



PCTerm
UNICO Terminal Emulator
804333.030

January 2004

Contents

| | |
|---|----|
| CONTENTS | 2 |
| INTRODUCTION | 3 |
| MENU ITEMS AND FEATURES | 3 |
| FILE | 3 |
| <i>Save Screen As</i> | 3 |
| <i>Exit</i> | 3 |
| LOAD | 4 |
| <i>Kermit File Receive</i> | 4 |
| <i>Kermit File Send</i> | 5 |
| <i>Kermit Program Load</i> | 6 |
| <i>Kermit Switcher Network Load</i> | 7 |
| <i>Binary Fast Load</i> | 8 |
| <i>Switcher Network Load</i> | 9 |
| <i>SREC Load – Device</i> | 10 |
| <i>SREC Load – Blaster</i> | 11 |
| <i>SREC Load – Even</i> | 12 |
| <i>SREC Load – Odd</i> | 13 |
| <i>ASCII File Send</i> | 14 |
| VIEW | 16 |
| <i>RCA</i> | 16 |
| <i>VT-100</i> | 23 |
| <i>Show Invisibles</i> | 26 |
| <i>Small Font</i> | 26 |
| <i>Large Font</i> | 27 |
| <i>Color Disabled</i> | 27 |
| <i>4 Lines x 40 Chars</i> | 28 |
| <i>24 lines x 40 Chars</i> | 28 |
| <i>8 Lines x 80 Chars</i> | 29 |
| <i>24 lines x 80 Chars</i> | 29 |
| <i>Display Function Keys</i> | 30 |
| <i>Clear Screen</i> | 31 |
| DATA | 32 |
| <i>Archive Text</i> | 32 |
| <i>Simple Plot</i> | 32 |
| SETUP | 35 |
| <i>Protocol Settings</i> | 35 |
| <i>Online Devices</i> | 38 |
| <i>Quick Baud</i> | 39 |
| <i>Kermit Settings</i> | 40 |
| <i>Define Function Key Strings</i> | 41 |
| <i>Allow Serial Port Release</i> | 42 |
| PROTOCOL | 43 |
| <i>Serial</i> | 43 |
| <i>ControlNet</i> | 43 |
| HELP | 44 |
| <i>Help Topics</i> | 44 |
| <i>About PC Term</i> | 44 |
| COMMAND LINE | 44 |
| INDEX | 47 |

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Introduction

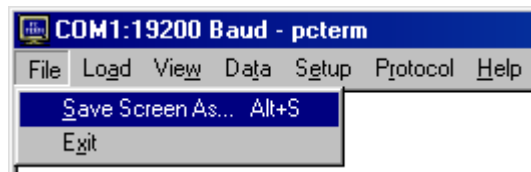
PC Term is a terminal emulator with target code management facilities. PC Term can communicate with simple ASCII characters through the serial port of an IBM compatible PC or through a ControlNet™ interface card and Rockwell Software's RSLinx™.

Menu Items and Features

The menu bar for PC Term consists of seven items: **File**, **Load**, **View**, **Data**, **Setup**, **Protocol**, and **Help**. The following will discuss the contents of each menu item.

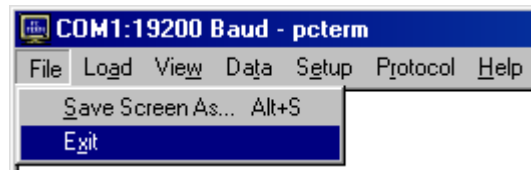
File

Save Screen As



This feature saves the contents of the current screen to a text file. The standard file dialog appears and prompts the user for the file to save the screen text. Alternatively, Alt + S may be typed to perform this function.

Exit



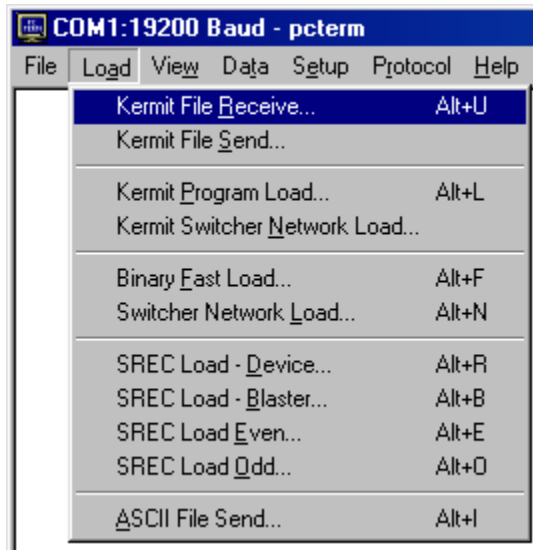
Closes the application.

Load

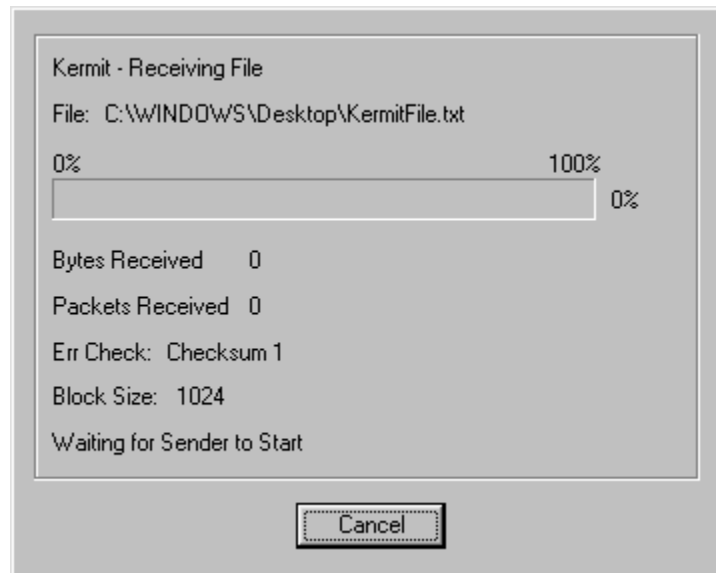
There are several ways to load application files to UNICO S4000 devices. These are **Binary Fast Load...**, **Switcher Network Load...**, and the **SREC Load** options. In addition, program loads for the UNICO Synopsys operating system can be performed with the **Kermit Program Load...** and **Kermit Switcher Network Load...** options which include error checking on the packets.

The **ASCII File Send...**, **Kermit File Receive...**, and **Kermit File Send...** options perform more generic operations that are not specific to any UNICO device.

Kermit File Receive

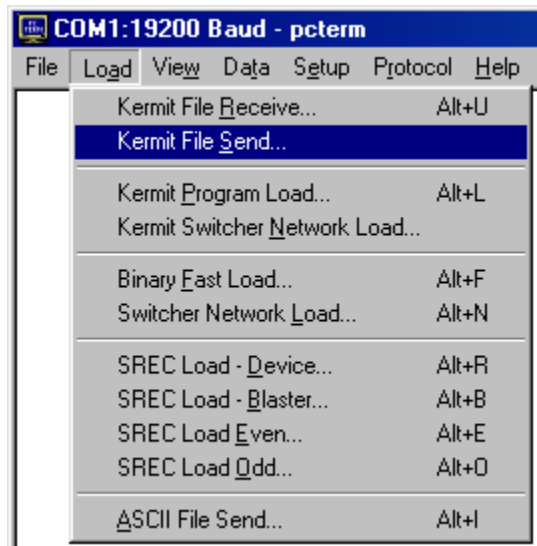


PC Term responds to selection of the **Kermit File Receive...** request by opening the standard file dialog box. By default the sample will be captured in a file called "KermitFile.txt". The user has the option of modifying this name and the directory in which the file is stored. Once the file name and directory have been established, select the "Save" option to create the file and begin reception of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below. Alternatively, the key sequence Alt + U will also perform this function.

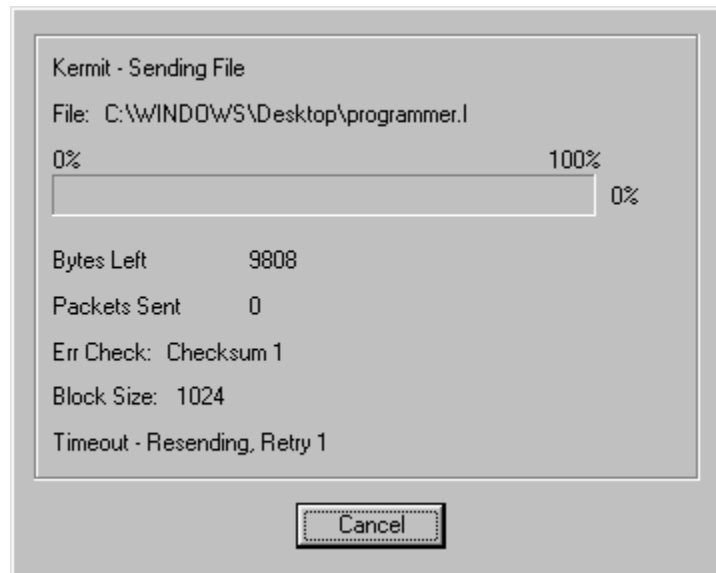


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the receiver canceled the transfer.

Kermit File Send

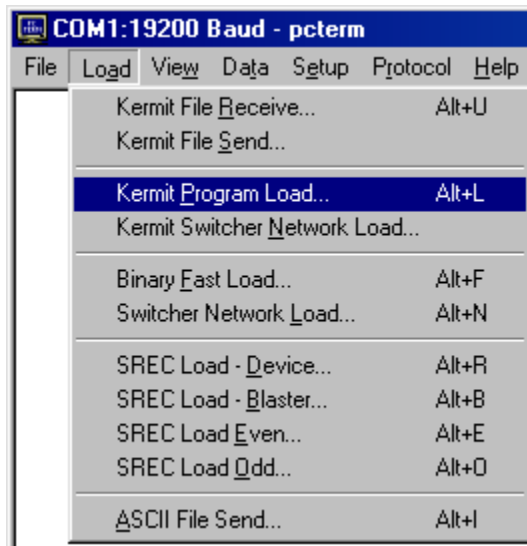


PC Term responds to selection of the **Kermit File Send...** request by opening the standard file dialog box to obtain the file to send. Once the file is selected, click the "Open" button to begin transmission of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below.

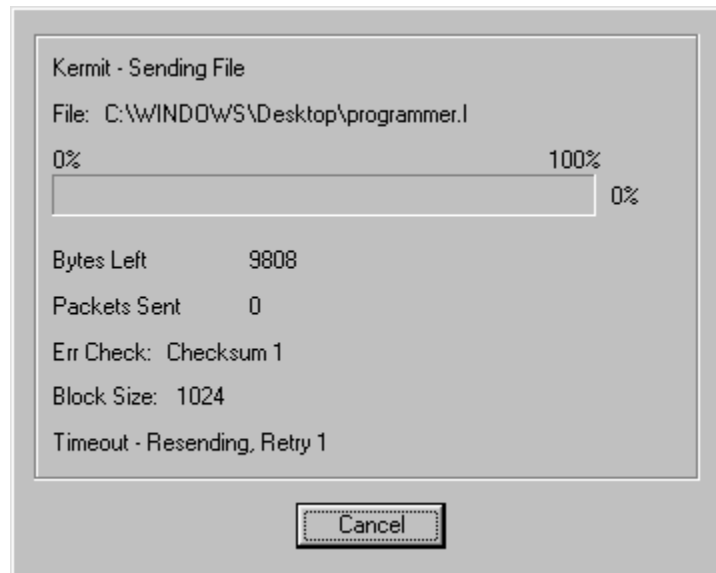


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

Kermit Program Load

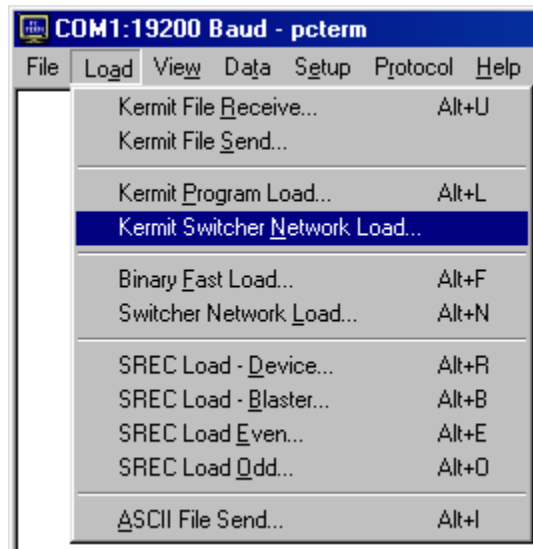


Selecting **Kermit Program Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the “Open” button to begin transmission of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below. Alternatively, the key sequence Alt + L will also perform this function.

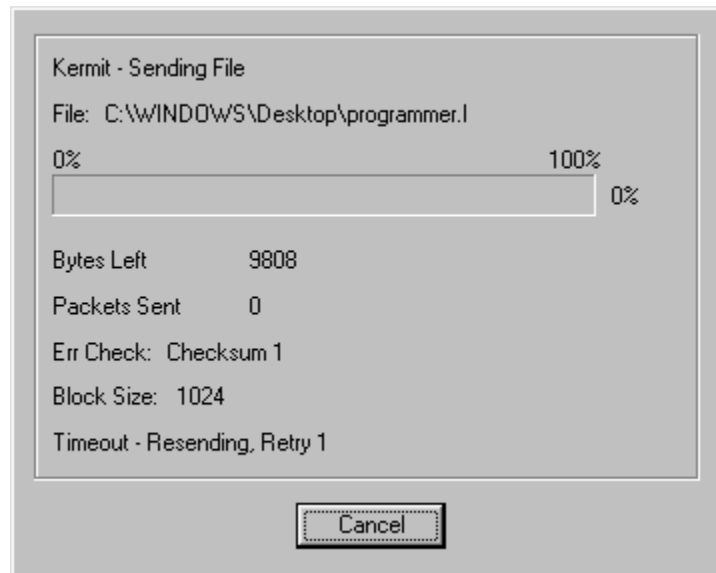


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

Kermit Switcher Network Load

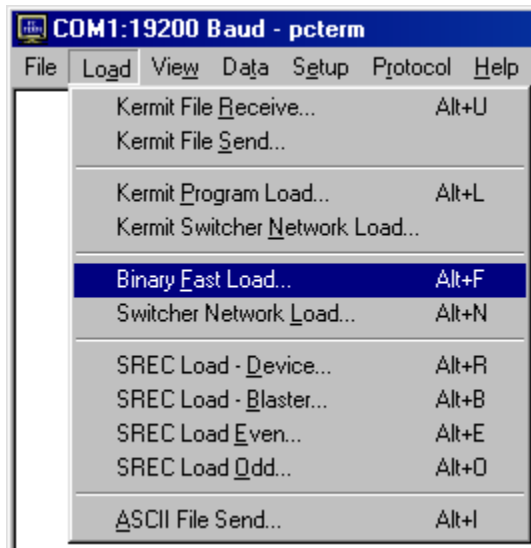


Selecting **Kermit Switcher Program Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the "Open" button to begin transmission of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below.

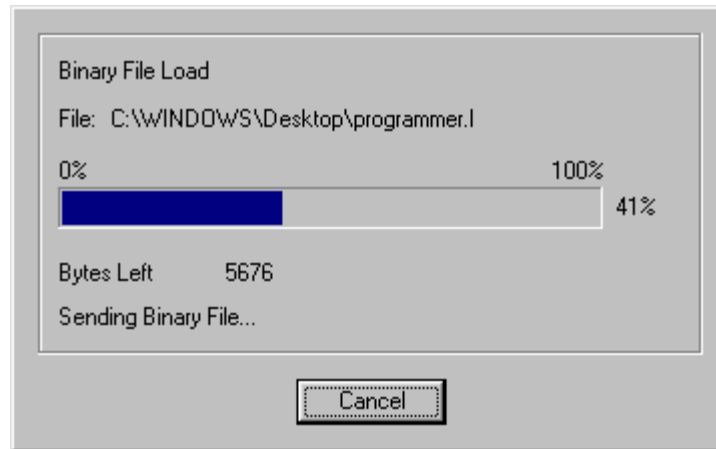


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

Binary Fast Load

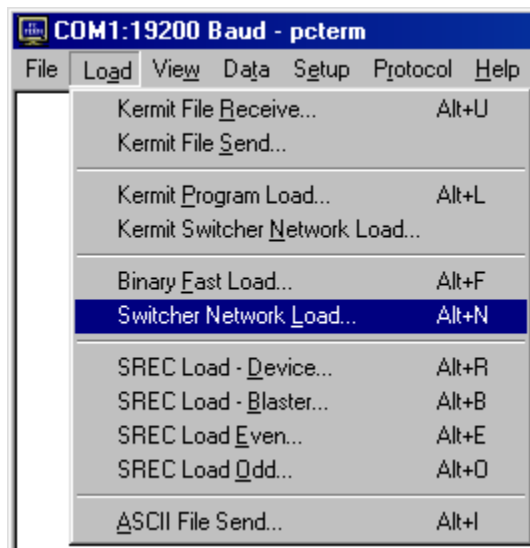


Selecting **Binary Fast Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the "Open" button to begin transmission of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below. Alternatively, the key sequence Alt + F will also perform this function.

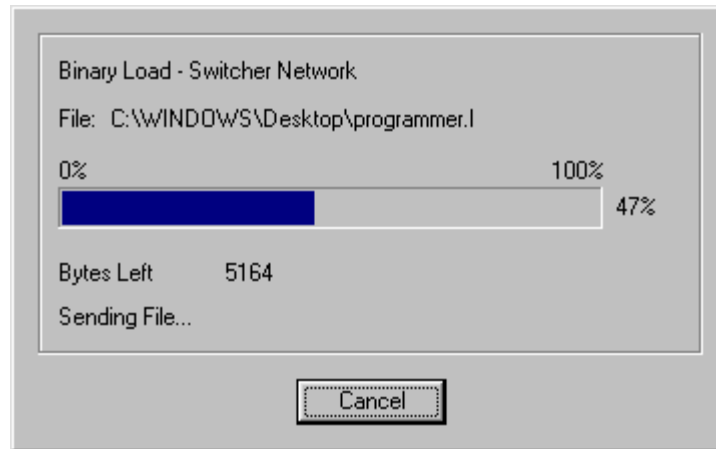


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

Switcher Network Load

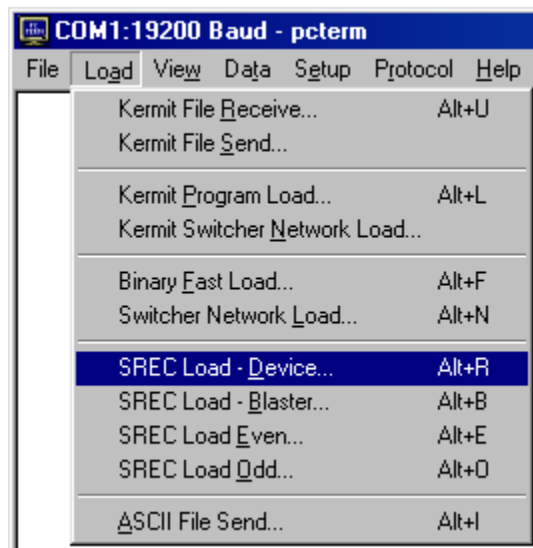


Selecting **Switcher Network Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the "Open" button to begin transmission of the file through Kermit. While transmission is in progress, PC Term provides a dialog window that reports on the status of the transaction as shown below. Alternatively, the key sequence Alt + N will also perform this function.

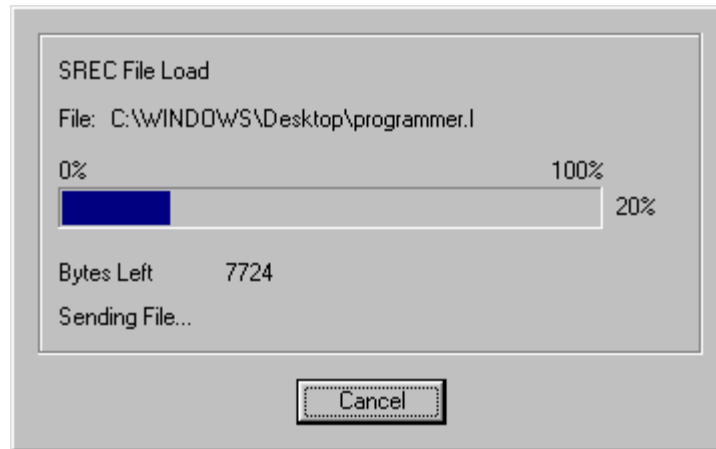


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

SREC Load – Device

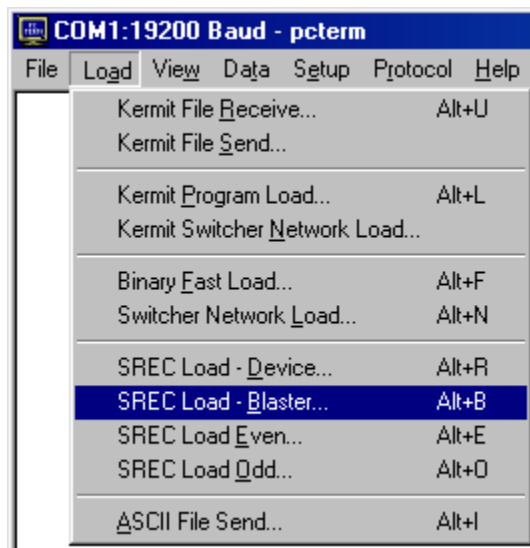


To load an EPROM file to a S4000 processor, connect the PC to the S4000 device through the serial port. Make sure the baud rate in PC Term is set to be the same as the one the device is expecting. Get the device ready for a file transfer. Selecting **SREC Load – Blaster...** opens the standard file dialog prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PC Term is loading to the S4000 device. Alternatively, the key sequence Alt + R will also perform this function.

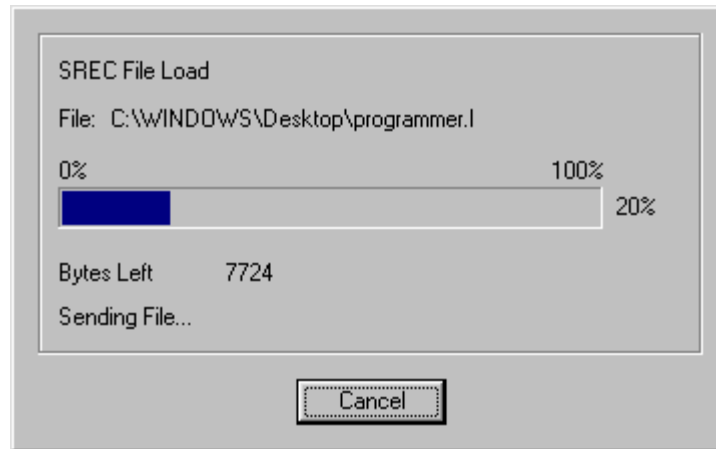


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

SREC Load – Blaster

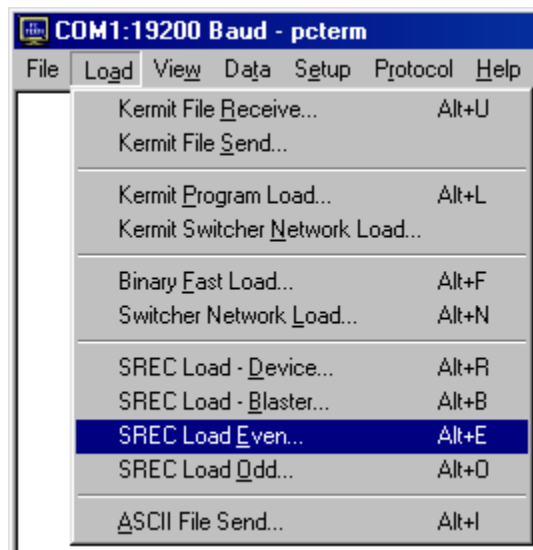


To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PC Term is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. Selecting **SREC Load – Blaster...** opens the standard file dialog prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PC Term is loading to the blaster. Alternatively, the key sequence Alt + B will also perform this function.

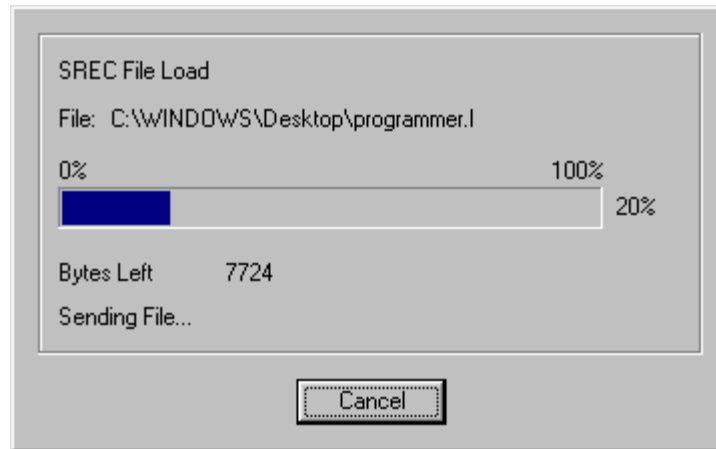


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

SREC Load – Even

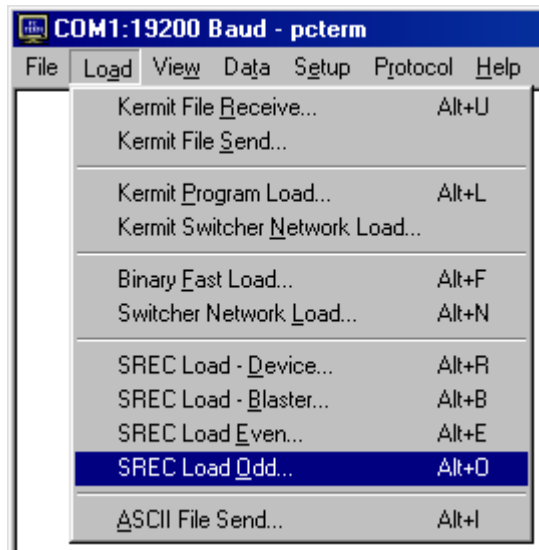


To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PC Term is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. Selecting **SREC Load – Even...** opens the standard file dialog prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PC Term is loading the even addresses to the blaster. Alternatively, the key sequence Alt + E will also perform this function.

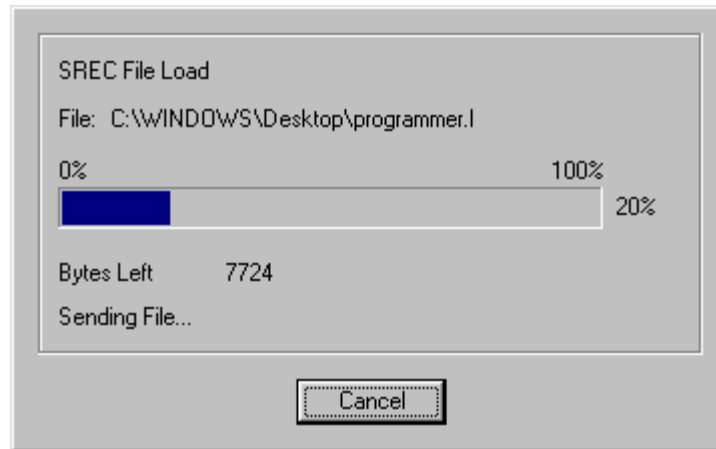


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

SREC Load – Odd

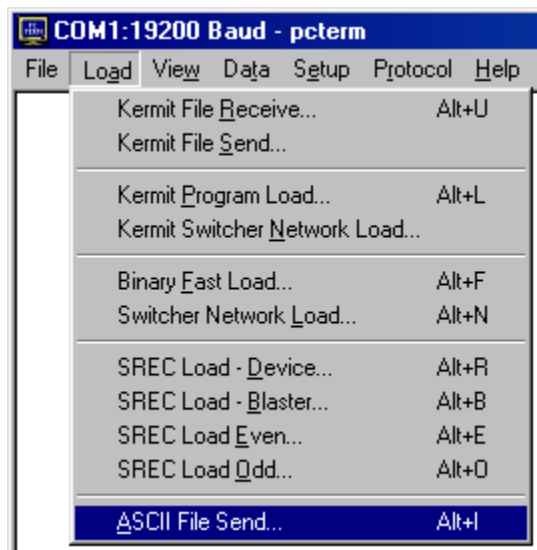


To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PC Term is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. Selecting **SREC Load – Odd...** opens the standard file dialog prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PC Term is loading the odd addresses to the blaster. Alternatively, the key sequence Alt + O will also perform this function.

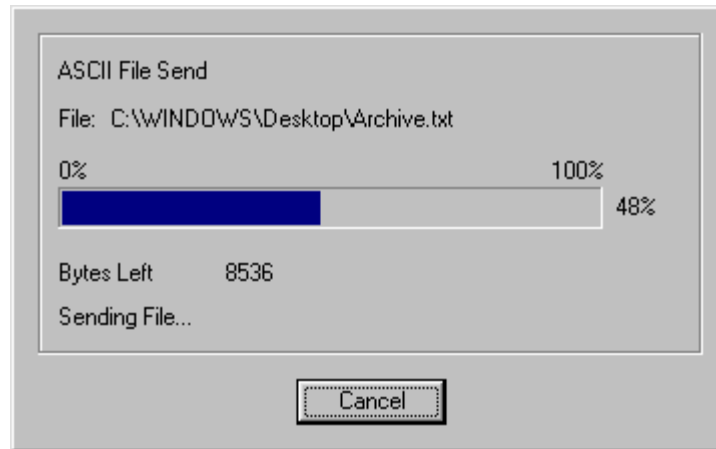


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

ASCII File Send



Selecting **ASCII File Send...** from the menu prompts the user with the standard file dialog for the file to send. Once a file is selected, it is sent as an ASCII file out the currently configured port with no formatting. The following dialog window is displayed during the transfer reporting the status of the file transfer. Alternatively, the key sequence Alt + I will also perform this function.

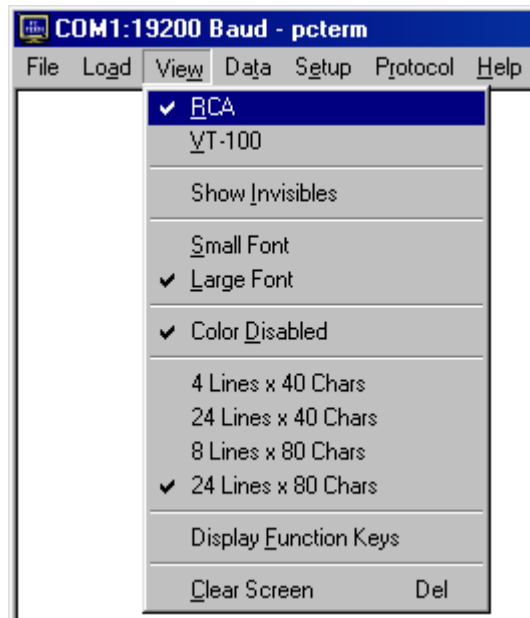


This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the transfer was canceled.

View

This menu item contains features that manipulate how the data is displayed on the terminal window.

RCA



This option selects the RCA VP3300 terminal type, removes the check next to **VT-100** in the menu, and places it next to **RCA** in the menu. When this terminal type is selected, PC Term emulates an RCA VP3300 terminal.

Escape Sequences RCA Terminal Emulation Character

PC Term supports RCA VP3300 escape sequence set. In addition, PC Term currently supports the graphics commands used by the UNICO Graphics Terminal or UGT.

In addition to the normal character display mode, the terminal has the ability to create reverse video images. This feature allows the creation of contrasting screen areas, which can be used to highlight and draw attention towards sections of the video display. When reverse video is enabled, it remains in effect until another command is given to turn it off. Reverse Video:

OFF = ESC ESC S 0

ON = ESC ESC S 1

Thus, through use of this command sequence it is possible to turn reverse video on for single or multiple character, words, or lines of information.

Cursor Manipulation Commands

These commands allow the cursor to be controlled and moved around the video screen.

Cursor Mode:

OFF = ESC ESC C 0

ON = ESC ESC C 1

The cursor mode command sequence allows the cursor to be turned off or turned on. This ability to control the cursor's mode can be used to satisfy user preference and needs in special applications. The default on power up is cursor on and blinking.

Backspace:

ESC D

The backspace command sequence moves the cursor position non-destructively one character to the left. If the cursor is backspaced past the first location on a line, it will be placed in the last position of the previous line.

Forespace:

ESC C

The forespace command sequence causes the cursor to be moved one position to the right non-destructively. If the cursor is forespaced past the last location on a line, it will be placed on the first position of the next line.

UpLine:

ESC A

The upline command sequence causes the cursor to move one line upward non-destructively. If the cursor position is on the top line, this command will cause the cursor to wrap-around to the bottom line.

DownLine:

ESC B, CTRL+J

The downline command sequence causes the cursor to move down one line non-destructively. When the cursor reaches the bottom line, this command causes the video screen to scroll upward one line leaving the cursor in the same position on the new line created.

Carriage Return:

CTRL+M <RETURN>

The carriage return command sequence causes the cursor to be returned non-destructively to the first position of the current line.

Horizontal Tab:

CTRL+I

The horizontal tab command sequence causes the cursor to move non-destructively to the next TAB position.

Home Cursor:

ESC H

The home cursor command sequence moves the cursor non-destructively HOME (the first location on the top line). The screen will not be cleared.

Address Cursor:

ESC Y cx cy

When using cursor addressing the video screen is organized as a grid of locations. The HOME position at the upper left-hand corner of the display is defined as the origin, that is, the (0,0) location. The cx and cy parameters represents the two characters that are used to pass the row and column locations to the terminal, i.e. (cx, cy). These characters range from the ASCII code for 'SPACE' to '{'. The following table is not an ASCII character chart.

ASCII Character to Decimal Screen Offsets Table

| Decimal Screen Offset Desired | ASCII Character to Use | Decimal Screen Offset Desired | ASCII Character to Use | Decimal Screen Offset Desired | ASCII Character to Use |
|--|------------------------------|--|------------------------------|--|------------------------------|
| 0 | SPACE | 31 | ? | 62 | ^ |
| 1 | ! | 32 | @ | 63 | _ |
| 2 | " | 33 | A | 64 | ` |
| 3 | # | 34 | B | 65 | a |
| 4 | \$ | 35 | C | 66 | b |
| 5 | % | 36 | D | 67 | c |
| 6 | & | 37 | E | 68 | d |
| 7 | ' | 38 | F | 69 | e |
| 8 | (| 39 | G | 70 | f |
| 9 |) | 40 | H | 71 | g |
| 10 | * | 41 | I | 72 | h |
| 11 | + | 42 | J | 73 | i |
| 12 | , | 43 | K | 74 | j |
| 13 | - | 44 | L | 75 | k |
| 14 | . | 45 | M | 76 | l |
| 15 | / | 46 | N | 77 | m |
| 16 | 0 | 47 | O | 78 | n |
| 17 | 1 | 48 | P | 79 | o |
| 18 | 2 | 49 | Q | | |
| 19 | 3 | 50 | R | | |
| 20 | 4 | 51 | S | | |
| 21 | 5 | 52 | T | | |
| 22 | 6 | 53 | U | | |
| 23 | 7 | 54 | V | | |
| 24 | 8 | 55 | W | | |
| 25 | 9 | 56 | X | | |

| | | | |
|----|---|----|---|
| 26 | : | 57 | Y |
| 27 | ; | 58 | Z |
| 28 | < | 59 | [|
| 29 | = | 60 | \ |
| 30 | > | 61 |] |

Clear Entire Screen:

ESC j, CNTL+L

The clear entire screen command sequence will cause the terminal to fill the video screen with space characters and HOME the cursor to the first position on the top line.

Clear to End of Screen:

ESC J

The clear to end of screen command sequence causes the terminal to fill the video screen from the current cursor position to the end of the screen with space characters. The cursor position is left unchanged.

Clear to End of Line:

ESC K

When the clear to end of line command sequence is executed, the current line is filled with space characters from the cursor to the end of that line. The cursor position remains the same.

RCA Color and Graphics Commands

Background Color:

ESC ESC B h

Foreground Color:

ESC ESC F h

These command sequences allow the background and foreground colors of the display to be defined. The h parameter indicates that an ASCII hex character is required for valid color recognition. There are sixteen different background colors that can be combined with sixteen different foreground colors (see Color Table below) to provide various color combinations.

| Char | Color | Char | Color |
|-------|-----------|-------|--------|
| ----- | ----- | ----- | ----- |
| 0 | Black | 8 | Grey |
| 1 | Lt. Green | 9 | Green |
| 2 | Lt. Blue | A | Blue |
| 3 | Lt. Aqua | B | Aqua |
| 4 | Lt. Red | C | Red |
| 5 | Yellow | D | Brown |
| 6 | Purple | E | Purple |

Line Color:

ESC ESC L h c

The line color command sequence allows the color of previously displayed characters to be redefined without effecting the current foreground color selection. The command uses h as the desired color code and c as the ASCII character equivalent for the run length number of locations on a line, from the cursor to change. Run length encoding is an efficient way to indicate the number of characters, or locations, to be included in the operation. The maximum valid run length code for the UNICO Graphics Terminal is the number of character locations on a line. Any value larger than the line length is interpreted as meaning to the end of the line.

RCA Pixel Graphics Commands

These commands allow pixel addressed graphics to be draw on the screen. These commands should only be used with non-scrolling displays. The pixel coordinate system used has 0,0 located in the upper left corner of the screen and 639,-431 for the HR module or 639,-215 for the LR module located in the lower right of the screen. Note that x coordinates increase as you move right on the screen, y coordinates increase as you move up the screen.

Box:

ESC ESC UBx1,y1,x2,y2<CR>

The box command sequence draws a filled rectangle on the screen with one corner at x1, y1 and the opposite corner at x2, y2. The box is drawn in the current foreground color.

Example: ESC ESC UB100,-100,200,-150<CR>

Rectangle:

ESC ESC URx1,y1,x2,y2<CR>

The rectangle command sequence draws a rectangle on the screen with one corner at x1, y1 and the opposite corner at x2, y2. The rectangle is drawn in the current foreground color.

Example: ESC ESC UR100,-100,200,-150<CR>

Circle:

ESC ESC UCx,y,r<CR>

The circle command sequence draws a circle on the screen with the center at x, y and a radius of r. This circle is drawn in the current foreground color.

Example: ESC ESC UC100,-100,30<CR>

Line:

ESC ESC ULx1,y1,x2,y2<CR>

The line command sequence draws a line on the screen between the points x1, y1 and x2, y2. The line is drawn in the current foreground color.

Example: ESC ESC UL100,-100,200,-150<CR>

Dot:

ESC ESC UD x,y <CR>

The dot command sequence draws a dot on the screen at x, y . This dot is drawn in the current foreground color.

Example: ESC ESC UD100,-100<CR>

Text with Font Specified:

ESC ESC UT f,x,y,zx,zy, str <CR>

The text with font specified command draws the string str in the font f at the coordinates x, y with the zoom factors zx, zy . The zoom factors determine how large the characters will be when drawn. A zoom factor of 0 gives characters at times 1 (normal size). A zoom factor of 1 gives characters at times 2 (double size). Zoom factors of 2,3,4,...,15 give characters at times 3,4,5, ... ,16. The available fonts are:

| | |
|---------|-----------|
| $f = 0$ | Monaco8 |
| $f = 1$ | Monaco12 |
| $f = 2$ | Chicago12 |
| $f = 3$ | Geneva12 |
| $f = 4$ | Times12 |

Example: ESC ESC UT3,100,-100,0,0,Hello World!<CR>

RCA Command Summary

OPERATING MODES

| | | | |
|---------------|------|--------|-------------|
| Reverse Video | -OFF | CTRL+N | ESC ESC S 0 |
| | -ON | CTRL+O | ESC ESC S 1 |

CURSOR MANIPULATION

| | | | |
|-----------------|------|-------------|-------------|
| Cursor | -OFF | - - - | ESC ESC C 0 |
| | -ON | - - - | ESC ESC C 1 |
| Backspace | | CTRL+H | ESC D |
| Forespace | | CTRL+U | ESC C |
| UpLine | | CTRL+K | ESC A |
| DownLine | | CTRL+J <LF> | ESC B |
| Carriage Return | | CTRL+M <CR> | - - - |
| Tab | | CTRL+I | - - - |
| Home | | CTRL+Z | ESC H |
| Address Cursor | | | ESC Y cc |

SCREEN MAINTENANCE

| | | |
|---------------------|--------|-------|
| Clear Entire Screen | CTRL+L | ESC j |
|---------------------|--------|-------|

Clear to End of Screen
Clear to End of Line

ESC J
ESC K

COLOR and GRAPHICS

Background Color
Foreground Color
Line Color

ESC ESC B h
ESC ESC F h
ESC ESC L h c

PIXEL GRAPHICS

Box

ESC ESC UBx1,y1,x2,y2<CR>

Rectangle

ESC ESC URx1,y1,x2,y2<CR>

Circle

ESC ESC UCx,y,r<CR>

Line

ESC ESC ULx1,y1,x2,y2<CR>

Dot

ESC ESC UDx,y<CR>

Text

ESC ESC UTf,x,y,zx,zy,str<CR>

Where, c = ASCII Character

d = Decimal Digit (0-9)

f = Decimal Digit (0-4)

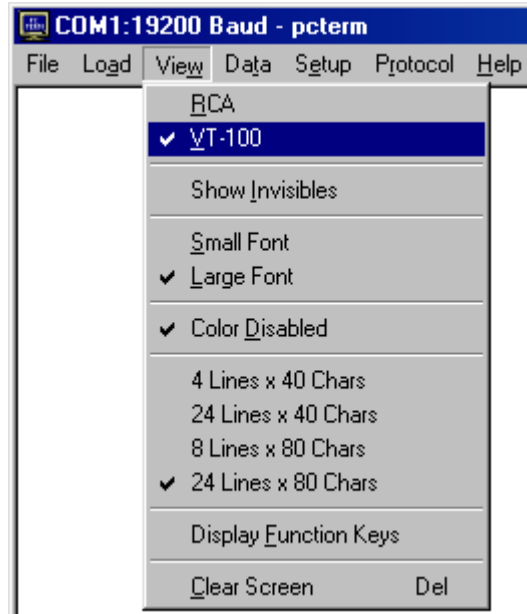
h = Hex Digit (0-9, A-F)

x,y,x1,y1,x2,y2,xc,yc,xe,ye,r,dx = Decimal Number (-431 - 640)

a,b = Decimal Number (1 - 255)

str = String of characters

VT-100



This option selects the VT-100 terminal type, removes the check next to **RCA** in the menu, and places it next to **VT-100** in the menu. When this terminal type is selected, PC Term emulates a VT-100 terminal.

VT100 Terminal Emulation Character Escape Sequences

PC Term currently supports the following VT-100 terminal emulation escape sequences.

Reverse Video:

OFF = ESC [0 m

ON = ESC [7 m

In addition to the normal character display mode, the terminal has the ability to create reverse video images.

Cursor Manipulation Commands

The following commands allow the cursor to be controlled and moved around the video screen.

Backspace:

ESC D or ESC [1 D

The backspace command sequence moves the cursor position non-destructively one character to the left. If the cursor is backspaced past the first location on a line, it will be placed in the last position of the previous line.

Multiple Backspace:

ESC [n D

The multiple backspace command sequence causes the cursor to move one space backward non-destructively n times.

Forespace:

ESC C or ESC [1 C

The forespace command sequence causes the cursor to be moved one position to the right non-destructively. If the cursor is forespaced past the last location on a line, it will be placed on the first position of the next line.

Multiple Forespace:

ESC [n C

The multiple forespace command sequence causes the cursor to move one space forward, non-destructively, n times.

UpLine:

ESC A or ESC I or ESC [1 A

The upline command sequence causes the cursor to move one line upward non-destructively. If the cursor position is on the top line, this command will cause the cursor to wrap-around to the bottom line.

Multiple UpLines:

ESC [n A

The multiple upline command sequence moves the cursor upward one line, non-destructively, n times.

DownLine:

ESC B or CTRL+J or ESC [1 B

The downline command sequence moves the cursor down one line non-destructively. When the cursor reaches the bottom line, the video screen scrolls upward one line leaving the cursor in the same position on the new line created.

Multiple DownLines:

ESC [n B

The multiple downline command sequence causes the cursor to move downward one line, non-destructively, n times.

Carriage Return:

CTRL+M <RETURN>

The carriage return command sequence causes the cursor to be returned non-destructively to the first position of the current line.

Horizontal Tab:

CTRL+I

The horizontal tab command sequence causes the cursor to move non-destructively to the next TAB position.

Home Cursor:

ESC H or ESC [r

The home cursor command sequence moves the cursor HOME (the first location on the top line), non-destructively. The screen will not be cleared.

Clear to End of Screen:

ESC J or ESC [1 J

The clear to end of screen command sequence causes the terminal to fill the video screen from the current cursor position to the end of the screen with space characters. The cursor position is left unchanged.

Multiple Clear to End of Screen:

ESC [n J

The multiple clear to end of screen command sequence causes the terminal to fill the video screen from the current cursor position to the end of the screen with space characters n times.

Clear to End of Line:

ESC K or ESC [1 K

The clear to end of line command sequence fills the current line from the cursor to the end with space characters. The cursor position remains the same.

Multiple Clear to End of Line:

ESC [n K

The multiple clear to end of line command sequence causes the terminal to fill the video screen from the current cursor position to the end of the line with space characters n times.

Address Cursor:

ESC [Pl; Pc f or ESC [Pl; Pc H

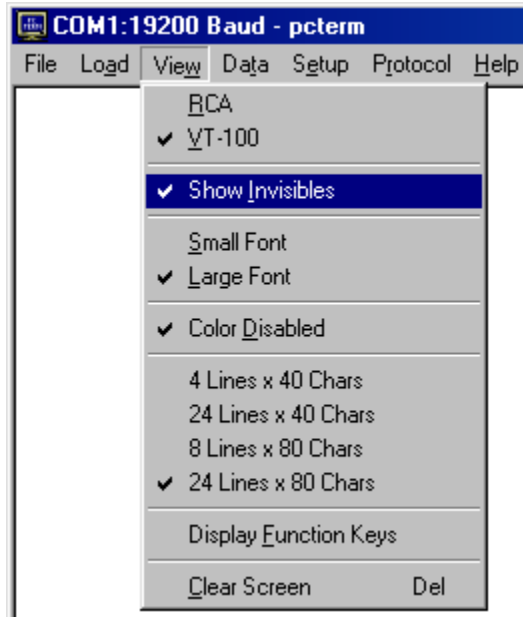
The address cursor command sequence moves the active cursor position to the position specified by the parameters Pl (line) and Pc (column). When using cursor addressing the video screen is organized as a grid of locations. The HOME position at the upper left-hand corner of the display is defined as the origin, that is, the 1,1 location.

Device Attributes:

ESC Z or ESC [Pn c

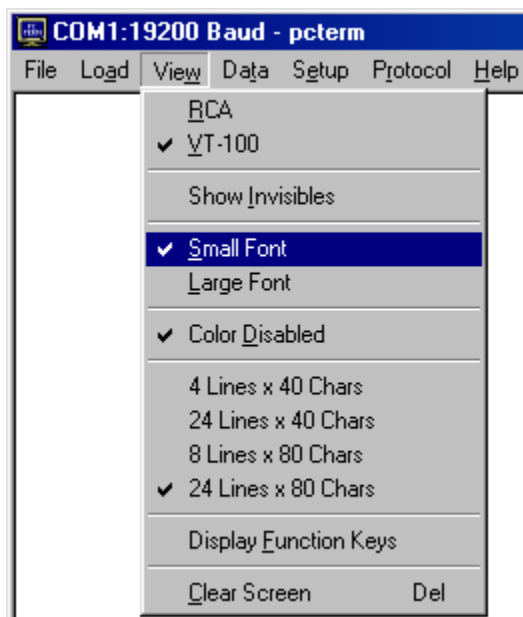
A host might send these characters requesting the terminal to respond with its current device attributes settings. This sequence causes the terminal to send back the following character sequence: ESC [? 1 ; 0 c which means no options set.

Show Invisibles



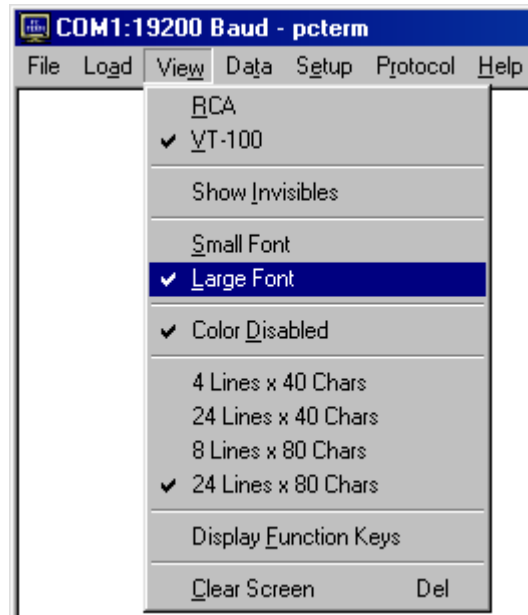
This option toggles whether invisible characters are to be displayed to the screen or not. If invisibles are to be displayed, a check is placed next to **Show Invisibles** in the menu bar.

Small Font



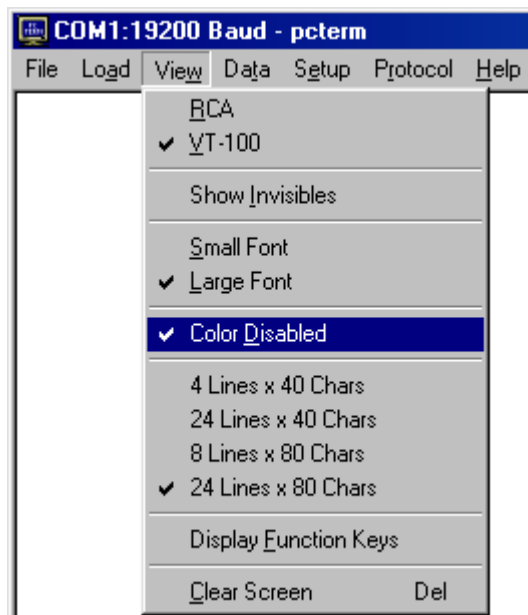
This option selects the application's small font, removes the check next to **Large Font** in the menu, and places it next to **Small Font** in the menu. The screen size is altered to accommodate the new text font.

Large Font



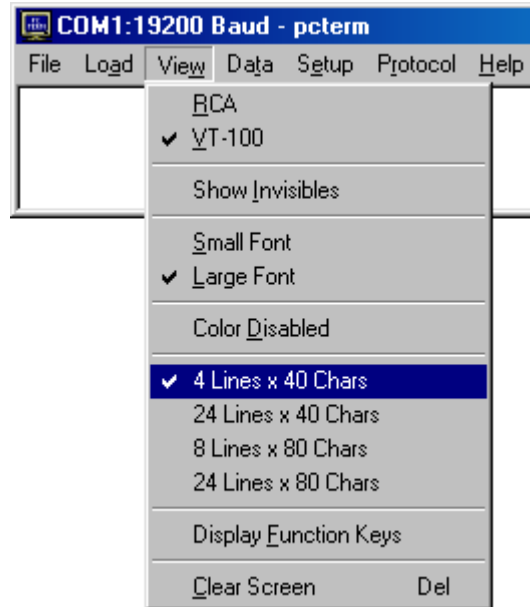
This option selects the application's large font, removes the check next to **Small Font** in the menu, and places it next to **Large Font** in the menu. The screen size is altered to accommodate the new text font.

Color Disabled



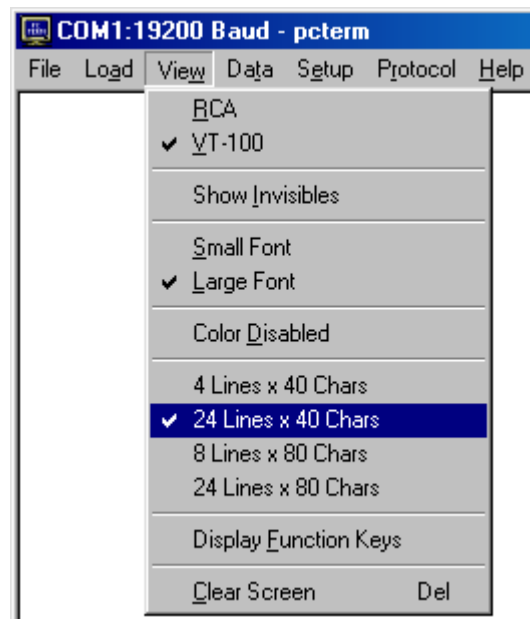
This feature toggles whether or not colors may be displayed in the terminal window. See **RCA Color and Graphics Commands**.

4 Lines x 40 Chars



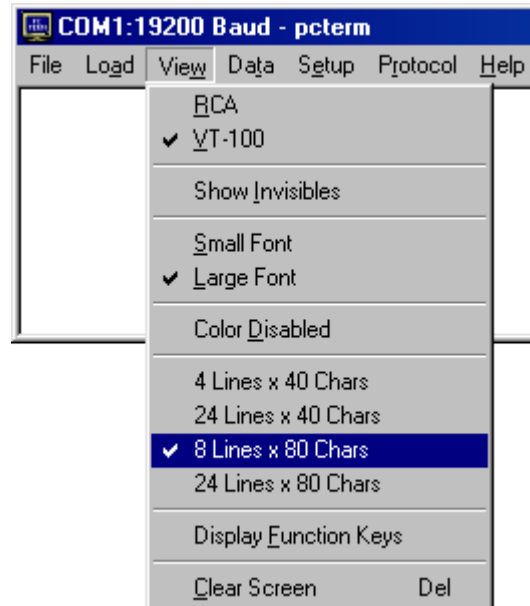
This option selects the screen size of 4 lines by 40 characters, removes the check from the previous screen size setting in the menu, and places it next to **4 Lines x 40 Chars** in the menu. The terminal window is resized to these settings.

24 lines x 40 Chars



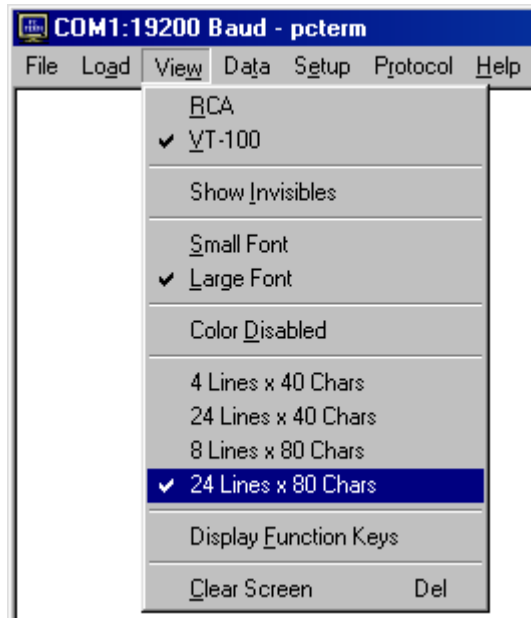
This option selects the screen size of 24 lines by 40 characters, removes the check from the previous screen size setting in the menu, and places it next to **24 Lines x 40 Chars** in the menu. The terminal window is resized to these settings.

8 Lines x 80 Chars



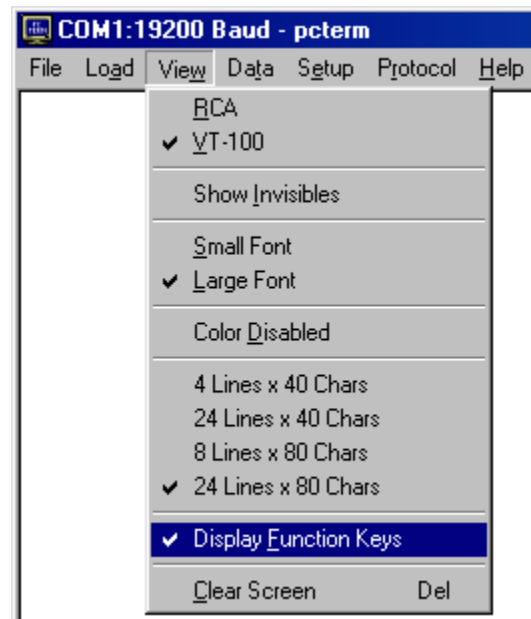
This option selects the screen size of 8 lines by 80 characters, removes the check from the previous screen size setting in the menu, and places it next to **8 Lines x 80 Chars** in the menu. The terminal window is resized to these settings.

24 lines x 80 Chars



This option selects the screen size of 24 lines by 80 characters, removes the check from the previous screen size setting in the menu, and places it next to **24 Lines x 80 Chars** in the menu. The terminal window is resized to these settings.

Display Function Keys



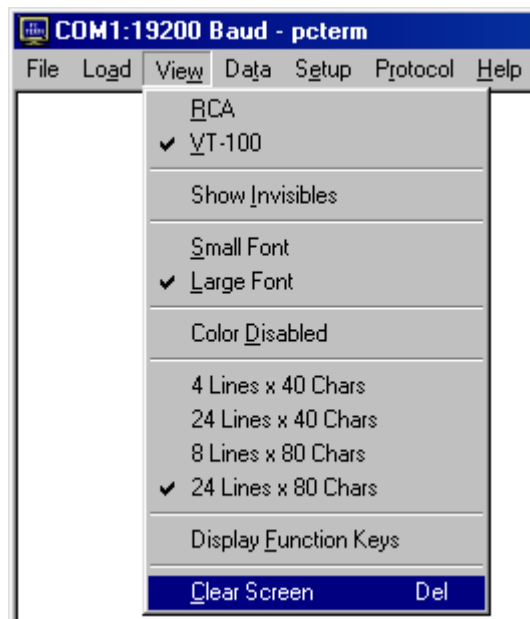
This feature toggles whether or not the Function Keys toolbar (shown below) is displayed. This toolbar is a free-floating toolbar, but may be docked on the top or bottom of the terminal window.



A check is appears next to **Display Function Keys** in the menu when the toolbar is displayed. The toolbar can be closed be either selecting **Display Function Keys** in the menu or by clicking the **X** (Close) button on the toolbar.

The captions and function strings for each of the twelve buttons on this toolbar may be edited with the **Define Function Keys...** option under **Setup** in the main menu.

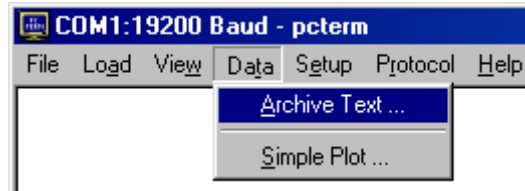
Clear Screen



This option clears the entire terminal window of any data. The keyboard **Delete** key also performs this function.

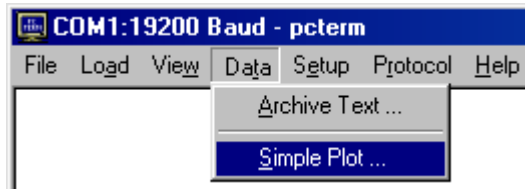
Data

Archive Text

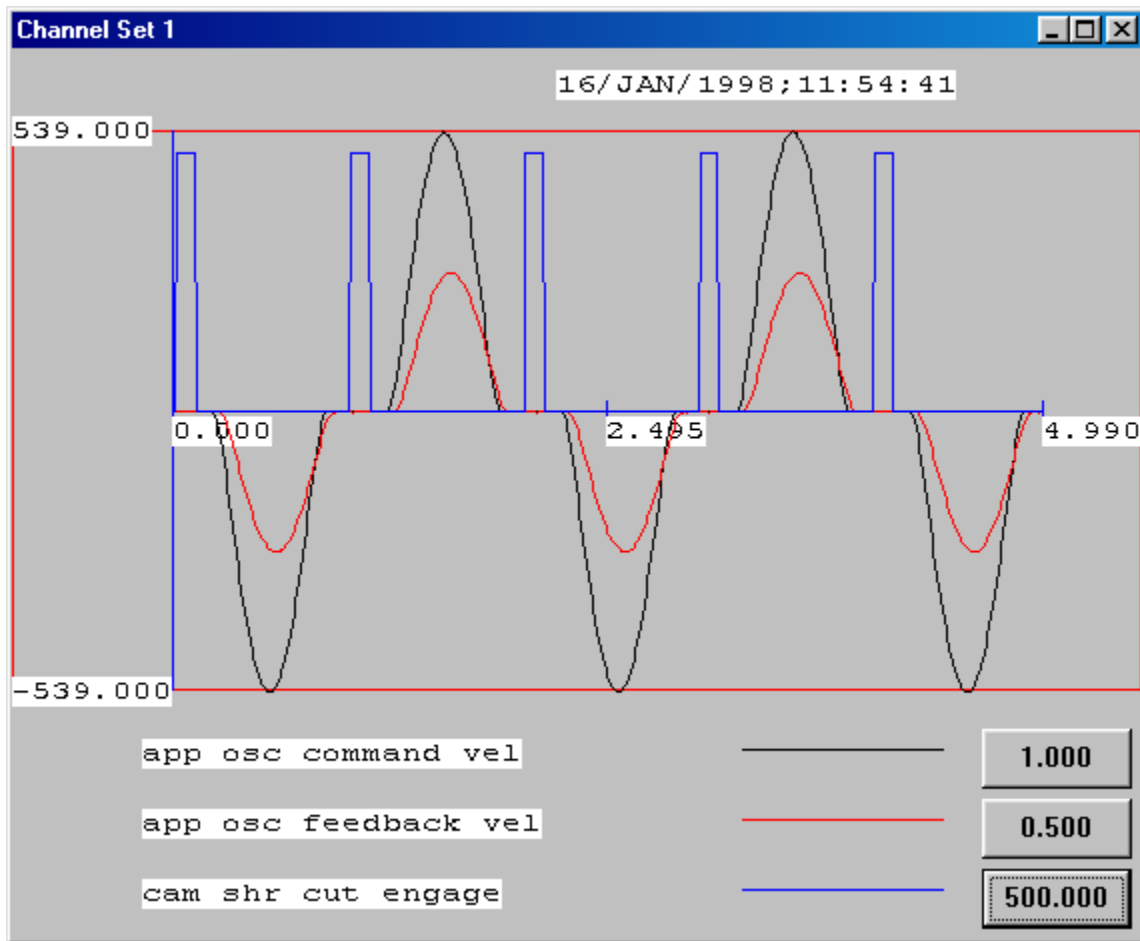


This feature allows the user to capture the incoming characters to a text file. The standard file dialog appears allowing the user to name the archive file. This can be either the default name (Archive.txt) or any other name. After saving this file, a check mark will appear next to **Archive Text...** in the menu to show that an archive is in process. All incoming characters after the selection will then be written to this text file. Clicking on **Archive Text...** from the menu again turns off archiving and closes the file. The check mark will disappear and the file will be saved on the disk. Quitting PC Term also closes this text file.

Simple Plot



PC Term also supports a graphing function that plots the contents of the file obtained during data upload called Simple Plot. Upon selecting **Simple Plot...** in the menu, the user is requested to select a file containing the data sample that was previously uploaded from a UNICO Series 4000 device. Once the appropriate file is selected, a new window appears containing a graph for each channel contained in the sample. The following is an example of a data sample.



Each channel is displayed with a different color. The time and data recorded at the time of sampling are also printed at the top of the graph as an identifying feature. This time stamp is stored within the sample file for archiving purposes.

Simple Plot supports the ability to scale channels individually. This is particularly useful when two functions overlap to the extent that it is difficult to distinguish between them. The scale of a channel can be edited by selecting the appropriate button to the right of the channel legend. A dialog window, like the one below, will appear prompting a new scale value.

Change Simple Plot Scale

Scale 1.000

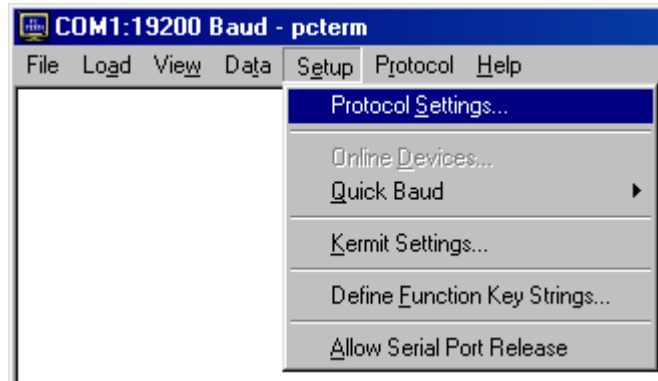
OK

Cancel

Selecting the **OK** button will re-scale the Simple Plot graph for that particular channel to the new setting, whereas the **Cancel** button will ignore any changes.

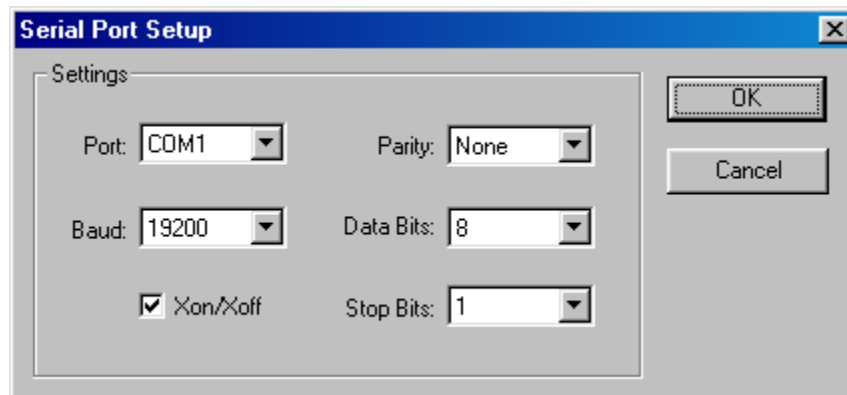
Setup

Protocol Settings



This feature displays either the **Serial Port Setup** dialog window or the **ControlNet Setup** dialog window depending on which is selected under the **Protocol** item of the main menu bar. Once the selections are complete, pressing the **OK** button will configure and save the current settings and alter the title bar of the application if there were changes. The **Cancel** button will disregard any changes and close the dialog.

Serial Port Setup



The dialog above can be used to configure a serial port for communication. The serial port can be selected from the available ports. This application supports up to 32 serial ports (COM1...COM32), but the computer must have the hardware for a particular port to be an option in this dialog. The current serial communications port is always displayed in the title bar of the application when serial communications are selected under the Protocol menu item. The COM port may also be changed with the quick-key sequence <Ctrl>+(COM port #). I.e. <Ctrl>+1 configures PCTerm for COM1. This feature is only available for COM1 through COM9.

The standard baud rates of 1200, 1800, 2400, 3600, 4800, 7200, 9600, 19200, 28800, 38400, 57600, 115200 and 230400 may be selected from this screen, by the **Quick Baud** menu item under **Setup**, or by the following “quick” key sequences.

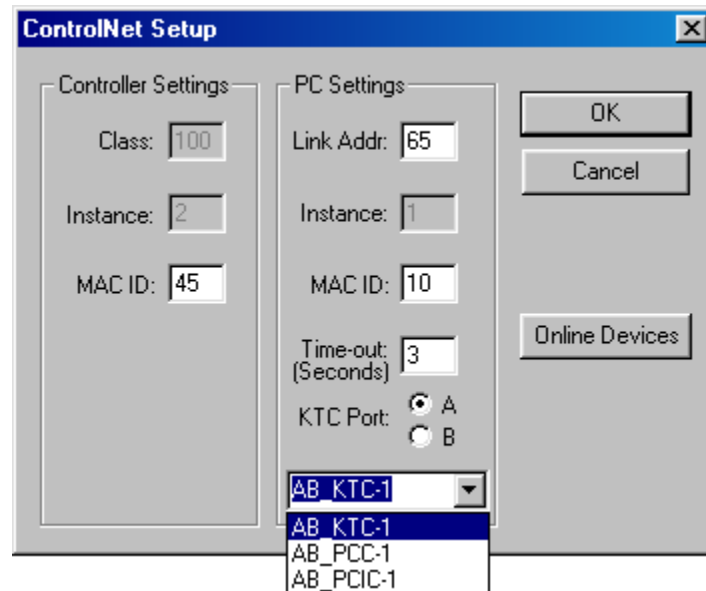
| | |
|-----------------|-------------|
| Alt + 0 | 1200 baud |
| Alt + 1 | 1800 baud |
| Alt + 2 | 2400 baud |
| Alt + 3 | 3600 baud |
| Alt + 4 | 4800 baud |
| Alt + 5 | 7200 baud |
| Alt + 6 | 9600 baud |
| Alt + 7 | 19200 baud |
| Alt + 8 | 28800 baud |
| Alt + 9 | 57600 baud |
| Alt + Shift + 0 | 38400 baud |
| Alt + Shift + 1 | 115200 baud |
| Alt + Shift + 2 | 230400 baud |

The currently configured baud rate is always displayed in the title bar of the application when serial communications are selected under the **Protocol** menu item.

Software handshaking is controlled by the **Xon/Xoff** checkbox. By checking this box, output to another device will be halted if the ^S (Ctrl + S) character (value: 0x19) is received, while sending this character to another device will halt any input from the other device. Communication will resume only after a ^Q (Ctrl + Q) character (value: 0x17) is received by the device halting its output. Deselecting this checkbox ignores the above mentioned control characters during communication.

The parity can be set to Odd, Even, or No parity. The number of data bits in each character can be set to 5, 6, 7, or 8 bits. The number of stop bits can be set to 1, 1.5, or 2.

ControlNet Setup



This dialog window is split into two sections, **Controller Settings** and **PC Settings**.

The **Controller Settings** section displays the information regarding the desired UNICO device to communicate with. The **MAC ID** is the device number of the desired node in the ControlNet™ network to communicate with. It is the only editable value in this section and may be set to any device number within the range of 1 to 99.

The **PC Settings** section contains information regarding ControlNet™ communication using a KTC interface card in the PC. The **Link Addr** value is an identifier that ControlNet™ uses to determine which application on the PC it is communicating with. This value must be different from the link address in other applications such as ISaGRAF™ communicating via ControlNet™. Communication problems will occur if they are the same.

The **MAC ID** in the PC section is similar to that in the controller section. It signifies the device number of the PC on the ControlNet™ network. It also must be a value within the range of 1 to 99.

The ControlNet™ time-out can be set to any value within the range of 1 to 99 seconds.

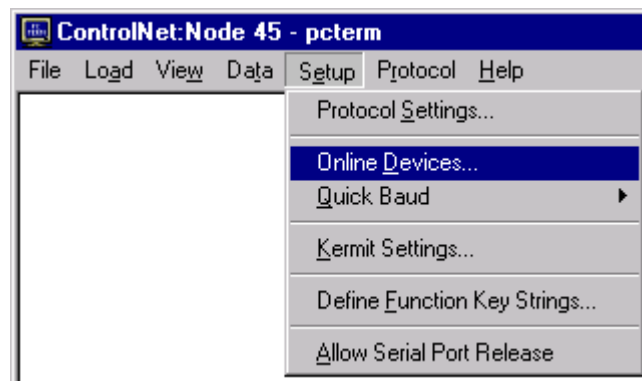
The **KTC Port** radio buttons determine which of the two ports (A or B) on the KTC interface card the specified controller is connected to.

The ControlNet driver name that is used to connect PCTerm to RSLinx may be chosen from the list of driver names or manually entered if the desired driver does not exist.

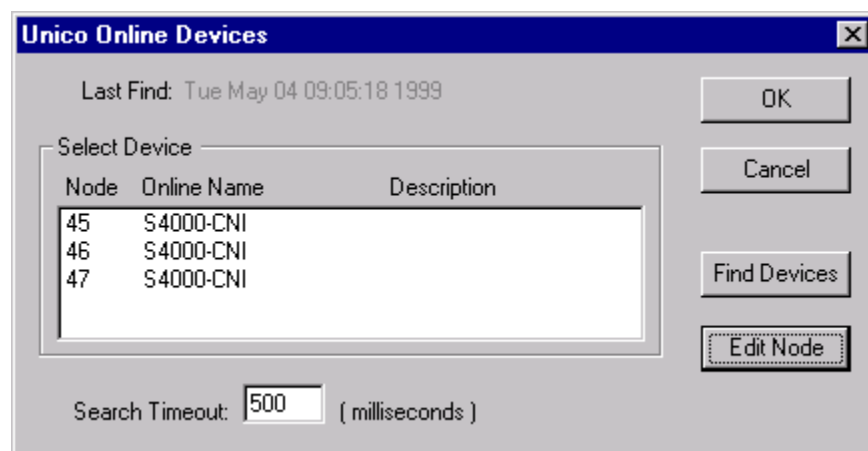
Currently, PCTerm supports Allen Bradley 1784-KTC(X), 1784-PCC, and 1784-PCIC ControlNet interface cards.

The **Online Devices** button opens a dialog window that lists the devices that were online the last time a network search was performed. This window is also displayed by the **Online Devices** option under the **Setup** main menu item. A screen capture of this window can be seen in the **Online Devices** section.

Online Devices



This option displays the following dialog window. This dialog displays a listing of UNICO devices that have been found in the connected ControlNet™ network and the date and time they were found.

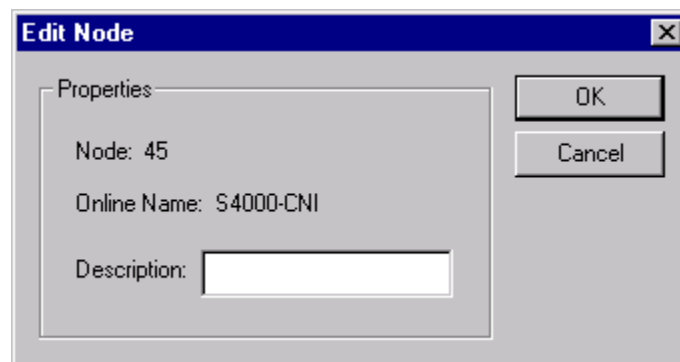


Selecting the **Find Devices** button performs a network search of all UNICO devices currently in the network. This operation may take up to several minutes depending on the search time-out specified at the bottom of the dialog. The search time-out is the time PC Term will wait for a response from a device ping during a network search. Upon completion of the search, a confirmation dialog will appear. If there was any changes in

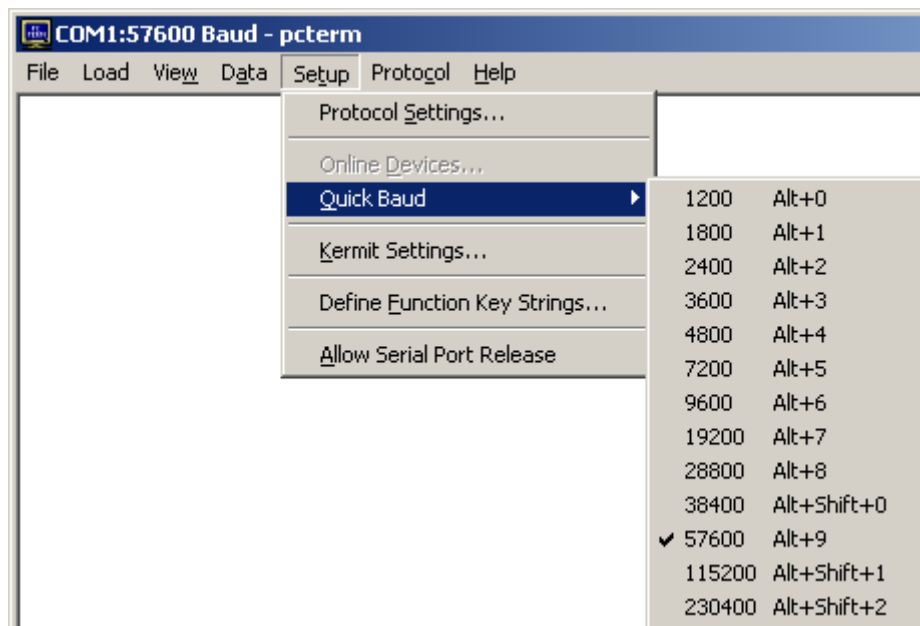
the network, new devices will be found in the list box or previous devices will be absent from it. The date and time of the last network search is displayed at the top of the dialog.

The list box may contain as many devices as are in the network. A device may be selected by double-clicking it in the list box with the mouse or by highlighting it with a single-click and selecting the **OK** button.

By highlighting a device in the list box with a single mouse click, the description of the device may be edited by clicking the **Edit Node** button. If a device is not selected in the list box, nothing will occur. If a device is selected, however, the following window is appears displaying the properties of the device.



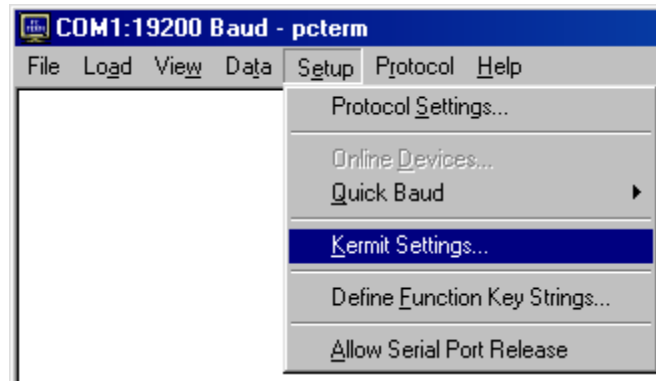
Quick Baud



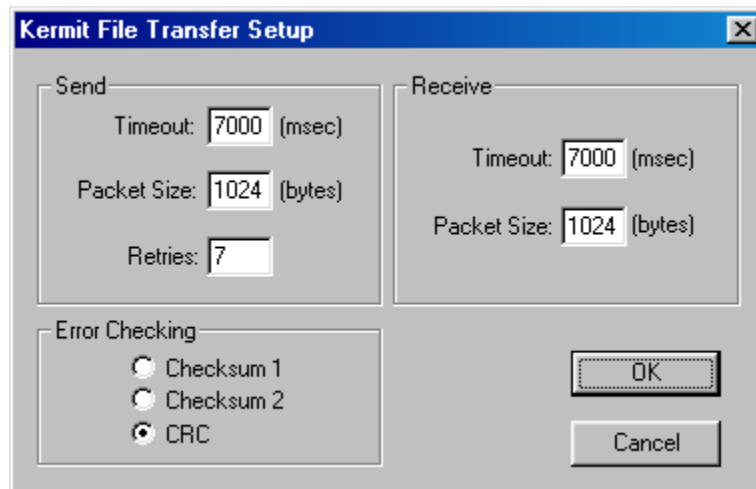
The **Quick Baud** feature displays a pop-up listing of the available baud rates and their “quick” key sequences as discussed in the **Serial Port Setup** section. Clicking one of these baud rates will place a check next to that baud rate in the list, configure the current

serial port for this setting and display the baud rate in the title bar of the application if serial communications are selected under the **Protocol** menu item.

Kermit Settings



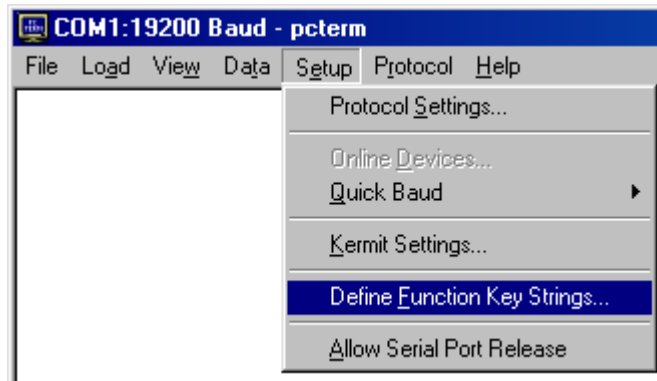
The **Kermit Settings...** option displays the following dialog window to allow configuration of the protocol. Selecting the **OK** button saves and configures the settings. Any changes are disregarded by selecting the **Cancel** button.



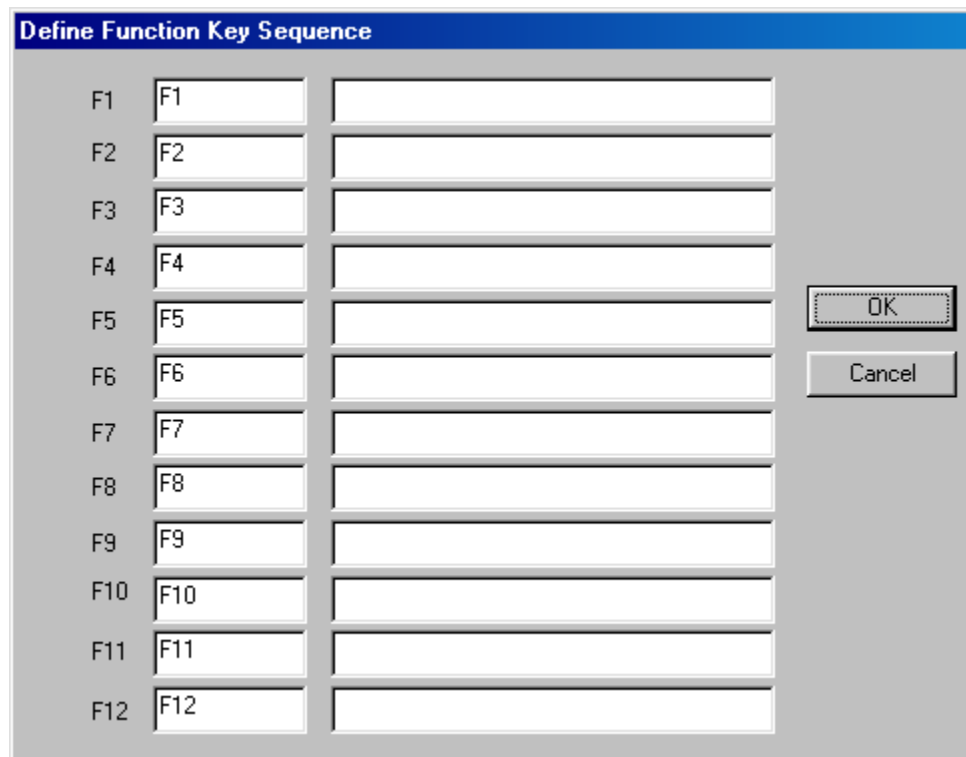
By default a packet size of 1024 is selected. This corresponds to the maximum packet size permitted by the protocol and has been found to provide the best throughput. It should be noted, however, that not all Kermit transmitters support a maximum packet size of 1024. This should pose no problem due to the internal reconciliation process conducted by the protocol. PC Term, likewise, supports a default packet size of 1024. By default, the time-out is 7000 milliseconds, and there are 7 retries. The default packet size for both send and receive are 1024 bytes. This is currently the maximum packet size and results in the fastest file transfer. The default time-out is 7 seconds and default number of retries is 7. The default error checking method is CRC. Packet size and error checking method is negotiated between the sender and receiver. If the sender requests a packet size of 1024 and the receiver is capable of using this then both will use a packet

size of 1024. If the receiver is not able to use 1024 it will inform the sender what its maximum is and the sender will conform to that. A similar negotiation will occur with the error checking methods.

Define Function Key Strings



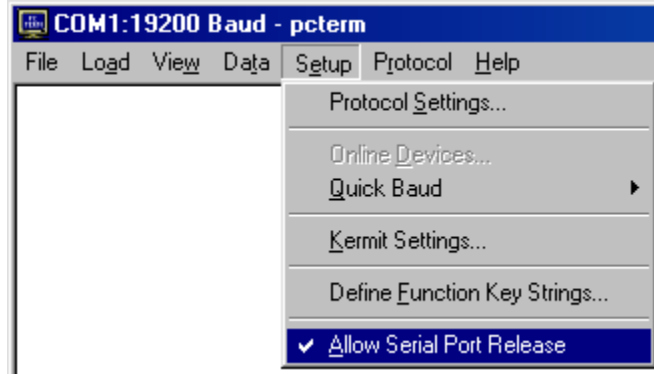
This option displays the following dialog window to associate user defined ASCII strings to the keyboard function keys (F1, F2, ... F12). These strings can be output using the Function Keys toolbar as well as with the keyboard keys. See the **Display Function Keys** section.

A dialog box titled "Define Function Key Sequence". It contains a table with 12 rows, each representing a function key from F1 to F12. Each row has three input fields: the first contains the key name (F1-F12), the second is empty, and the third is empty. To the right of the table are "OK" and "Cancel" buttons.

| Function Key | String 1 | String 2 | String 3 |
|--------------|----------|----------|----------|
| F1 | F1 | | |
| F2 | F2 | | |
| F3 | F3 | | |
| F4 | F4 | | |
| F5 | F5 | | |
| F6 | F6 | | |
| F7 | F7 | | |
| F8 | F8 | | |
| F9 | F9 | | |
| F10 | F10 | | |
| F11 | F11 | | |
| F12 | F12 | | |

The function strings are configured with the right column of edit boxes. These strings are output using the currently configured communication protocol (serial, ControlNet™) as if they were typed manually when that key is pressed. The names displayed on the function keys in the Function Key toolbar are configured with the first column of this dialog. The **OK** button saves and configures the buttons, while the **Cancel** button disregards any changes.

Allow Serial Port Release



This option is a toggle that, when checked, allows PC Term to close and free the serial port when not in the foreground. This allows other applications such as Wonderware® to use the same serial port when it is not needed by PC Term. This, however, means that any data intended for PC Term will be lost when it is minimized or in the background. Therefore, caution should be taken especially while downloading or uploading to ensure PC Term remains in the foreground if this option is selected.

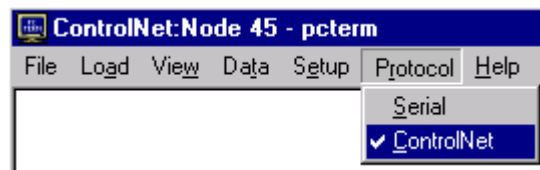
Protocol

Serial

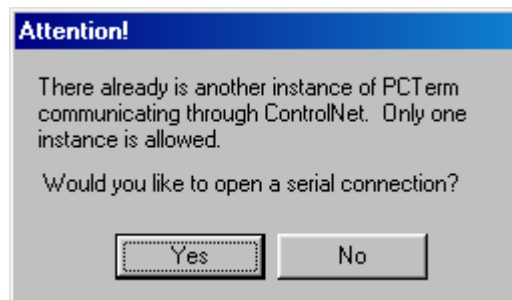


The **Protocol** menu item lists the available types of communication PC Term supports. This version currently supports standard serial communication as well as ControlNet™ talk-through to UNICO controllers. The currently selected communication type is displayed with a check and is changed by clicking on the unchecked selection. Multiple instances of PC Term may be opened and configured for different serial ports.

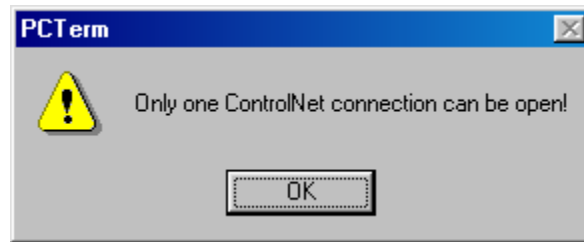
ControlNet



The **Protocol** menu item lists the available types of communication PC Term supports. This version currently supports standard serial communication as well as ControlNet™ talk-through to UNICO controllers. The currently selected communication type is displayed with a check and is changed by clicking on the unchecked selection. Only one instance of PC Term may be configured for ControlNet™ talk-through. If an instance of PC Term is launched and another is already configured for ControlNet™, the following warning dialog will appear.



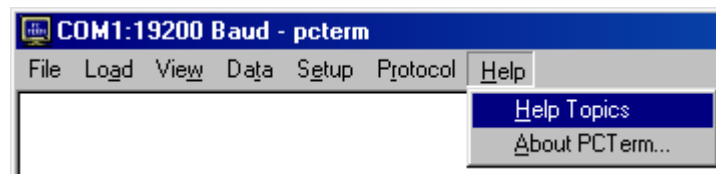
Clicking **Yes** will open a new instance of PC Term configured for serial communication, while clicking **NO** causes the following dialog to appear.



Upon clicking **OK**, the instance of PC Term already configured for ControlNet™ talk-through is brought to the foreground.

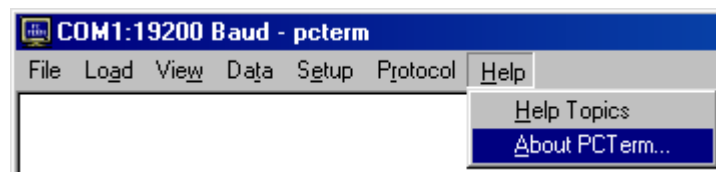
Help

Help Topics



This option displays the help file containing documentation for PC Term.

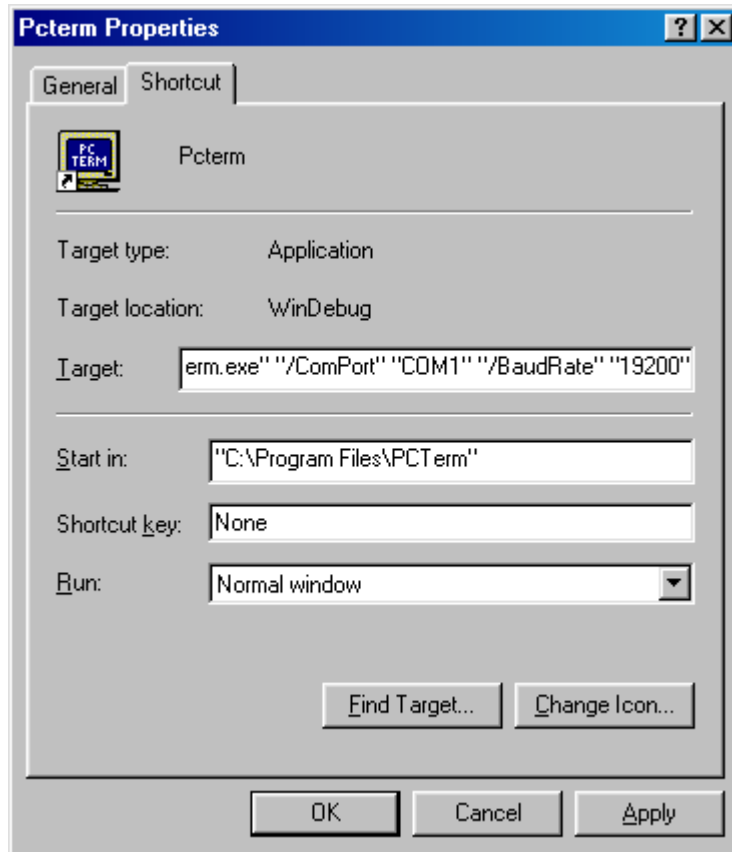
About PC Term



This option displays a dialog box describing the PC Term application including name, version, and software number.

Command Line

Certain communication settings may be configured in PCTerm when command-line parameters are passed to the application. These parameters can be passed to PCTerm through a Windows shortcut. Several shortcuts may be created that point to the same PCTerm executable, but have different command-line parameters that configure PCTerm differently. Thus multiple instances of PCTerm may be opened simultaneously with different settings without manually configuring each instance. The command-line parameters may be modified by right clicking on a shortcut and selecting 'Properties' from the popup menu. The command-line is the 'Target' field under the 'Shortcut' tab in the properties dialog window that is displayed.



PCTerm currently supports setting the communication protocol, serial communications port, serial baud rate, and ControlNet node through command-line parameters.

| <u>Setting</u> | <u>Command-line Flag</u> | <u>Command-line Option</u> |
|---------------------------|---------------------------------|--|
| Communication Protocol | /Protocol | Serial ControlNet |
| Serial Communication Port | /ComPort | COM1 COM2 COM3 COM4 COM5 COM6 |
| Serial Baud Rate | /BaudRate | 1200 1800 2400 3600 4800 9600 19200 28800 |

38400
57600
115200
230400

| | | |
|-----------------|-------|------|
| ControlNet Node | /Node | 0-99 |
|-----------------|-------|------|

Each flag and option must be separated by a space and must be surrounded by quotation marks. For example: "C:\Pcterm.exe" "/ComPort" "COM1" "/BaudRate" "19200" is a valid command-line that configures PCTerm for serial communication on COM1 at 19200 baud. The /Protocol flag is optional. If either the /ComPort or /BaudRate flag are specified, the protocol is set to 'Serial'. Likewise, if the /Node flag is specified, the protocol is set to 'ControlNet'. Any setting, not specified or implied by a command-line flag, is configured with the previously stored registry value.

Index

/

| | |
|-----------------|----|
| /BaudRate | 45 |
| /ComPort | 45 |
| /Node | 46 |
| /Protocol | 45 |

1

| | |
|-------------------|----|
| 1784-KTC(X) | 38 |
| 1784-PCC | 38 |
| 1784-PCIC | 38 |

2

| | |
|---------------------------|----|
| 24 lines x 40 Chars | 28 |
| 24 lines x 80 Chars | 29 |

4

| | |
|--------------------------|----|
| 4 Lines x 40 Chars | 28 |
|--------------------------|----|

8

| | |
|--------------------------|----|
| 8 Lines x 80 Chars | 29 |
|--------------------------|----|

A

| | |
|---------------------------------|--------|
| About PC Term | 44 |
| Address Cursor | 18, 25 |
| Allow Serial Port Release | 42 |
| Alt + 0 | 36 |
| Alt + 1 | 36 |
| Alt + 2 | 36 |
| Alt + 3 | 36 |
| Alt + 4 | 36 |
| Alt + 5 | 36 |
| Alt + 6 | 36 |
| Alt + 7 | 36 |
| Alt + 8 | 36 |
| Alt + 9 | 36 |
| Alt + B | 11 |
| Alt + E | 12 |
| Alt + F | 8 |
| Alt + I | 14 |
| Alt + L | 6 |
| Alt + N | 9 |
| Alt + O | 13 |
| Alt + R | 10 |
| Alt + S | 3 |
| Alt + Shift + 0 | 36 |
| Alt + Shift + 1 | 36 |
| Alt + Shift + 2 | 36 |
| Alt + U | 4 |
| Archive Text | 32 |
| ASCII File Send | 14 |

B

| | |
|------------------------|----|
| Background Color | 19 |
| Backspace | 17 |
| Backspace | 23 |
| baud rate | 36 |
| Binary Fast Load | 8 |
| Box | 20 |

C

| | |
|------------------------------|-----------|
| Carriage Return | 17, 24 |
| Circle | 20 |
| Clear Entire Screen | 19 |
| Clear Screen | 31 |
| Clear to End of Line | 19, 25 |
| Clear to End of Screen | 19, 25 |
| COLOR and GRAPHICS | 22 |
| Color Disabled | 27 |
| colors | 28 |
| Command Line | 44 |
| Controller Settings | 37 |
| ControlNet | 3, 38, 43 |
| ControlNet Setup | 37 |
| Ctrl + Q | 36 |
| Ctrl + S | 36 |
| CURSOR MANIPULATION | 21 |
| Cursor Mode | 17 |

D

| | |
|-----------------------------------|--------|
| Data | 32 |
| data bits | 36 |
| Decimal Screen Offsets | 18 |
| Define Function Key Strings | 41 |
| Delete | 31 |
| Device Attributes | 25 |
| Display Function Keys | 30 |
| Dot | 21 |
| DownLine | 17, 24 |
| driver name | 37 |

E

| | |
|-----------------|----|
| Edit Node | 39 |
| Exit | 3 |

F

| | |
|------------------------|--------|
| File | 3 |
| Find Devices | 38 |
| font | 27 |
| Foreground Color | 19 |
| Forespace | 17, 24 |
| function keys | 41 |
| Function Keys | 30 |

H

| | |
|----------------------|--------|
| Help | 44 |
| Help Topics | 44 |
| Home Cursor | 17, 25 |
| Horizontal Tab | 17, 24 |

I

| | |
|------------------|----|
| invisibles | 26 |
|------------------|----|

K

| | |
|------------------------------------|----|
| Kermit File Receive | 4 |
| Kermit File Send | 5 |
| Kermit Program Load | 6 |
| Kermit Settings | 40 |
| Kermit Switcher Network Load | 7 |
| KTC | 37 |
| KTC Port | 37 |

L

| | |
|-------------------|----|
| Large Font | 27 |
| Line | 20 |
| Line Color | 20 |
| Link Addr | 37 |
| Load | 4 |

M

| | |
|---------------------------------------|----|
| MAC ID | 37 |
| Multiple Backspace | 23 |
| Multiple Clear to End of Line | 25 |
| Multiple Clear to End of Screen | 25 |
| Multiple DownLines | 24 |
| Multiple Forespace | 24 |
| multiple instances | 44 |
| Multiple instances | 43 |
| Multiple UpLines | 24 |

O

| | |
|-----------------------|----|
| Online Devices | 38 |
| OPERATING MODES | 21 |

P

| | |
|-----------------------|----|
| parity | 36 |
| PC Settings | 37 |
| PIXEL GRAPHICS | 22 |
| Protocol | 43 |

| | |
|-------------------------|----|
| Protocol Settings | 35 |
|-------------------------|----|

Q

| | |
|------------------|--------|
| Quick Baud | 36, 39 |
|------------------|--------|

R

| | |
|---------------------|--------|
| RCA | 16 |
| RCA VP3300 | 16 |
| Rectangle | 20 |
| Reverse Video | 16, 23 |
| RSLinx | 3 |

S

| | |
|-----------------------------|--------|
| Save Screen As | 3 |
| SCREEN MAINTENANCE | 21 |
| Serial | 43 |
| Serial Port Setup | 35, 39 |
| Setup | 35 |
| shortcut | 44 |
| Show Invisibles | 26 |
| Simple Plot | 32 |
| Small Font | 26 |
| Software handshaking | 36 |
| SREC Load – Blaster | 11 |
| SREC Load – Device | 10 |
| SREC Load – Even | 12 |
| SREC Load – Odd | 13 |
| stop bits | 36 |
| Switcher Network Load | 9 |
| Synopsys | 4 |

T

| | |
|--------------------------------|----|
| Text with Font Specified | 21 |
| time-out | 37 |

U

| | |
|--------------|--------|
| UGT | 16 |
| UpLine | 17, 24 |

V

| | |
|-------------------|----|
| View | 16 |
| VT-100 | 23 |

X

| | |
|----------------|----|
| Xon/Xoff | 36 |
|----------------|----|