**




**Scan:**

N/A

## Attention

**Purpose:** The Attention key contacts the host and asks permission to send data from the JANUS display. The keypad locks automatically when this command or any other AID command is sent. (An AID command is a command that communicates with the host.) Once the host grants permission, the keypad unlocks. This key is useful for finding out if the host is free before you attempt to transmit data.

**Keypad:** 


**Scan:** attn  
  
\*<ACK>a\*

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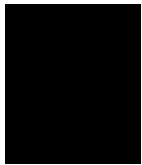
## AutoEnter

**Purpose:** This command toggles between enabling and disabling Auto Field Exit/AutoEnter. Once this command is enabled, the cursor moves to the next field as you scan. This feature lets you scan continuously without pressing Field Exit, Tab, or Enter. For 3270 systems, this command is also known as AutoTab/AutoEnter.

This command works by appending a Tab/Enter character to every bar code you scan. This command works independently of the AutoEnter field attribute, which can be specified for a field in the screen definition by the host application.

**Keypad:** 

**Scan:** N/A



## Backtab

**Purpose:** Backtab moves the cursor back to the most recent first field position. If the cursor is in the middle of a field, Backtab moves it to the first position of the same field. If the cursor is at the first position of a field, Backtab moves it to the first position of the preceding input field.

**Keypad:**  or 

**Scan:** Scan the following label.backtab



\*<SI>\*


## Backlight On/Off

**Purpose:** This command toggles the backlight feature on or off.

**Keypad:** 

**Scan:** N/A

## Clear

**Purpose:** This command clears the display and moves the cursor to the home position. This is an AID key. For the 5250, this command sends the  function to the host, which clears the keyboard.

**Keypad:** 

**Scan:** For 3270 terminals

clear



\*<ETX>\*

For 5250 terminals (if the host is configured for this function)

clear



\*<ACK>3<CR>\*

## Control Break

**Purpose:** This command is used to exit TE immediately and go to the DOS prompt.

**Keypad:** 

**Scan:** N/A

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## Cursor Home

**Purpose:** Cursor Home is one of two home commands. It moves the cursor to the first input position on the terminal screen, and returns the viewport to that position. If you want to return to the cursor without moving it, you must use the Home key.

**Keypad:** 

**Scan:** For 3270 terminals

hm  
  
\*<ACK>h\*

For 5250 terminals (if the host is configured for this function)

hm  
  
\*<ACK>12<CR>\*

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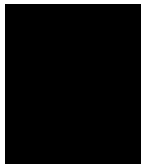
## Delete

**Purpose:** This command deletes the character at the current cursor position.

**Keypad:** 

**Scan:** del  
  
\*<DEL>\*







## End


**Purpose:** This command moves the cursor to the first unprotected field in the viewport.

**Keypad:**  

**Scan:** end  
  
 \*<ACK>o\*

## Enter

**Purpose:** Pressing  sends all input to the host, including the cursor position, letting the host know what data to expect next. Enter is an AID key.


**Keypad:** 

**Scan:** enter  
  
 \*<CR>\*

## Erase to End of Field

*3270 terminals only*

**Purpose:** This command erases all characters from the cursor to the end of the field. If the field is protected or the cursor is in a field attribute instead of an input position, then pressing this key locks the keyboard. Press Reset to unlock the keyboard if this occurs.


**Keypad:**  

**Scan:** e-eof  
  
 \*<ACK>ef\*

## Erase Input

**Purpose:** Erase Input clears all input fields and moves the cursor to the first input position on the JANUS display. This command has no effect on protected fields. If you press this key when the display shows only protected fields, then the cursor will return to the home position (the first input position on the terminal screen).

**Keypad:**  

**Scan:** e-inp  
  
\*<ACK>ei\*


---

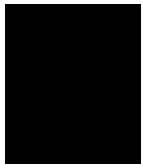
## Error Reset

*5250 terminals only*

**Purpose:** This is one of two Reset commands. It unlocks the keypad if it is locked due to an error. This command also resets Help, Insert, System Request, and the function keys.

**Keypad:**  

**Scan:** err rst (if the host is configured for this function)  
  
\*<ACK>10<CR>\*



## ***Exit***

**Purpose:** Use this command to exit the terminal emulation program and enter normal DOS mode. Once you press this key, you can use your JANUS as a personal computer. To reenter terminal emulation, switch to drive D and type `jrte.exe` at the DOS prompt.

**Keypad:** 


**Scan:** exit  
  
 \*`<EOT>`\*

## ***Fast Cursor Right/Left***

**Purpose:** This command moves the cursor two positions to the right or left rather than one.

**Keypad:** N/A

**Scan:** fast cursor right  
  
 \*`<DLE>`\*

fast cursor left  
  
 \*`<NAK>`\*

## Field Exit

*5250 terminals only*

**Purpose:** This command exits an input field and moves the cursor to the beginning of the next input field. If you press this key while the cursor is between characters, then all the characters to the right of the cursor will be erased. Field Exit gives you the same results as pressing Erase to End of Field followed by a Tab.

**Keypad:** fld exit  


**Note:** You do not need to press a key combination. Just press the back arrow key once to use Field Exit.


**Scan:** fld exit  
  
\*<ACK>ef<HT>\*


---

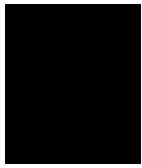
## Help

*5250 terminals only*

**Purpose:** Help provides a description of an existing error condition and suggestions for a solution, if applicable.

**Keypad:**  

**Scan:** help (if the host is configured for this function)  
  
\*<ACK>1<CR>\*



## Home

**Purpose:** Home returns the viewport to the cursor. This command is used when paging. During paging, the cursor remains in one place while the viewport pages. This command brings the viewport back to the cursor. See Cursor Home (hm) for information on returning to the home position on the terminal display.

**Keypad:**  

**Scan:** home  
  
 \*<ACK>st\*

## Insert

**Purpose:** This command puts the keypad into insert mode, which lets you insert characters between other characters in a field as long as there is room in the field. If you continue to insert characters after the field is full, the keypad will lock up. Once you press Error Reset or Reset to unlock the keypad, insert mode is automatically deactivated. If you press Enter or any other AID key, you will deactivate insert mode. The status screen indicates when the keypad is in insert mode.


**Keypad:**  

**Scan:** ins  
  
 \*<SYN>\*

## Line Wrap Mode Toggle

**Purpose:** This command puts the viewport into line wrap mode. In this mode, the 80 character line is wrapped at the end of the display. Viewport movement commands are disabled when you are in line wrap mode.

**Keypad:**  


**Scan:** Ins  
  
\*<ACK>vI\*

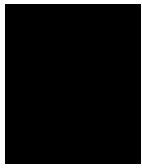
---

## New Line

**Purpose:** New Line moves the cursor to the beginning of the next input field. If all the fields on the display are protected, then pressing New Line returns the cursor to the cursor home position (the first input field position on the screen).

**Keypad:**  

**Scan:** nl  
  
\*<EM>\*







## Paging Keys

**Purpose:** Paging keys move the viewport to the next adjacent area on the screen. These keys move the viewport within the screen; the screen itself does not move.

The paging keys let you view the rest of the screen without entering data. When you page, you move only the viewport, not the cursor, and the cursor disappears from the display. There are two keys for bringing the cursor back into view. The Home key brings the viewport back to where you left the cursor before you started paging. The Cursor Home key brings both the viewport and the cursor to the first field position on the screen.

**Keypad:**

pg up	pg right
	
pg dn	pg left
	

**Scan:**

page up  
  
 \*<ACK>ju\*

page down  
  
 \*<ACK>jd\*

page right  
  
 \*<ACK>jr\*

page left  
  
 \*<ACK>jl\*

## Reset

**Purpose:** Reset unlocks the keypad if it is locked due to an error and clears the status screen of most error messages. Use the status command to determine why the keypad locked up.

*Note to 5250 users: Reset is a local key only. Error Reset, which is also available on your keypad, is an AID key.*

**Keypad:** 



**Scan:** reset  
  
\*<DC2>\*

---

## Roll Up and Roll Down

*5250 terminals only*

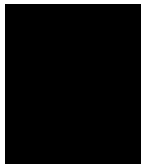
**Purpose:** These are AID keys that move the entire screen up or down to show information not displayed on the current screen. The viewport on the JANUS device does not move within the screen when you use the roll keys. Instead, the screen itself moves and viewport remains fixed in place. For information on moving the viewport within one screen, see the commands for Paging Keys.

**Keypad:** roll up                      roll down  
                      

**Scan:** roll up  
  
\*<ACK>8<CR>\*

roll down  
  
\*<ACK>7<CR>\*






## Scroll

**Purpose:** Use these commands to move the viewport up, down, left, or right by one cursor position.

**Keypad:** N/A

**Scan:** scroll up  
  
 \*<ACK>su


scroll down  
  
 \*<ACK>sd


scroll left  
  
 \*<ACK>sl

scroll right  
  
 \*<ACK>sr\*

## Status

**Purpose:** This command toggles the JANUS display between the status display and the normal field input display. Press this key once to bring up the status screen, and press it again to remove the status screen. If the keypad locks up for any reason, this screen automatically appears, displaying the reason for the lockup.

**Keypad:**  

**Scan:** tat  
  
 \*<ACK>f\*

## System Request

**Purpose:** The use of these AID keys depends on the system. Most systems use these commands to sign on or off, select alternate tasks, interrupt the present program to start a new task, or request permission to send data.

**Keypad:** 

**Scan:** sysrq (3270 terminal)



\*<ACK>r\*

sysrq (5250 terminal, if the host is configured for this function)



\*<ACK>11<CR>\*

---

## Tab

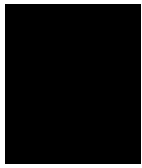
**Purpose:** The Tab key moves the cursor to the first position in the next input field.

**Keypad:** 

**Scan:** tab









\*<HT>\*



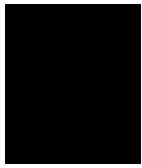
## Program Function Keys

When you press a program function key or scan its bar code, you send the data on the display to the host, and the function you specified is performed on this data. Each function is determined by the application you use with your system. See your application user's manual for details on the functions. Program function keys are AID keys, and the keypad remains locked while the function you chose is being performed.

Function Key	Bar Code
<b>F1</b> 	3270 terminals  * <code>&lt;ACK&gt;1&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;1&lt;CR&gt;</code> *
<b>F2</b> 	3270 terminals  * <code>&lt;ACK&gt;2&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;2&lt;CR&gt;</code> *
<b>F3</b> 	3270 terminals  * <code>&lt;ACK&gt;3&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;3&lt;CR&gt;</code> *

*JANUS 900 MHz TE Quick Reference Guide*

Function Key	Bar Code
<b>F4</b> 	3270 terminals  * <code>&lt;ACK&gt;4&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;4&lt;CR&gt;</code> *
<b>F5</b> 	3270 terminals  * <code>&lt;ACK&gt;5&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;5&lt;CR&gt;</code> *
<b>F6</b> 	3270 terminals  * <code>&lt;ACK&gt;6&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;6&lt;CR&gt;</code> *
<b>F7</b> 	3270 terminals  * <code>&lt;ACK&gt;7&lt;CR&gt;</code> *
	5250 terminals  * <code>&lt;SOH&gt;1&lt;ACK&gt;7&lt;CR&gt;</code> *



**Function Key**

**Bar Code**

**F8**



3270 terminals



\*<ACK>8<CR>\*

5250 terminals



\*<SOH>1<ACK>8<CR>\*

**F9**



3270 terminals



\*<ACK>9<CR>

5250 terminals



\*<SOH>1<ACK>9<CR>\*

**F10**



3270 terminals



\*<ACK>10<CR>\*

5250 terminals



\*<SOH>1<ACK>10<CR>\*

**F11**



3270 terminals



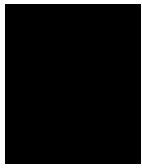
\*<ACK>11<CR>\*

5250 terminals



\*<SOH>1<ACK>11<CR>\*

Function Key	Bar Code
<b>F12</b>  	3270 terminals  * <b>&lt;ACK&gt;12&lt;CR&gt;</b> *
	5250 terminals  * <b>&lt;SOH&gt;1&lt;ACK&gt;12&lt;CR&gt;</b> *
<b>F13</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;13&lt;CR&gt;</b> *
<b>F14</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;14&lt;CR&gt;</b> *
<b>F15</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;15&lt;CR&gt;</b> *
<b>F16</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;16&lt;CR&gt;</b> *
<b>F17</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;17&lt;CR&gt;</b> *
<b>F18</b>  	3270 and 5250 terminals  * <b>&lt;ACK&gt;18&lt;CR&gt;</b> *



Function Key	Bar Code
<p><b>F19</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;19&lt;CR&gt;*</p>
<p><b>F20</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;20&lt;CR&gt;*</p>
<p><b>F21</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;21&lt;CR&gt;*</p>
<p><b>F22</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;22&lt;CR&gt;*</p>
<p><b>F23</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;23&lt;CR&gt;*</p>
<p><b>F24</b></p> <p> </p>	<p>3270 and 5250 terminals</p>  <p>*&lt;ACK&gt;24&lt;CR&gt;*</p>

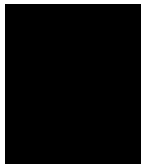
---

## Program Attention Keys for 3270 Terminals

If you use a 3270 terminal, you might use the program attention keys to send messages to the host. The specific application you use with your system defines these messages. See your application user's manual for details on the messages each program attention key sends. Program attention keys are AID keys.

Program Attention Key	Bar Code
PA1  	3270 terminals  *<SOH>1*
PA2  	3270 terminals  *<SOH>2*
PA3  	3270 terminals  *<SOH>3*





## Troubleshooting





You may encounter error messages while running the 900 MHz TE program. Error codes are displayed in the status line portion of the JANUS screen.

### Troubleshooting the Status Screen

Symbols, words, and numbers are displayed on the status screen to indicate the status of your host session. This status screen is displayed when you press the stat key. The following table lists the host session status screen messages, their IBM equivalents, and their meaning.

#### Status Screen Symbols

Symbol Displayed	IBM Equivalent	Description
Startup	none	Power-on sequence in progress.
PLU	solid block	Host session is connected to application program (SNA).
SSCP	stick figure	Host session is connected to SSCP (SNA).
INACTIVE	none	Host session pending LU activation (SNA).
UNOWNED	? in block	Host session is connected to SNA Engine but not to PLU or SSCP.
<i>nnn</i>	none	<i>nnn</i> is the device ID number of this session.
X	X	Terminal keyboard disabled.
TIME	X clock figure	Communication is in progress.
?+	X ?+	Operations not accepted. Press Reset and try again.
Sys	X System	Keyboard is disabled by the host, wait for host or press Reset to restore keyboard.
ERR	none	Displayed when the keyboard is disabled due to an operator error. Press Reset.
<-OP->	X <-stick figure->	User action performed in wrong screen location. Press Reset.
OP>	X stick figure>	User entered more data than the field can hold. Press Reset.
OP NUM	X stick figure NUM	User entered non-numeric data into a numeric field. Press Reset.
-f	Xf	Requested operation is not available. Press Reset.
PROG4nn	X Prog4nn	Error was detected in data from host, <i>nn</i> defines the type of Program Check.

**Note:** Press   to reset in 3270 emulation mode or   to reset in 5250 emulation mode.

---

**Status Screen Symbols (continued)**

Symbol Displayed	IBM Equivalent	Description
COMM5nn	XÆ_5nn	Problem with the communication line to the host, <i>nn</i> defines the type of Communication Check.
-s	X -S	Symbol keyed in by user not recognized. Press Reset.
^	^	Host session is in insert mode.
LOCKED	none	Terminal keyboard locked due to host transmission.
(xx, yy)	none	The current cursor position (xx, yy) in screen buffer.

**Note:** Press **Alt R** to reset in 3270 emulation mode or **Alt Z** to reset in 5250 emulation mode.

---

**Program Error Codes**

The following table lists terminal emulation program error codes that may appear on the JANUS status screen. These error codes can be cleared from the status line using Reset (**Alt R**).

---

**Terminal Emulation Program Error Codes**

Code	Explanation
401	Invalid data stream received.
402	Invalid buffer address received in data stream.
403	Data received following a 1 byte command or an invalid extended data stream.
404	Data stream ended prematurely.
405	Invalid Copy command.
411	Request/Response Unit (RU) too long.
413	Attempted function not supported.
420	Exception response received when BIND specified a definite response.
421	Definite response received when BIND specified an exception response.
422	A NO response is not accepted.
423	Format Indicator (FI) bit not allowed.
430	Sequence number error.
431	Chaining error.



---

*Terminal Emulation Program Error Codes (continued)*

Code	Explanation
432	Bracket error.
433	Data traffic inactive.
434	Direction error.
443	Change Direction (CD) required.
445	Activate Logical Unit (ACTLU) request specifies neither Cold Activation Procedure (COLP) nor Error Recovery Procedure (ERP).
450	BIND profile mismatch error.
451	BIND primary protocol mismatch error.
452	BIND secondary protocol mismatch error.
453	BIND common protocol mismatch error.
454	BIND screen size mismatch error.
455	BIND LU profile mismatch error.
456	BIND LU type 1 mismatch error.
457	BIND cryptography specified.
462	Printer data stream error detected by LU type 1.
470	Unknown data byte Xi00ØÆXi3FØ or XiFFØ.
498	Negative response received.
499	Exception request received.

## ***Reinstalling Terminal Emulation Software***

---

Your JANUS device was shipped with terminal emulation installed and IRL removed. However, if you upgrade the reader software you will need to reinstall the TE program. The TE installation utility runs on a host PC in the DOS environment and uses a graphical user interface (GUI) to prompt you for information about your operating environment.

Follow the standard upgrade procedure using the companion boot disk to remove TE and reload IRL on your reader. If you specify Yes at the Standard Upgrade prompt, all system files are upgraded on the reader. If you specify No at the System Upgrade prompt, only TE.EXE file is installed on the reader.

**Note:** Use the JANUS 20X0 TE disk containing the installation utility if you want to install TE and related files on drive D. Use MkImage and PutImage to load TE on drive C. See the JANUS user's manual for detailed information about using MkImage and PutImage.

---

### ***Installation Requirements***

To use the TE installation utility, your dedicated host PC must meet the following minimum system requirements:

- It is running DOS 5.0 or above without Stacker. If you need to run Stacker, you will need to add a Stacker device driver to the CONFIG.SYS file before the system boots from the install disk.
- 386 SX with 4MB of RAM.
- 10MB of available hard disk space.
- MS Windows is not active. The install program cannot run from a Windows DOS box.

---

### ***Processing Overview***

A custom AUTOEXEC.BAT and CONFIG.SYS are created on the install disk. The DOS system files on the PC are transferred to the install disk and the host PC is booted from the install disk. Files from drive C and drive D are copied from the reader to the PC. If necessary, files are deleted from the contents of drive D to create space for the terminal emulation program and it is copied from the install disk to the drive D work area. The TE.INI file controls deletion of the files.

If files are deleted, a message may appear indicating that a file could not be deleted. This is an informational message indicating that a particular file name included in the TE.INI could not be found to be deleted. Ignore the message and continue the install process.

Next, CONFIG.SYS is modified to install ANSL.SYS to allow display control by the terminal emulation program. At this point in the install process, the program shells out to the DOS prompt. Check or customize AUTOEXEC.BAT, CONFIG.SYS, and the TE.BAT to ensure they are correct. After making custom alterations, type exit and press Enter to return to the install process.

Finally, the new image files are created and copied from the host PC to the reader.

---

## ***Installing TE***

The TE installation utility copies the contents of drives C and D to the dedicated PC connected to the reader. These files are updated with the TE software and then copied back to the reader when the installation process is completed. Files may be deleted from drive D to create space for the TE programs.

### **To start the install program**

1. Connect the reader to the serial port of the installation PC using a null modem cable connected to a communications dock or optical link adapter.
2. Insert the TE installation disk in drive A and edit the last line in the SETUP.BAT file.

You can modify the last line in SETUP.BAT to define your TE environment as follows:

```
a:pcsetup /f /s /5250 /jan0
```

It is recommended that you retain the /f and /s options. These options let you use the shell out to DOS feature, preserve the work file structures, and customize TE on the host PC.

/5250 can be changed to /3270 for 3270 keypad support.

/jan0 can be changed to /jan1 or /jan2 to specify a different viewport display size. Use /jan1 for 8 x 20 or /jan2 for 16 x 10 display size. The default viewport display size (/jan0) is 16 x 20.


**Note:** *The macro options and the Search and Locate Viewport options are not specified in SETUP.BAT. You can shell out to DOS and edit the line that starts JRTE in the TE.BAT file to include these options. See “Starting Terminal Emulation” earlier in this guide for detailed information on modifying these features.*

3. Type a:setup and press Enter.
4. Respond to the program prompts.

The program asks if you want to perform standard upgrade on your reader. If you respond y to the prompt, you need the JANUS boot companion disk for version 1.30A or above. The installation program pauses for insertion of a software upgrade disk. If you respond n to the prompt, TE installation begins immediately.

---

## ***Install Options***

You can use or modify the TE.BAT file installed on drive C as a shortcut for starting the terminal emulation program. TE.BAT can be customized when the install process shells out to DOS. To use the TE.BAT file, type te and press  at the DOS prompt to start terminal emulation.

You can make the following changes to the TE.BAT file.:

- The JANUS configuration utility (IC.EXE) is called in TE.BAT and allows you to configure the RF (radio frequency) environment parameters such as device address, frequency, and network ID used in your operating environment. This parameter does not need to be in the TE.BAT file.
- ICYESNO.EXE calculates a cyclical redundancy check (CRC) of the TE executable and displays the version number of the software installed on the reader. This program is not required to run JRTE and can be removed from the TE.BAT file.
- The RWTSR.EXE is required for reader wedge communications, and must be loaded before JRTE.EXE.

---

## ***Installation File Structure***

The files remaining on the PC after the completion of the installation process are:

C:\IM\_FLASH

Contains the new image files and selected tools that were loaded onto the reader.

C:\IM\_FLASH\DRIVEC

Contains elements used to make the drive C image.

C:\IM\_FLASH\DRIVED

Contains the files deleted from drive D to make room for JRTE.EXE.



## ***Code 39 ASCII Control Code Chart***

---

Decimal	Code39	ASCII Character
01	\$A	<SOH>
02	\$B	<STX>
03	\$C	<ETX>
04	\$D	<EOT>
05	\$E	<ENQ>
06	\$F	<ACK>
07	\$G	<BEL>
08	\$H	<BS>
09	\$I	<HT>
10	\$J	<LF>
11	\$K	<VT>
12	\$L	<FF>
13	\$M	<CR>
14	\$N	<SO>
15	\$O	<SI>
16	\$P	<DLE>
17	\$Q	<DC1>
18	\$R	<DC2>
19	\$S	<DC3>
20	\$T	<DC4>
21	\$U	<NAK>
22	\$V	<SYN>
23	\$W	<ETB>
24	\$X	<CAN>
25	\$Y	<EM>
26	\$Z	<SUB>

