



PCTerm
UNICO Terminal Emulator
804333.037

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Introduction

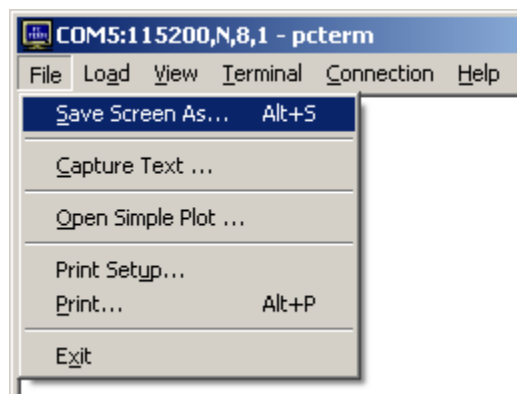
PCTerm is a terminal emulator with target code management facilities. PCTerm can communicate with simple ASCII characters through the serial port or network card of an IBM compatible PC or through a ControlNet™ interface card and Rockwell Software's RSLinx™.

Menu Items and Features

The menu bar for PCTerm consists of seven items: **File**, **Load**, **View**, **Terminal**, **Connection**, and **Help**. The following will discuss the contents of each menu item.

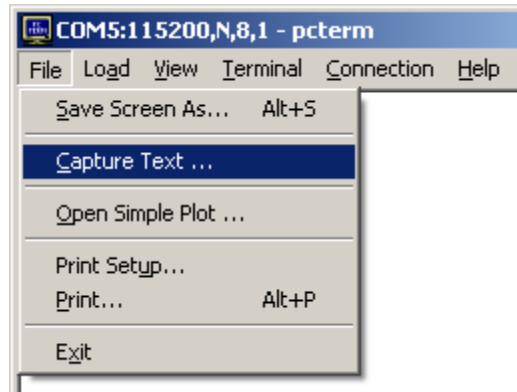
File

Save Screen As



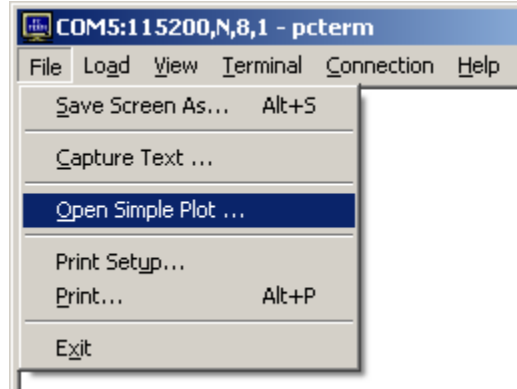
This feature saves the contents of the current screen to a text file. The standard file dialog appears and prompts the user for the file to save the screen text to. Alternatively, the 'Alt + S' key sequence may also be typed to perform this function.

Capture Text

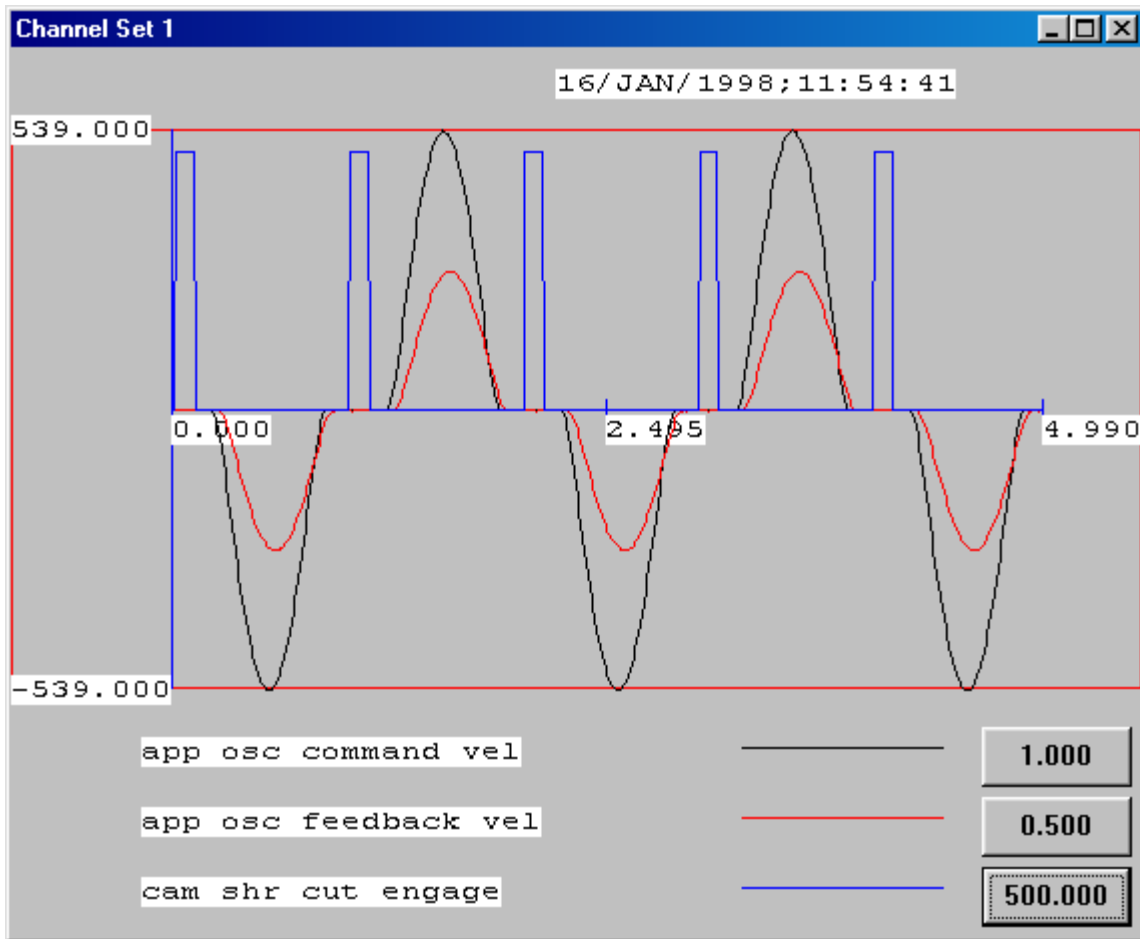


This feature allows the user to capture the incoming characters to a text file. The standard file dialog appears allowing the user to name the text file. This can be either the default name (Archive.txt) or any other name. After saving this file, a check mark will appear next to the **Capture Text...** menu option to show that the capture is in progress. All incoming characters received, after this option is selected, will be written to the specified text file. Clicking the **Capture Text...** menu option a second time turns off capturing and closes the file. The check mark will also be removed from the menu option. Exiting PCTerm will also close the text file.

Open Simple Plot

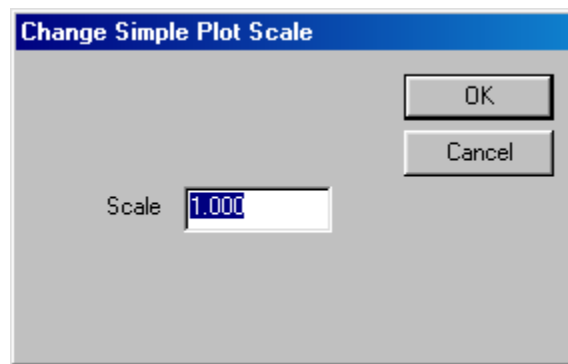


PCTerm also supports a graphing function that plots the contents of the file obtained during data upload called Simple Plot. Upon selecting **Open Simple Plot...** in the menu, the user is requested to select a file containing the data sample that was previously uploaded from a UNICO Series 4000 device. 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.



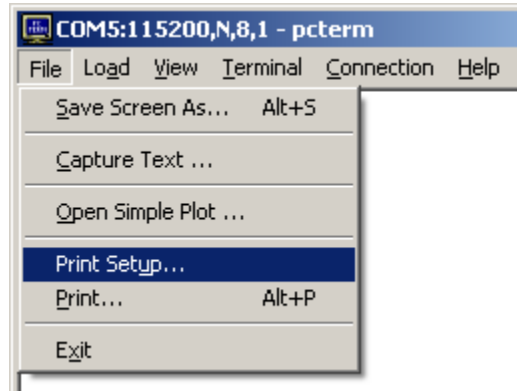
Each channel is displayed with a different color. The time and data recorded at the time of sampling are also printed at the top of the graph as an identifying feature. This time stamp is stored within the sample file for archiving purposes.

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.



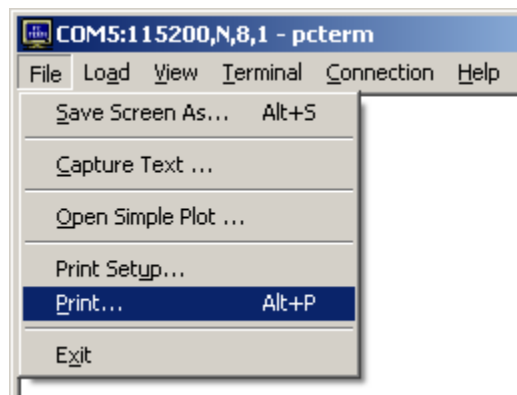
Selecting the **OK** button will re-scale the Simple Plot graph for that particular channel to the new setting, whereas the **Cancel** button will ignore any changes.

Print Setup



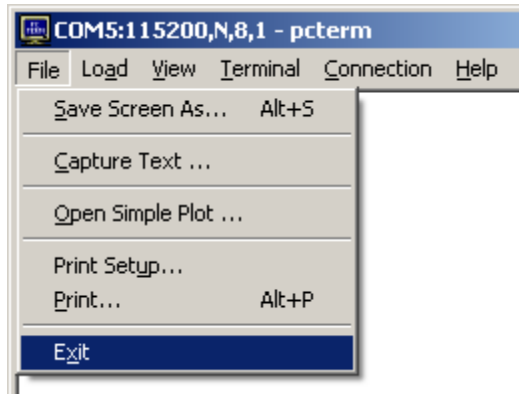
This menu option displays a window to configure the print settings.

Print



This menu option sends the terminal screen to the printer. Alternatively, the 'Alt + P' key sequence may also be typed to perform this action.

Exit



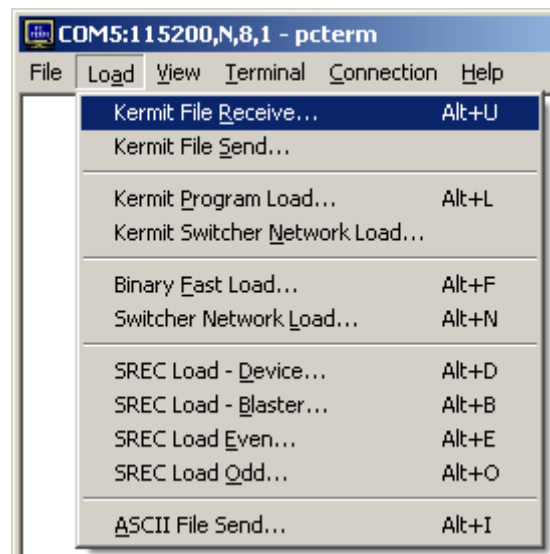
This menu option closes the application.

Load

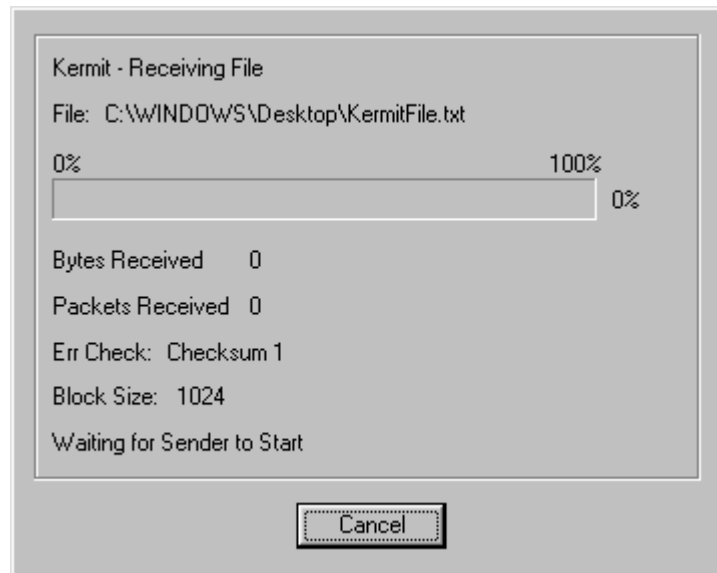
There are several ways to load application files to UNICO S4000 devices. These are **Binary Fast Load...**, **Switcher Network Load...**, and the **SREC Load** options. In addition, program loads for the UNICO Synopsys operating system can be performed with the **Kermit Program Load...** and **Kermit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

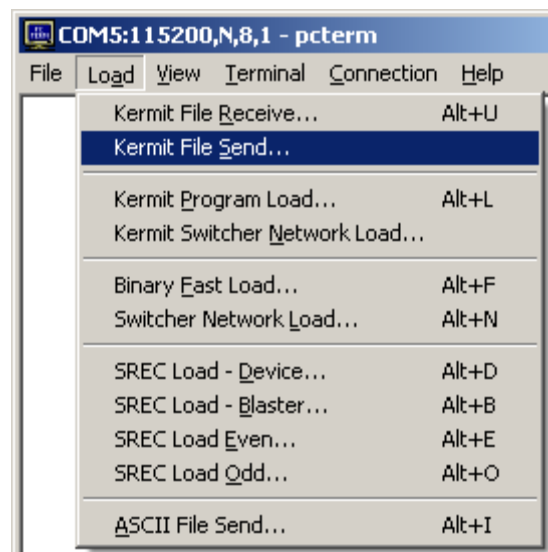


PCTerm responds to selection of the **Kermit File Receive...** request by opening the standard file dialog box. By default the sample will be captured in a file called "KermitFile.txt". The user has the option of modifying this name and the directory in which the file is stored. Once the file name and 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, PCTerm 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.

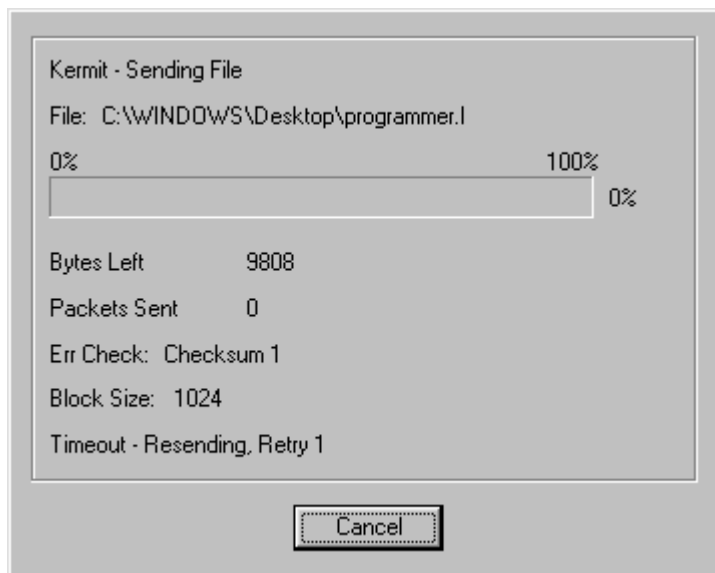


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Kermit File Send

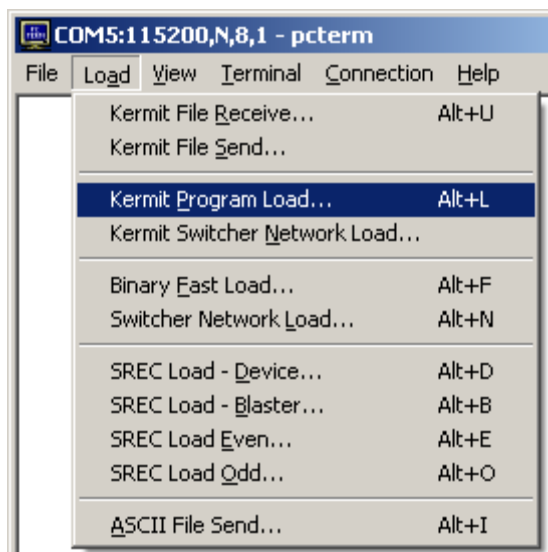


PCTerm responds to selection of the **Kermit File Send...** request by opening the standard file dialog box to obtain the file to send. Once the file is selected, click the “Open” button to begin transmission of the file through Kermit. While transmission is in progress, PCTerm provides a dialog window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

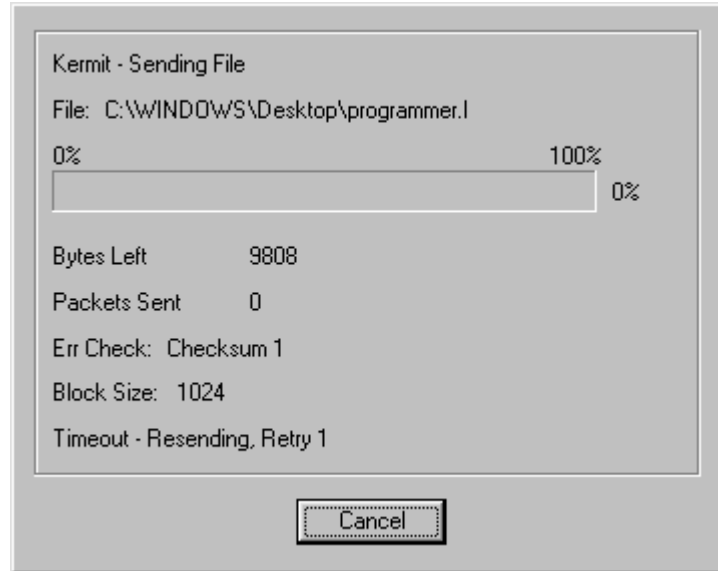


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Kermit Program Load

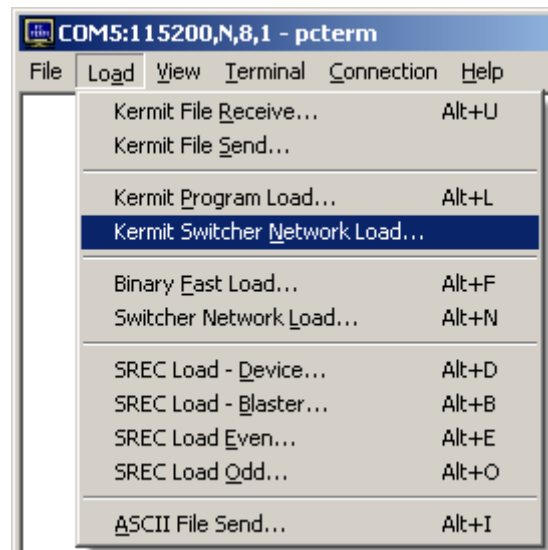


Selecting **Kermit Program Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the “Open” button to begin transmission of the file through Kermit. While transmission is in progress, PCTerm 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.



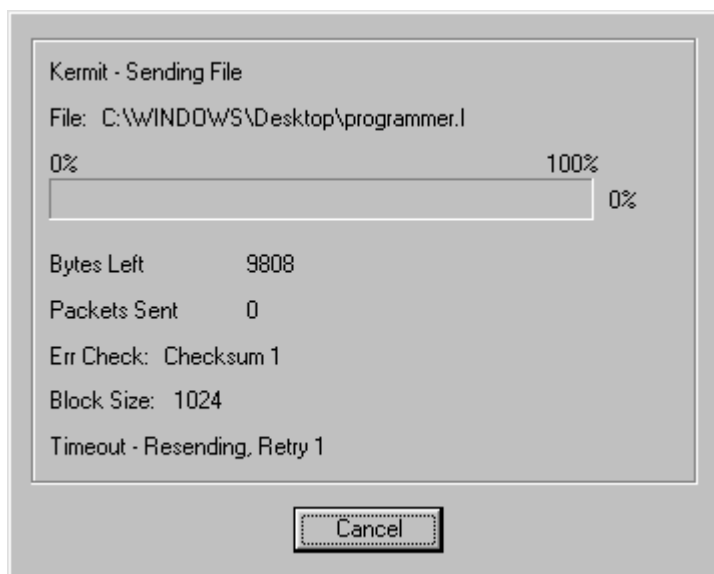
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Kermit Switcher Network Load



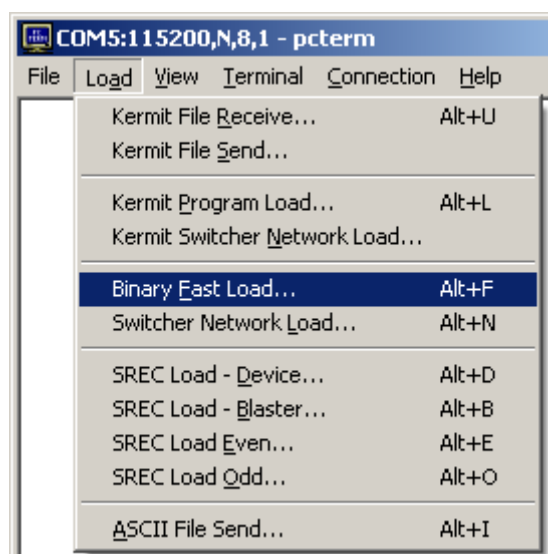
Selecting **Kermit Switcher Program Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the “Open” button to begin

transmission of the file through Kermit. While transmission is in progress, PCTerm provides a dialog window that reports on the status of the transaction as shown below.



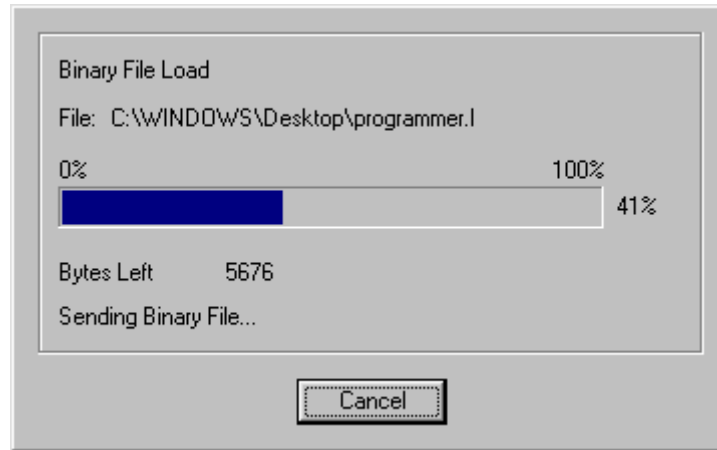
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Binary Fast Load



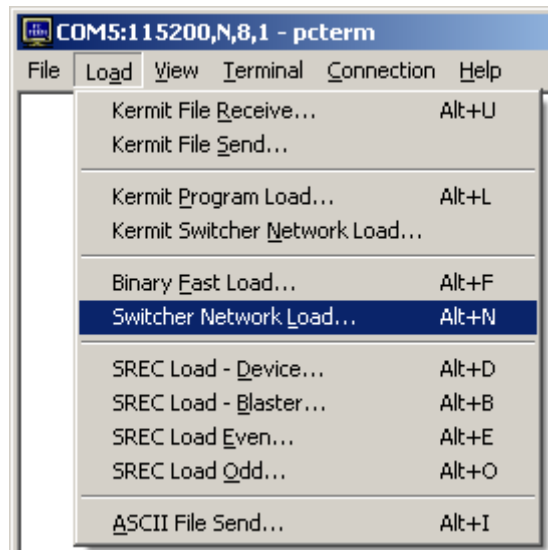
Selecting **Binary Fast Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the “Open” button to begin transmission of the

file through Kermit. While transmission is in progress, PCTerm 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.



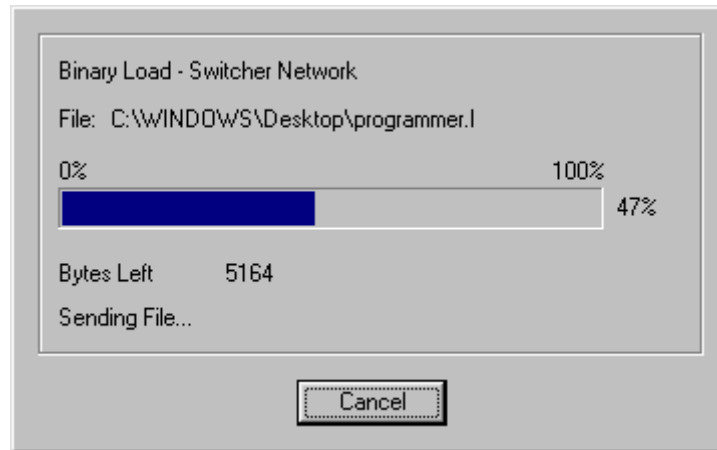
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Switcher Network Load



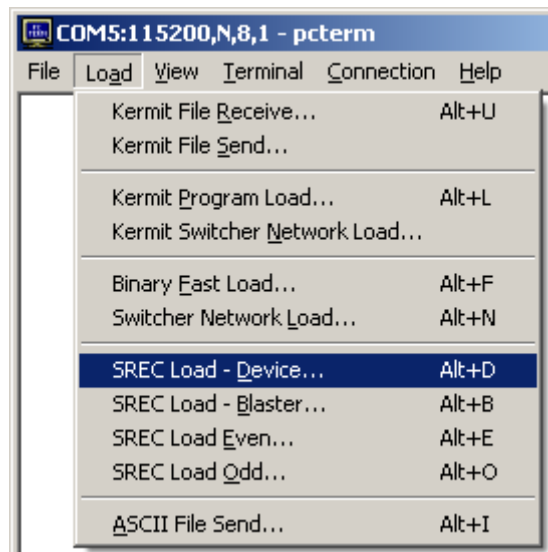
Selecting **Switcher Network Load...** from the menu opens the standard file dialog box prompting the user for the UNICO S4000 program file to send. These files have the *.l extension. Once the file is selected, click the "Open" button to begin transmission of the file through Kermit. While transmission is in progress, PCTerm 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.



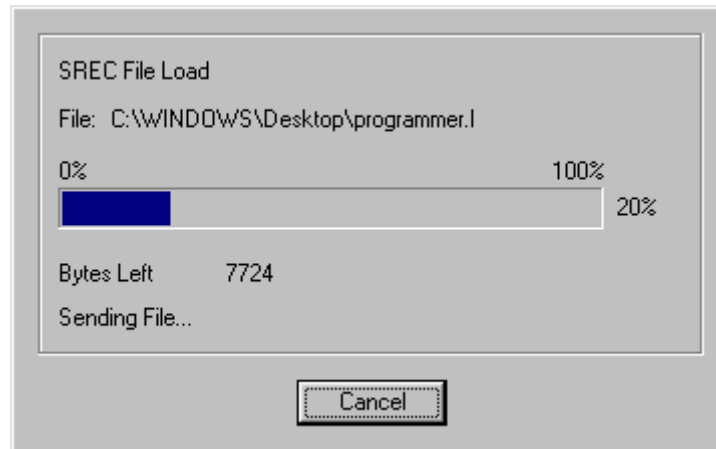
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

SREC Load – Device



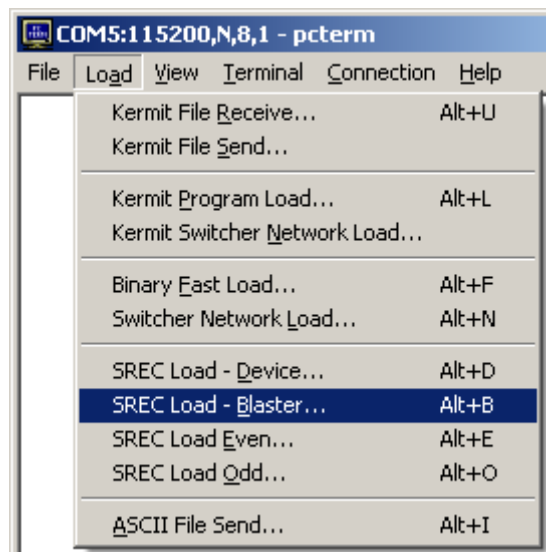
To load an EPROM file to a S4000 processor, connect the PC to the S4000 device through the serial port. Make sure the baud rate in PCTerm is set to be the same as the one the device is expecting. Get the device ready for a file transfer. By selecting **SREC Load – Blaster...**, the standard file dialog is opened prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating

PCTerm is loading to the S4000 device. Alternatively, the key sequence Alt + R will also perform this function.



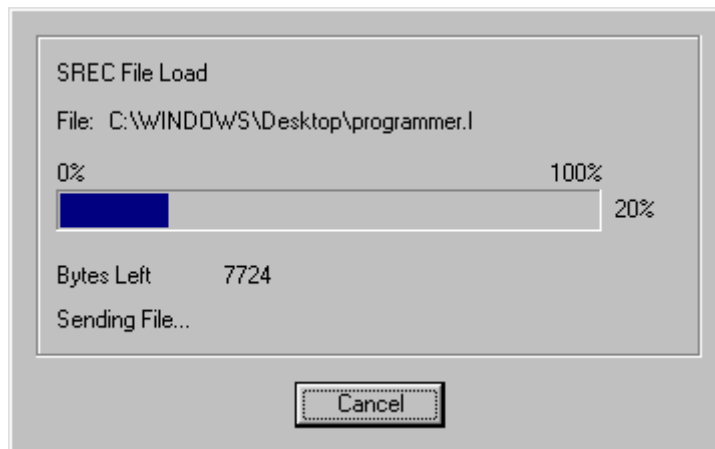
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

SREC Load – Blaster



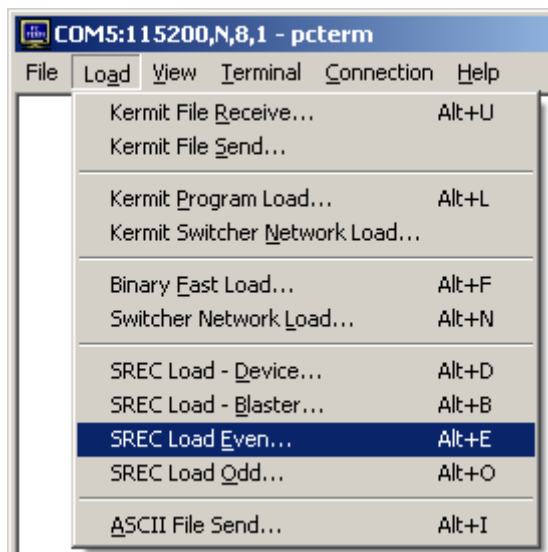
To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PCTerm is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. By selecting **SREC Load – Blaster...**, the standard file dialog is opened prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PCTerm is

loading to the blaster. Alternatively, the key sequence Alt + B will also perform this function.



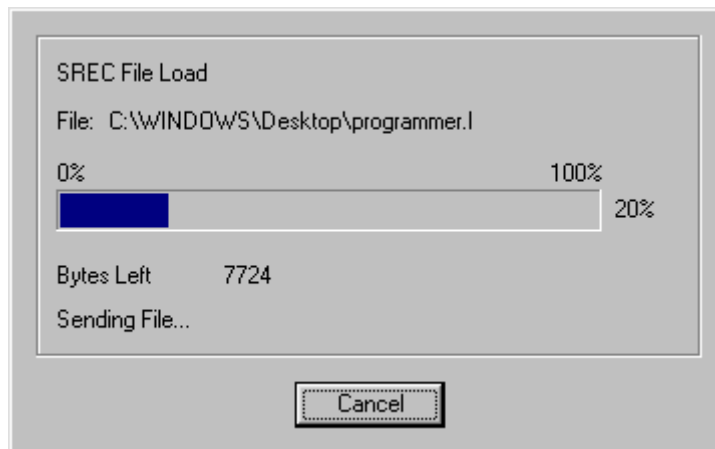
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

SREC Load – Even



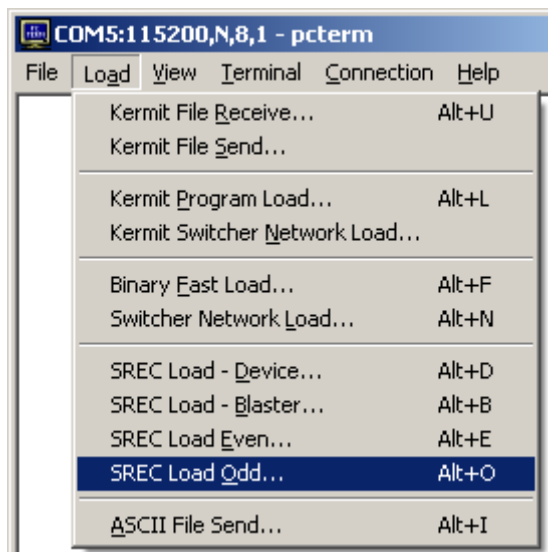
To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PCTerm is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. By selecting **SREC Load – Even...**, the standard file dialog is opened prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PCTerm is

loading the even addresses to the blaster. Alternatively, the key sequence Alt + E will also perform this function.



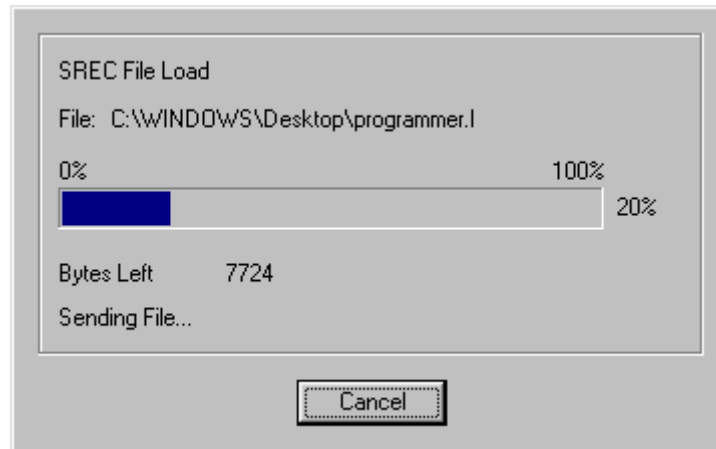
Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

SREC Load – Odd



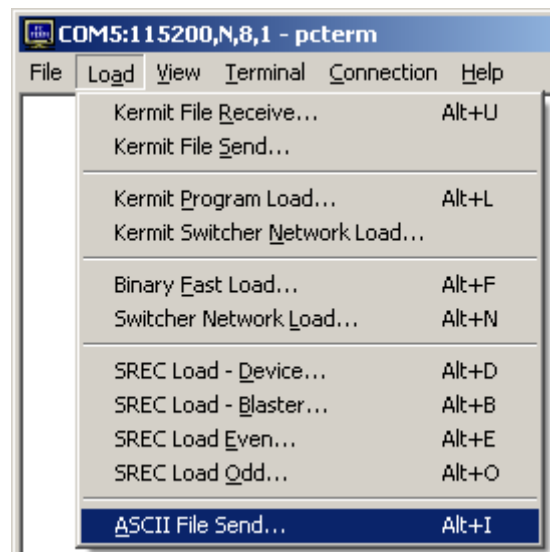
To load an EPROM file to an EPROM blaster, connect the PC to the blaster through the serial port. Make sure the baud rate in PCTerm is set to be the same as the one the blaster is expecting. Get the blaster ready for a file transfer. By selecting **SREC Load – Odd...**, the standard file dialog is opened prompting the user for the EPROM program file. Once the file is selected, the following dialog is displayed indicating PCTerm is

loading the odd addresses to the blaster. Alternatively, the key sequence Alt + O will also perform this function.

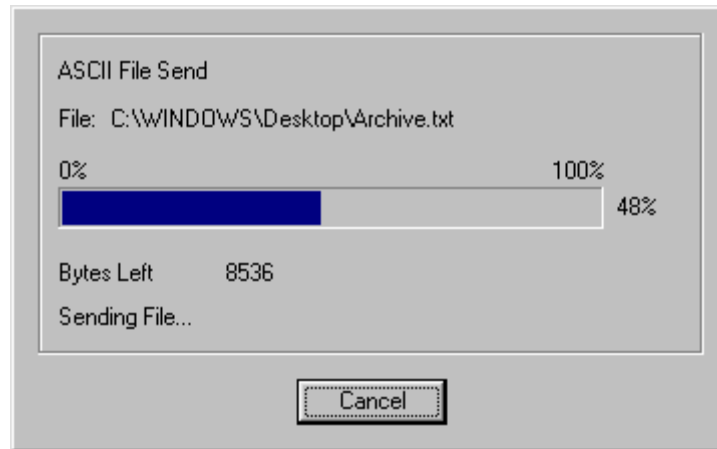


Once transmission is successfully completed, this dialog box momentarily reports the reception of the file before disappearing. This dialog box provides the user the option of aborting the transaction by clicking the **Cancel** button. If this is done, the dialog box disappears after reporting that the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

Function Keys



This menu option toggles whether or not the **Function Keys** window (shown below) is displayed or hidden.



A check mark appears next to the 'Function Keys' menu option when the window is displayed. The window can be closed by either selecting the 'Function Keys' menu option again or by clicking the 'X' (Close) button on the upper right corner of the window.

The captions and transmit strings for each of the twelve buttons in this window may be edited with the 'Define Function Key Strings...' option under the 'Terminal' menu.

Keyboard

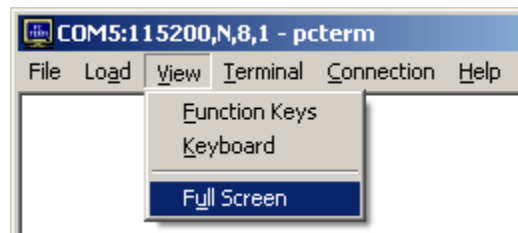


This menu option toggles whether or not the **Keyboard** window (shown below) is displayed or hidden. The keyboard window emulates the function of a physical keyboard.



A check mark appears next to the 'Keyboard' menu option when the window is displayed. The window can be closed by either selecting the 'Keyboard' menu option again or by clicking the 'X' (Close) button on the upper right corner of the window.

Full Screen

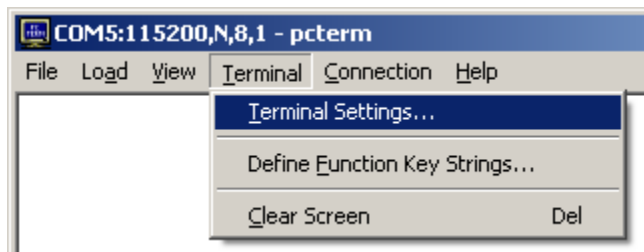


This menu option toggles whether or not the application is displayed normally or covers the entire screen. A check mark appears next to the 'Full Screen' menu option when the **Full Screen** mode is on.

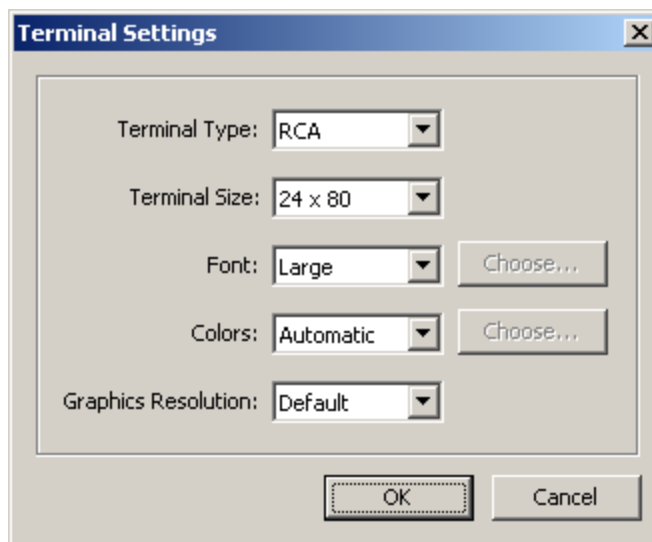
When **Full Screen** mode is on, the terminal screen covers the entire monitor and the application title bar is not shown. The menu bar is shown unless the **LockOut** mode has been specified. See the **Appendix** for details on this mode.

Terminal

Terminal Settings



This menu option displays the following Terminal Settings window. This window is used to configure how the terminal window is displayed.



The terminal type, size, font, colors, and graphics resolution can be configured with this window with the following options.

Terminal Type

RCA

This option specifies RCA VP3300 terminal emulation.

VT-100

This option specifies VT-100 terminal emulation.

None

This option specifies no terminal emulation. All incoming characters (invisible and printable) are displayed. Invisible characters are displayed in reverse video.

Terminal Size

4 x 40

This option specifies a terminal size of 4 lines by 40 characters. The application window is resized to accommodate these settings.

16 x 40

This option specifies a terminal size of 16 lines by 40 characters. The application window is resized to accommodate these settings.

24 x 40

This option specifies a terminal size of 24 lines by 40 characters. The application window is resized to accommodate these settings.

8 x 80

This option specifies a terminal size of 8 lines by 80 characters. The application window is resized to accommodate these settings.

24 x 80

This option specifies a terminal size of 24 lines by 80 characters. The application window is resized to accommodate these settings.

Font**Small**

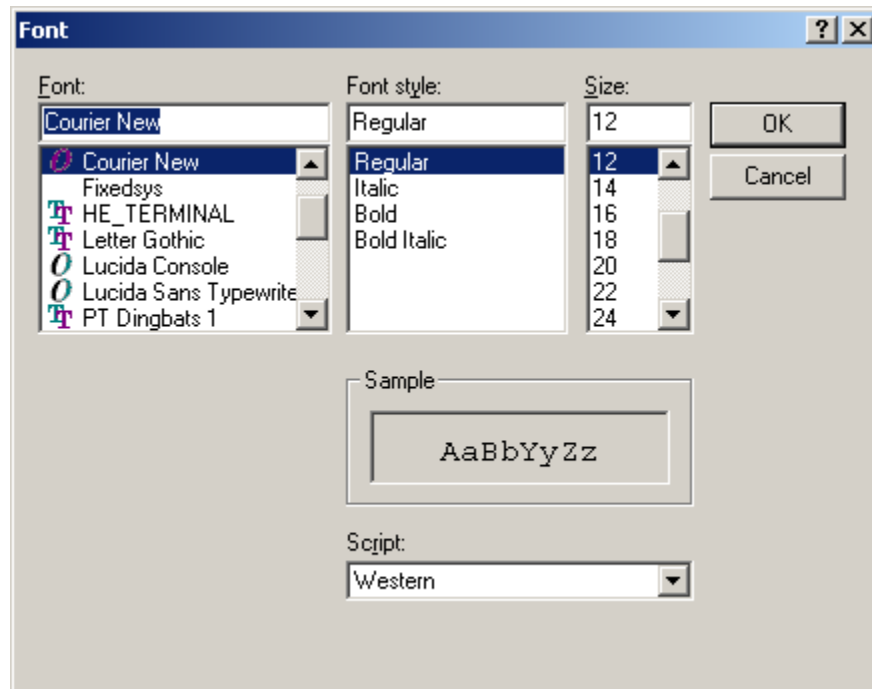
This option specifies using the small font. The application window is resized to accommodate the new font size.

Large

This option specifies using the large font. The application window is resized to accommodate the new font size.

Custom...

This option specifies using a user specified font. The following window is displayed to specify a new font.



Upon specifying a new font, the application window is resized to accommodate the new font size.

Colors

Disabled

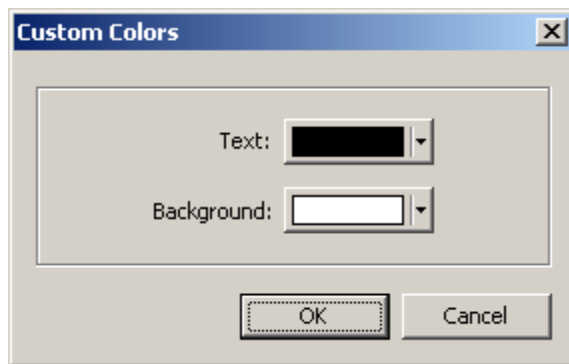
This option specifies a white background with black text and disables any color commands received.

Automatic

This option enables background and text color commands. The current background and text colors are used until they are changed by one or more color commands.

Custom...

This option displays the following window to specify the text and background colors of the terminal screen. Click the corresponding color button to specify a new text or background color.



See the sections **RCA Commands and Control Sequences** and **VT-100 Commands and Control Sequences** in the **Appendix** for more information about color commands.

Graphics Resolution

Default

This option specifies the default one-to-one graphics resolution for RCA graphics commands.

240x128

This option specifies a resolution of 240 pixels by 128 pixels for RCA graphics commands.

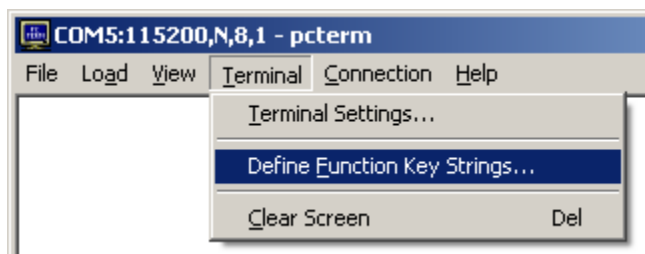
640x432

This option specifies a resolution of 640 pixels by 432 pixels for RCA graphics commands. This resolution is used by UNICO UGT displays.

640x480

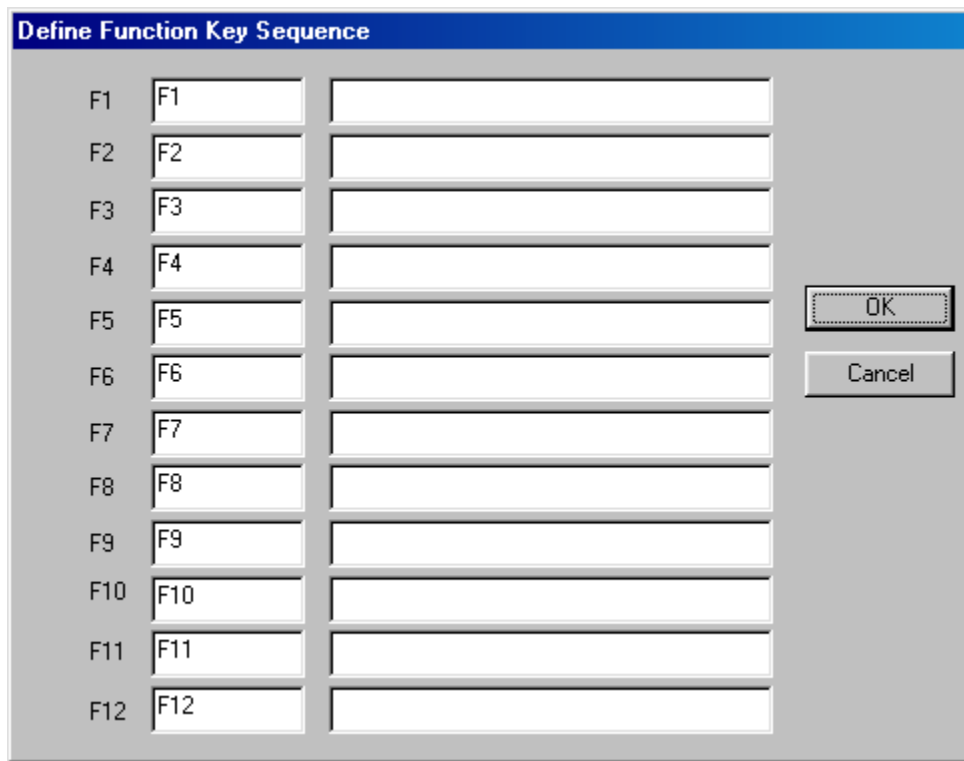
This option specifies a resolution of 640 pixels by 480 pixels for RCA graphics commands.

Define Function Key Strings



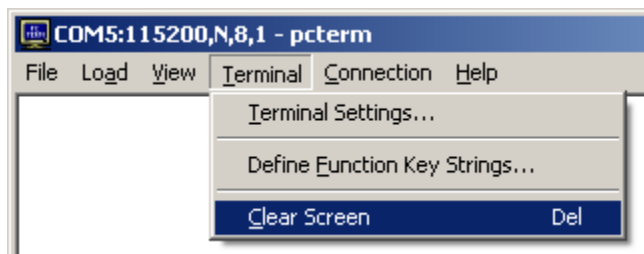
This option displays the following dialog window to associate user defined ASCII strings to the keyboard function keys (F1, F2, ... F12). These strings can be output using the

Function Keys toolbar as well as with the keyboard keys. See the **Function Keys** section.



The function strings are configured with the right column of edit boxes. These strings are output using the currently configured communication connection (serial, ControlNet™, TCP/IP) 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.

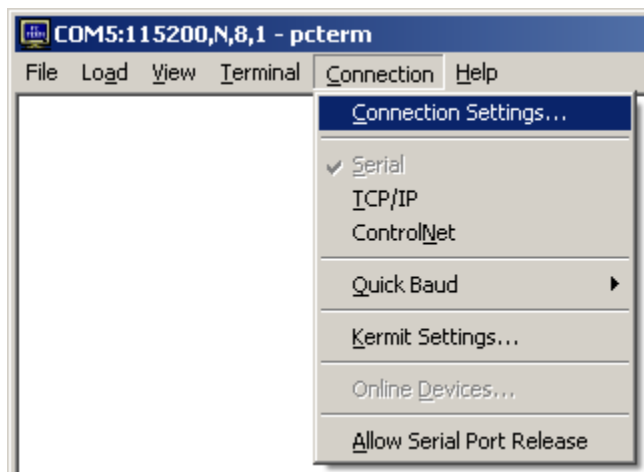
Clear Screen



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

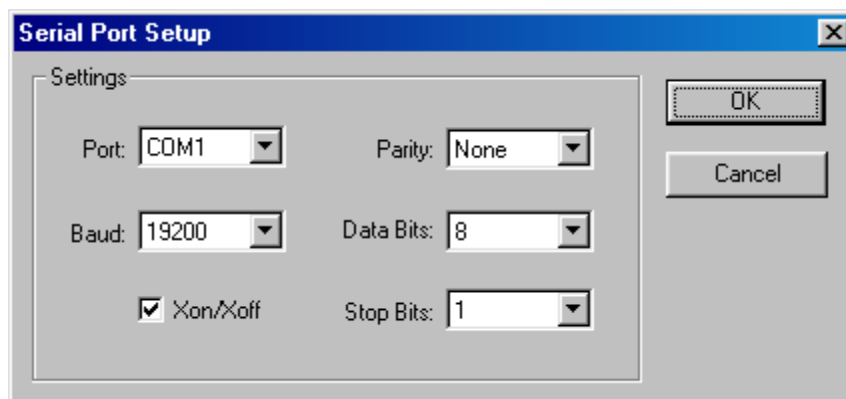
Connection

Connection Settings



The **Connection Settings...** menu option displays either the **Serial Port Setup**, **ControlNet Setup**, or the **TCP/IP Setup** dialog window depending on the currently selected connection type. Once the modifications are complete, press the **OK** button to 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 **Connection** 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, 230400, 460800, 921600, 1000000, 2000000, and 3000000 may be selected from this screen, by the **Quick Baud** menu item under **Setup**, or by the following “quick” key sequences.

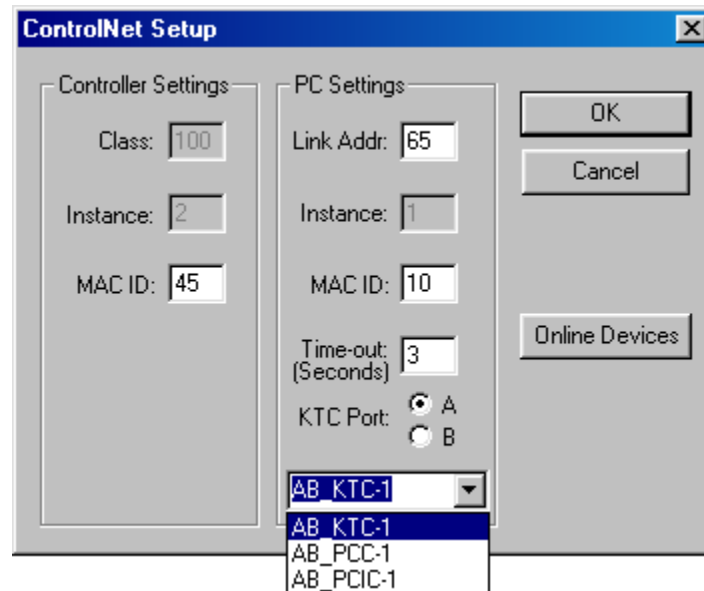
Alt + 0	1200 baud
Alt + 1	1800 baud
Alt + 2	2400 baud
Alt + 3	3600 baud
Alt + 4	4800 baud
Alt + 5	7200 baud
Alt + 6	9600 baud
Alt + 7	19200 baud
Alt + 8	28800 baud
Alt + 9	57600 baud
Alt + Shift + 0	38400 baud
Alt + Shift + 1	115200 baud
Alt + Shift + 2	230400 baud
Alt + Shift + 3	460800 baud
Alt + Shift + 4	921600 baud
Alt + Shift + 5	1000000 baud
Alt + Shift + 6	2000000 baud
Alt + Shift + 7	3000000 baud

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

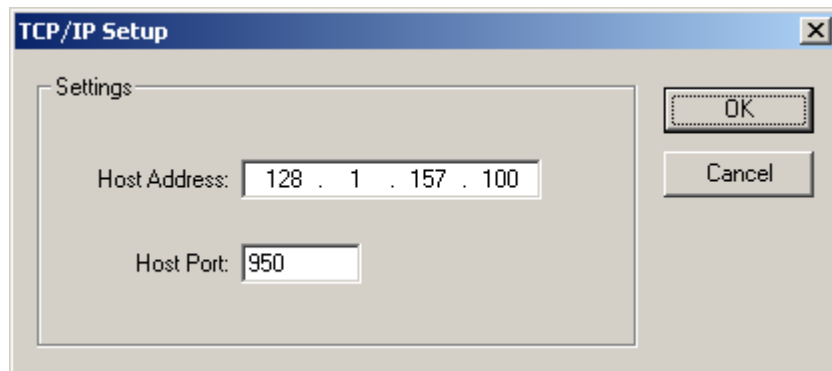
The **KTC Port** radio buttons determine which of the two ports (A or B) on the KTC interface card the specified controller is connected to.

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.

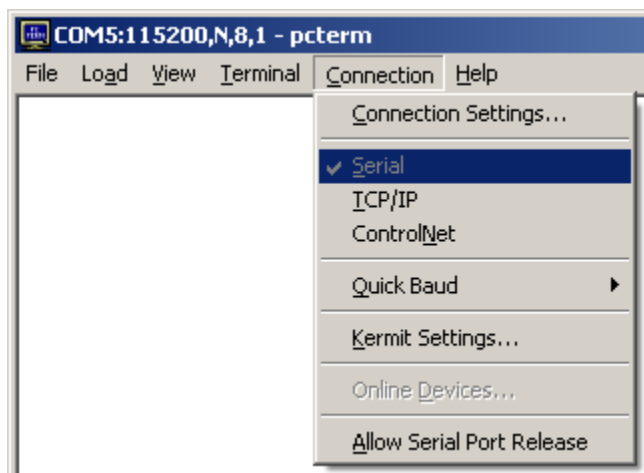
The **Online Devices** button opens a dialog window that lists the devices that were online the last time a network search was performed. This window is also displayed by the **Online Devices** option under the **Setup** main menu item. A screen capture of this window can be seen in the **Online Devices**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

TCP/IP Setup



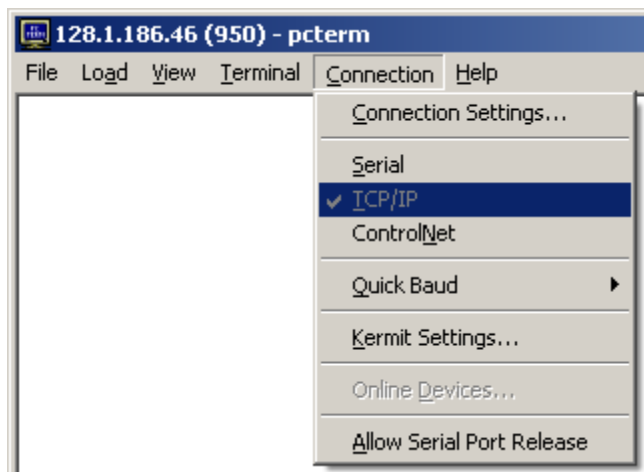
The dialog above can be used to configure a TCP/IP connection. A valid IP address must be specified for the **Host Address** field in the form: xxx.xxx.xxx.xxx. The **Host Port** field specifies which port on the specified host to connect to. When a connection is established through TCP/IP, the title bar of the application displays both the host IP address and port.

Serial Connection



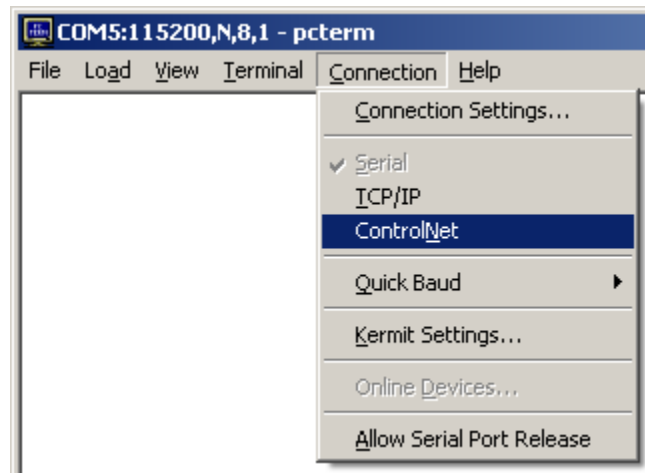
The **Connection** menu item lists the available types of communication PCTerm supports. This version currently supports standard serial communication, ControlNet™ talk-through to UNICO controllers, as well as TCP/IP socket connections. The currently selected connection type is displayed with a check and is changed by clicking on an unchecked selection. Multiple instances of PCTerm may be opened and configured for different connections.

TCP/IP Connection

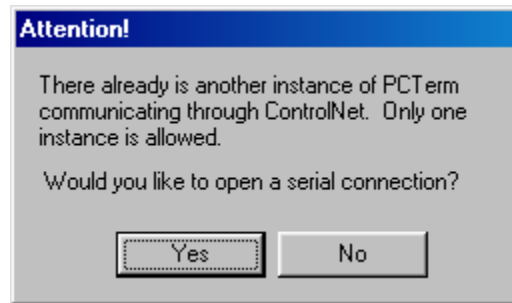


The **Connection** menu item lists the available types of communication PCTerm supports. This version currently supports standard serial communication, ControlNet™ talk-through to UNICO controllers, as well as TCP/IP socket connections. The currently selected connection type is displayed with a check and is changed by clicking on an unchecked selection. Multiple instances of PCTerm may be opened and configured for different TCP/IP connections.

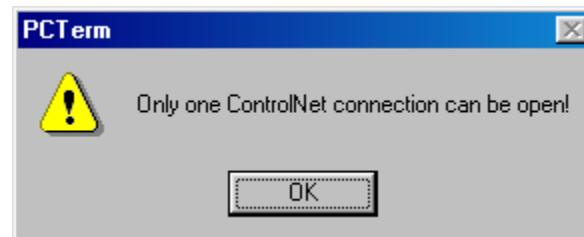
ControlNet Connection



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

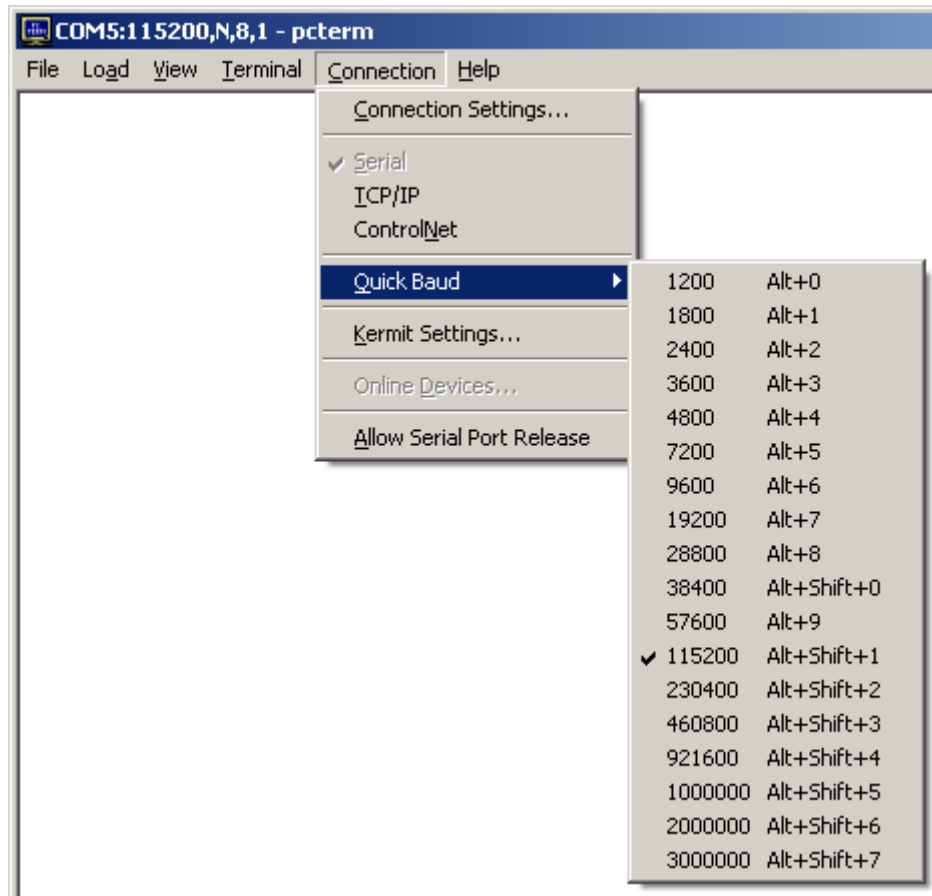


Clicking **Yes** will open a new instance of PCTerm configured for serial communication, while clicking **NO** causes the following dialog to appear.



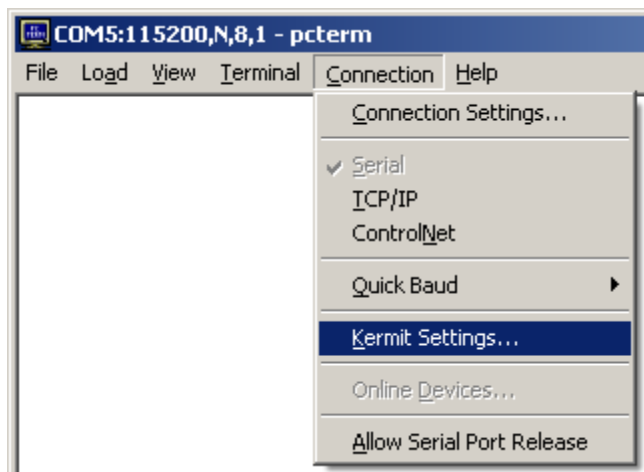
Upon clicking **OK**, the instance of PCTerm already configured for ControlNet™ talk-through is brought to the foreground.

Quick Baud

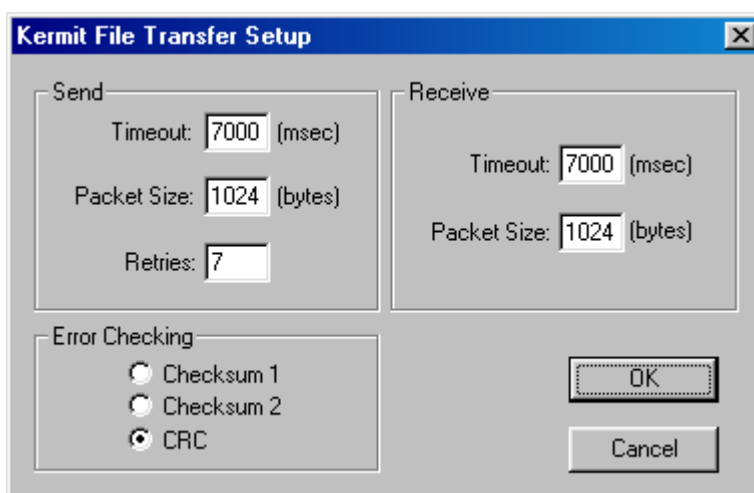


The **Quick Baud** feature displays a pop-up listing of the available baud rates and their “quick” key sequences as discussed in the **Serial Port Setup** section. Clicking one of these baud rates will place a check next to that baud rate in the list, configure the current serial port for this setting and display the baud rate in the title bar of the application if serial communications are selected under the **Connection** menu item.

Kermit Settings

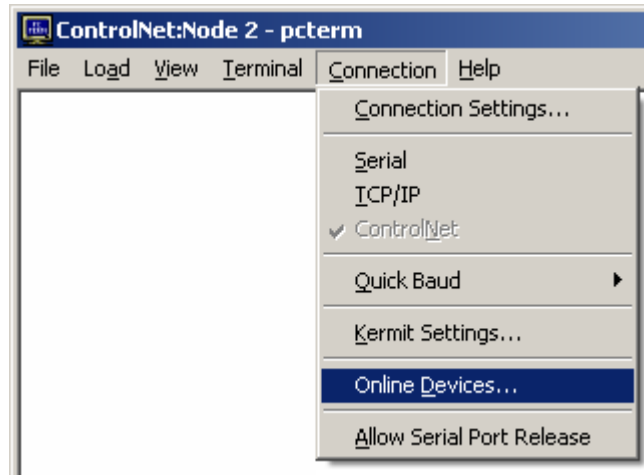


The **Kermit Settings...** option displays the following dialog window to allow configuration of a Kermit transfer. Selecting the **OK** button saves and configures the settings. Any changes are disregarded by selecting the **Cancel** button.

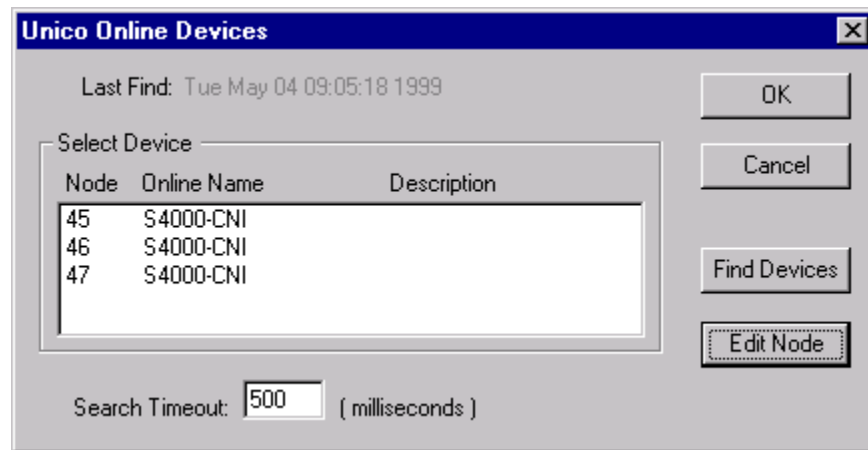


By default a packet size of 1024 is selected. This corresponds to the maximum packet size permitted by the protocol and has been found to provide the best throughput. It should be noted, however, that not all Kermit transmitters support a maximum packet size of 1024. This should pose no problem due to the internal reconciliation process conducted by the protocol. PCTerm, 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 is 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.

Online Devices



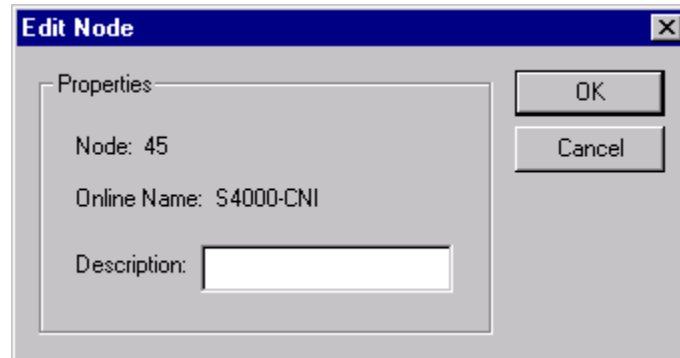
This option displays the following dialog window. This dialog displays a listing of UNICO devices that have been found in the connected ControlNet™ network and the date and time they were found.



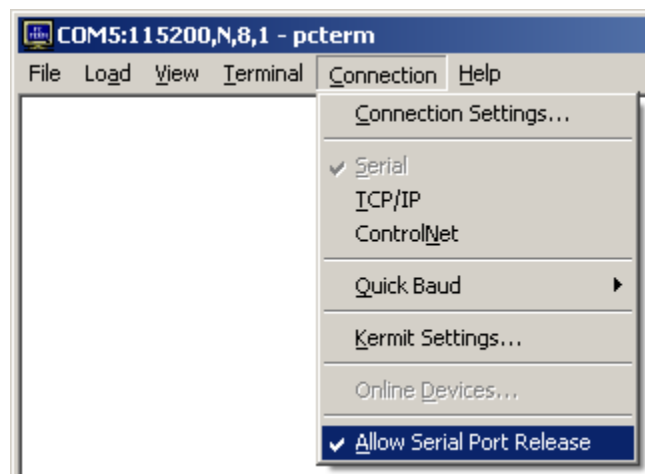
Selecting the **Find Devices** button performs a network search of all UNICO devices currently in the network. This operation may take up to several minutes depending on the search time-out specified at the bottom of the dialog. The search time-out is the time PCTerm will wait for a response from a device 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.



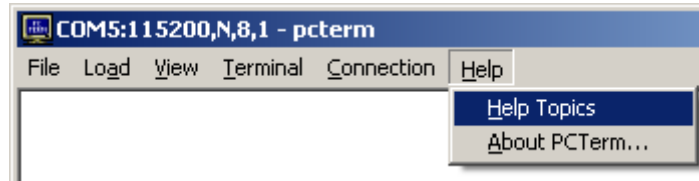
Allow Serial Port Release



This option is a toggle that, when checked, allows PCTerm 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 PCTerm. This, however, means that any data intended for PCTerm will be lost when it is minimized or in the background. Therefore, caution should be taken especially while downloading or uploading to ensure PCTerm remains in the foreground if this option is selected.

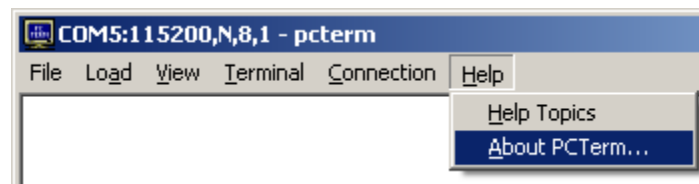
Help

Help Topics



This option displays the help file containing documentation for PCTerm.

About PCTerm

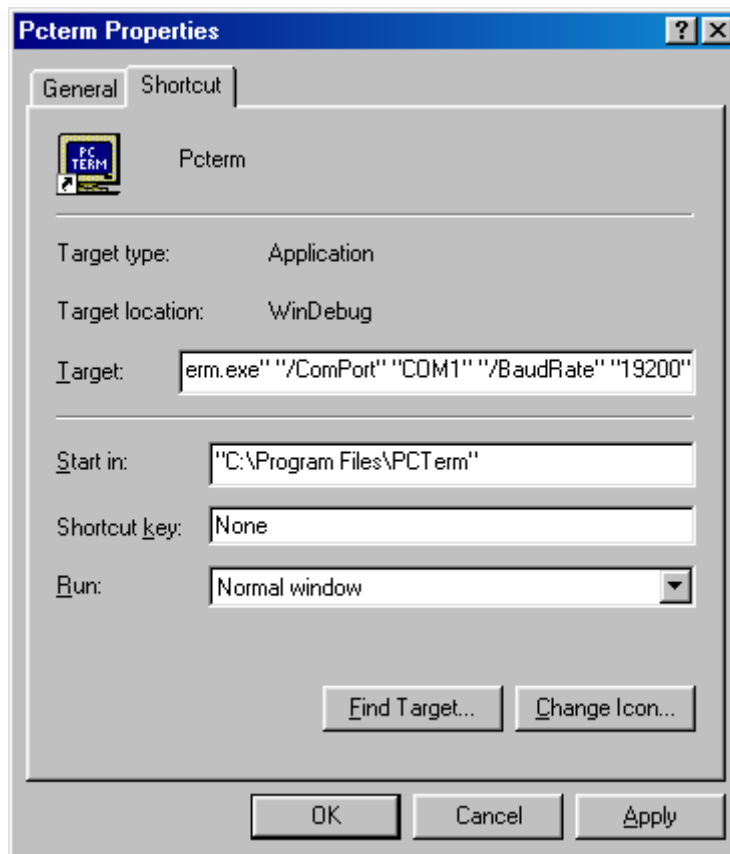


This option displays a dialog box describing the PCTerm application including name, version, and software number.

Appendix

Command Line

Certain application 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 the application 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 connection type, serial communications port and baud rate, ControlNet node, TCP/IP host and port, and the position of the application window through command-line parameters.

<u>Setting</u>	<u>Command-line Flag</u>	<u>Command-line Option</u>
Connection Type	/Connection	Serial ControlNet TCP/IP
Serial Communication Port	/ComPort	COM1 COM2 COM3 COM4 COM5 COM6 ... COM256
Serial Baud Rate	/BaudRate	1200 1800 2400 3600 4800 9600 19200 28800 38400 57600 115200 230400 460800 921600 1000000 2000000 3000000
ControlNet Node	/Node	0-99
Host IP Address	/HostIP	any valid IP Address In the form xxx.xxx.xxx.xxx i.e. 127.0.0.1
Host Port	/HostPort	0-65535
Window Position	/WindowPos	x,y coordinate of the application's top-left corner i.e. 100,250
Window Title	/WindowTitle	text to be displayed in the

		application window's title bar
Terminal Type	/TerminalType	RCA VT100
Full Screen	/FullScreen	True False
LockOut	/LockOut	encrypted password text
InitString	/InitString	text to transmit when the application is started

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 /Connection flag is optional. If either the /ComPort or /BaudRate flag are specified, the connection is set to 'Serial'. Likewise, if the /Node flag is specified, the connection is set to 'ControlNet'. Any setting, not specified or implied by a command-line flag, is configured with the previously stored registry value.

The **LockOut** parameter specifies an encrypted password that locks the application if the **FullScreen** parameter is set to 'True'. All Operating system keys and key sequences are disabled. To close the application, the unencrypted password must be specified.

The **InitString** parameter specifies an initialization string that is transmitted when the application is started. Control characters are specified with a '^' followed by the ASCII character whose value is 40 hex larger than the desired control character value.

RCA Commands and Control Sequences

PCTerm supports RCA VP3300 escape sequence set. In addition, PCTerm 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
7	White	F	Lt. Grey

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 UDx,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 UTf,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			ESC J
Clear to End of Line			ESC K

COLOR and GRAPHICS

Background Color			ESC ESC B h
Foreground Color			ESC ESC F h
Line Color			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 Commands and Control Sequences

PCTerm 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.

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