

# **SimpleTerm Standard – User Guide**

## **Serial Port Data Viewer / Terminal Emulator**

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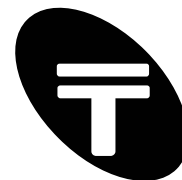
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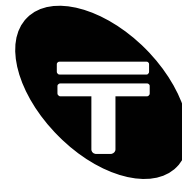
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# SimpleTerm Standard (SE) – User Guide

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<b>1</b>	<b>COPYRIGHT NOTICE, ACKNOWLEDGEMENTS.....</b>	<b>2</b>
1.1	TRADEMARKS.....	2
1.2	DISCLAIMER.....	2
<b>2</b>	<b>INTRODUCTION.....</b>	<b>3</b>
2.1	FEATURES LIST.....	3
2.2	SYSTEM REQUIREMENTS.....	3
2.3	USER INTERFACE.....	4
<b>3</b>	<b>FEATURES AND USAGE.....</b>	<b>5</b>
3.1	DATA FORMATTING AND COLOUR CODE.....	5
3.2	COM PORT INITIALISATION AND CONNECTION.....	6
3.3	DATA TRANSMISSION FROM FILE / CAPTURE TO FILE.....	6
3.4	CONTROL SIGNAL PANEL.....	7
3.5	STRING ENTRY PANE.....	8
3.6	FIND.....	8
3.7	DATA EXPORTING AND PRINTING.....	9
3.8	NEW SESSION / CLEAR SCREEN.....	9
3.9	ASCII TABLE.....	9
3.10	SETTINGS WINDOW.....	10
3.11	IMPORT AND EXPORT SIMPLETERM PROFILES.....	12
3.12	STATUS BAR AND BYTE SELECTION INFORMATION.....	12
3.13	USER NOTES.....	13
3.14	NOTATION CONVERTER.....	16
<b>4</b>	<b>REFERENCE: MENU, TOOLBAR AND KEYBOARD SHORTCUTS.....</b>	<b>16</b>
4.1	FILE MENU.....	16
4.2	EDIT MENU.....	17
4.3	VIEW MENU.....	17
4.4	SETTINGS.....	18
4.5	COMMS.....	18
4.6	TRANSFER.....	18
4.7	HELP.....	19
4.8	TOOLBAR.....	19
	<b>APPENDIX A – ASCII CHART.....</b>	<b>20</b>
	<b>APPENDIX B – RADIX CONVERSION CHARTS.....</b>	<b>21</b>
	<b>APPENDIX C – PINOUT AND SIGNALS FOR THE PC RS232 CONNECTOR.....</b>	<b>22</b>
	<b>APPENDIX D – SIMPLETERM HALF DUPLEX MONITORING CABLE.....</b>	<b>23</b>



## **1 Copyright Notice, Acknowledgements**

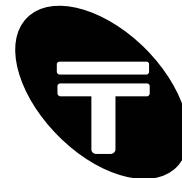
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## 2 Introduction

SimpleTerm is an advanced serial port communication tools. It will allow you to view and send (all 256) ASCII/Extended-ASCII (non-printable) data in an easy to read colour coded sequence. It is a high performance 32-bit application designed to run on almost all PCs running Microsoft® Windows 9x, 2000 and XP.

SimpleTerm is a mature, stable product used by professional technicians, engineers and software developers as a development aid and debugging tool for RS232/serial port related projects.

SimpleTerm will work with the serial/COM ports provided by your operating system. Physically, these ports will be male RS232 SUB D9 interfaces in most cases. However, it is also possible to use SimpleTerm for other communication standards such as RS485 and RS422, which have a different electrical design to RS232 but follow the RS232 communication mechanism. Also supported are “Virtual COM” ports presented by e.g. USB-Serial adaptors & Bluetooth™ Serial Port Profile devices. The quality of support is limited only by the quality / compliance of the device drivers in emulating a normal COM port. This manual will only refer to RS232 based connections as this is the basis for the other standards mentioned above.

There are currently two versions of the program - SimpleTerm Standard Edition (SE) and Gold Edition (GE). The two versions have a slightly different feature set and are priced differently so that you only pay for what you need.

This user guide explains features available on SimpleTerm Standard only, please refer to the SimpleTerm Gold User Guide if you are using SimpleTerm Gold.

### 2.1 Features List

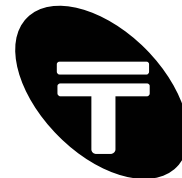
A brief list of some of the features included in SimpleTerm are given below:

- Colour coded ASCII/hexadecimal “mixed mode” data view.
- Baud 110 to 115200.
- Supports COM1 to COM256.
- Import and Export SimpleTerm Profiles.
- Streaming data input.
- Designed for Microsoft® Windows 9x, 2000, XP, Vista & Windows 7 (32 & 64 Bit).
- Data entry using the PC keyboard – similar to a terminal emulator.
- RS232 control signal monitoring using “Virtual LEDs” - breakout box style.
- Capture to file and send data from files.
- Colour print capability.
- Online changing of line settings and display font.
- Copy & paste data to other applications in RTF (Rich Text Format)
- Built in search.
- Integrated feature rich notepad.
- Supports “Virtual COM” ports (e.g. as presented by USB-Serial adaptors).
- High performance, fast display screen.
- Radix/Notation Converter.

### 2.2 System Requirements

**Operating system:** Microsoft® Windows 95/98/ME/2000/XP/Vista/Windows 7 (32 & 64 Bit)

**Hardware requirements:** Pentium processor or equivalent, 166 MHz or faster, minimum 32 MB RAM and one or more available COM ports. Note that additional cables may be required for connecting any equipment to be tested. SVGA monitor and graphics card capable of 256 colours and 800x600 pixel resolution.

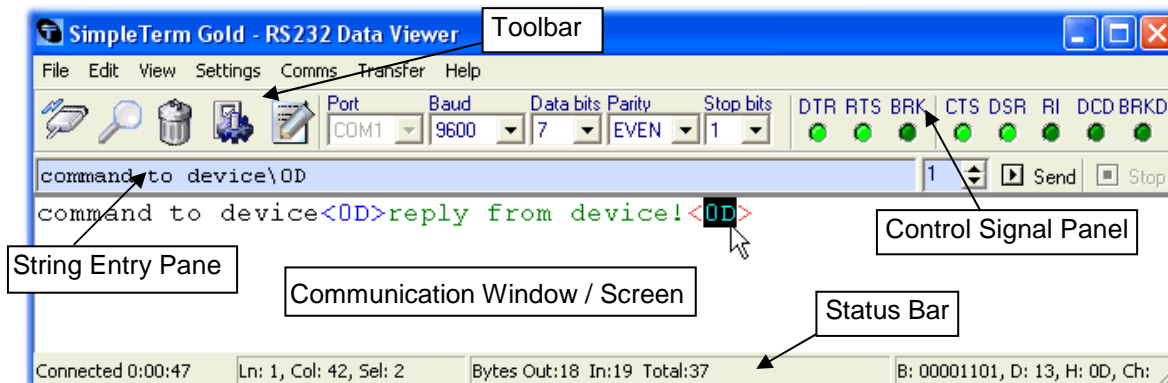


## SimpleTerm Standard (SE) – User Guide

### 2.3 User Interface

A screenshot of the application is shown below in Figure 1.

Figure 1: SimpleTerm – Running in Windows® XP.



The user interface of SimpleTerm is divided into six main sections – a brief description of each is given here:

#### Toolbar

Most common functions may be selected from the toolbar by clicking on the icons. Placing the mouse cursor over each icon will display a 'hint' window indicating its function.

#### Quick Configuration Panel

This may be used to rapidly configure the serial port line settings. With the exception of the Port (COM port) setting the line settings may be changed while online/connected.

#### String Entry Pane

This is used to quickly type in a sequence of data (sometimes referred to as a string) for transmitting via the COM port. The data can contain normal ASCII data or special/extended characters using an escape character to define characters in hexadecimal.

#### Communication Window / Screen

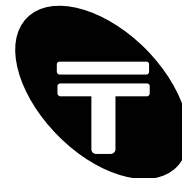
This is the input/output display screen. It displays the out going and incoming communication from the serial port. The font used for displaying the data is changeable. The communication window may also be referred to generally as the screen.

#### Control Signal Panel

This panel contains "Virtual LEDs" to display the state of the RS232 control lines. The LEDs for the output handshaking lines from the PC's serial port (DTR and RTS) are "clickable" using the mouse and therefore may be used as switches to toggle the state of these lines manually.

#### Status Bar

Additional information about the communication status, errors, input/output byte count, screen selection or the current settings may be shown in the status bar.



## 3 Features and Usage

SimpleTerm displays all incoming serial port data and all outgoing serial port data sent via the keyboard or sent using the “String Entry Pane” in its communication window. Incoming and outgoing data are displayed using different colours. SimpleTerm has scroll functionality that allows the viewing of received data that has scrolled off the screen. The logged data on SimpleTerms communication window may be copied to the clipboard or printed.

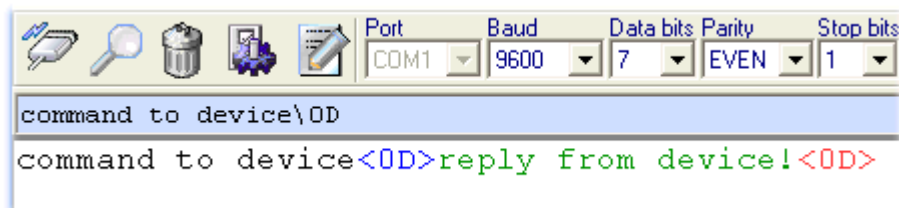
SimpleTerm processes serial data streams containing any ASCII characters from 0 – 255 decimal (when operating in 8-bit mode).

Note that keys typed within the communication window may be sent directly to the serial port. Alternatively any character from 0 - 255 decimal may be inserted into SimpleTerm’s communication window (for transmission) using the “Alt + key” sequence. Hold down the "Alt Key" on your keyboard and press the numbers (0 followed by the 3-digit ASCII value in decimal) for the character you want on your numeric keypad. For example, “Alt + 0065” will result in the ASCII character ‘A’ being inserted into the communication window.

### 3.1 Data Formatting and Colour Code

SimpleTerm handles all the serial port data in an 8 bit-oriented way. Every sequence of serial data consists of one or more 8 bit characters.

The data is displayed on screen in a colour coded ASCII/hexadecimal “mixed mode” view. Incoming and outgoing data are displayed using different colours as described here.



Output data:

- Standard “printable” ASCII characters are shown on-screen in black.
- Special/extended characters (00h to 31h and 7Fh to FFh) characters are shown on-screen in **blue** and are enveloped in left and right angle brackets e.g. <hh> where hh are the two hexadecimal digits of the 8-bit character.

Input data:

- Standard “printable” ASCII characters are shown on-screen in green.
- Special/extended characters (00h to 31h and 7Fh to FFh) characters are shown on-screen in **red** and are enveloped in left and right angle brackets e.g. <hh> where hh are the two hexadecimal digits of the 8-bit character.

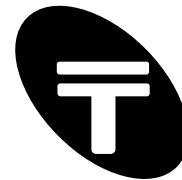
Here is an example of the data formatting and colour coding used for outgoing data:

**OUTPUT<OD>**

For the above example, standard ASCII characters “OUTPUT” were typed in using the keyboard. After this the ENTER key was pressed resulting in the display of a “special” character in hexadecimal enveloped in “<>”.

Here is an example of the data formatting and colour coding used for incoming data:

**INPUT<OD>**



## SimpleTerm Standard (SE) – User Guide

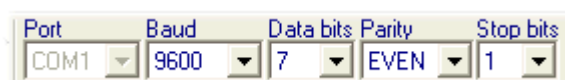
For the above example, standard ASCII characters “INPUT” followed by a CR (CARRIAGE RETURN) character of value 0D hex were received at the opened COM port.

### 3.2 Com Port Initialisation and Connection

The words “open”, “connected” and “online” may be used throughout this document to refer to the state of a COM port as being selected, initialised and “open” for communication.

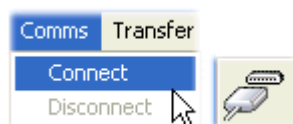
#### Line Settings

All common line settings are configurable via the “Quick Configuration Panel”. SimpleTerm supports standard baud rates from 110 to 115200 which are configurable while online. Data bits, parity and stop bits are also configurable online. Standard COM port numbers and “Virtual COM” ports 1 to 256 are supported on SimpleTerm SE. “Virtual COM” ports may be presented by devices such as USB to Serial adaptors and Bluetooth Serial Port Profile devices.



#### Connect / Disconnect

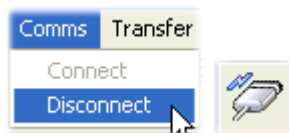
You can open a COM port for communication by clicking on the Connect / Disconnect icon in the “Toolbar” or alternatively by selecting the menu item “Comms->Connect”:



The COM port number and its settings are as displayed in the “Quick Configuration Panel”. Note that the hardware control signals RTS and DTR are always asserted on connection to enable reception of data.

Note that certain functions and menu items are disabled until a valid COM port has been opened for communication.

After the COM port is opened, the Connect / Disconnect icon in the “Toolbar” changes its image to that shown below. This image depicts a cable connection to a serial port and signifies the state of the COM port as open for communication. Clicking on this icon will toggle the connection state back again so that the COM port is closed.



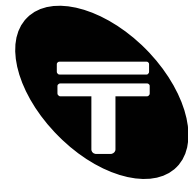
Note that after the COM port has been opened the “Comms->Connect” menu item is disabled and the “Comms->Disconnect” menu item becomes enabled for selection.

**CAUTION:** it is good practice and more importantly to avoid system instability, to always disconnect (if connected) before physically removing devices which present a Virtual COM port to your PC/Laptop. These may be USB-Serial adaptors for example for which the emulated COM port disappears on physically removing the device.

### 3.3 Data transmission from file / Capture to file

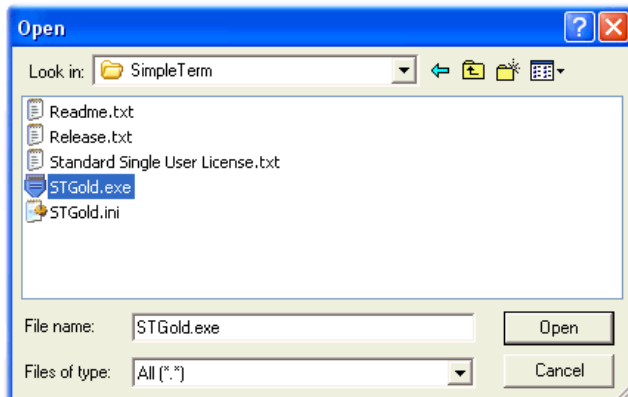
#### Send file (binary)...

This function assumes that the COM port has been initialised for 8-bit communications, that is, make sure that the “Data bits” in the “Quick Configuration Panel” is set to 8.



## SimpleTerm Standard (SE) – User Guide

Click on the menu item “Transfer->Send file (binary)...” and select the file to transmit via the serial port. All data within the file is sent through the port and a progress bar is used to show the progress of the transfer and the status bar shows any additional information -including the file size and percentage of transfer completed. The menu item will change during the transfer of a file to “Transfer->Stop Sending”. This will allow the data transfer to be stopped or cancelled. Alternatively, hitting the End key on the keyboard may also be used to cancel / stop data transfers.



### Capture to File (Binary)...

SimpleTerm can capture/save outgoing & incoming serial data into a file.

This function assumes that the COM port has been initialised for 8-bit communications, that is, make sure that the “Data bits” in the “Quick Configuration Panel” is set to 8.

Click on the menu item “Transfer->Capture to file (binary)...” and enter the location and filename of the file to save incoming serial data to.

The menu item will change during capture to “Transfer->Stop Capture” so that the data logging may be stopped. Alternatively, hitting the End key on the keyboard may also be used to cancel / stop data capture.

The following data is logged:

Any incoming serial data stream containing 8-bit characters will be logged.  
All outgoing serial data containing 8-bit characters will be logged except data from files sent using the “Transfer->Send File (Binary)...” menu item.

### 3.4 Control Signal Panel

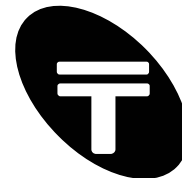
This panel contains “Virtual LEDs” to display the state of the RS232 control lines when connected/online. The LEDs turn bright green when the RS232 control lines are asserted.



The right hand side of the panel monitors the PC's serial port input signals CTS, DSR, RI and DCD. The panel also contains an indicator which flashes briefly (bright green) when a “break” condition is detected on the serial communications line.

The left hand side of the panel contains the output handshaking lines DTR and RTS which are controlled manually. These signal lines are asserted by default (LEDs bright green) but can be switched off by clicking on the respective LEDs using the mouse or using function key keyboard





## SimpleTerm Standard (SE) – User Guide

shortcuts F7 and F8 respectively. Similarly a break condition may be set by clicking on the LED labelled “BRK” or using the keyboard shortcut F9.

### 3.5 String Entry Pane

This is used to quickly type in a sequence of data for transmitting via the COM port. Insert data for transmission in ASCII or in hexadecimal using the escape character ‘\’ in the form ‘\hh’ where hh are two hexadecimal digits.



Click on the Send button on the right hand side (or press the Insert key) to actually send the data to the serial port. The data can be sent repeatedly by setting the “repeat send counter” field (to the left of the Send button) to a value greater than zero. If set to zero then the data will be sent continuously until the Stop button is pressed (or the End key is hit).

#### Escape Sequences

Note that the following escape sequences for inserting characters are valid (values in hexadecimal):

**\hh** Any 8-bit character in hex notation where hh are two hex digits (in either uppercase or lowercase).  
**\b** 08 hex (Backspace)  
**\n** 0a hex (Line feed)  
**\r** 0d hex (Carriage Return)  
**\t** 09 hex (Horizontal Tab)  
**\\** 5c hex (Backslash)

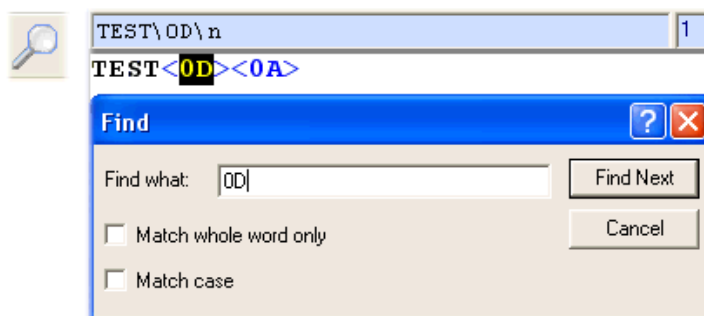
For example to send "TEST", Carriage Return and a Line Feed character then try:  
TEST\0D\n

#### Keyboard Shortcuts

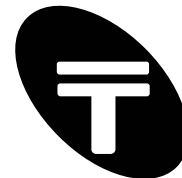
Insert - send data.  
End - stop sending data.

### 3.6 Find

The “Find” dialog box is displayed when the menu item “Edit->Find...” is clicked or alternatively click on the tool bar icon (shown top left here):



You may search for specific words or characters displayed in the communication window. Place the cursor on the communication window to select the start position to search from. On the “Edit”



## SimpleTerm Standard (SE) – User Guide

menu, click “Find”. In “Find what”, type the characters or words you want to find, and then click Find Next. To find additional instances of the same text, continue to click Find Next.

### 3.7 Data Exporting and Printing

#### Copy to Clipboard

SimpleTerm can copy serial data to the clipboard which can then be pasted into other applications such as word processors in colour if the RTF (Rich Text Format) is supported or as plain text into most text editors.

First select the area of data to copy. Then use the menu item “Edit->Copy to Clipboard” to copy the text to the clipboard or alternatively, “right-click” on the communication window and select “Copy to Clipboard” from the pop-up (context) menu.

The data can be pasted as plain text in a suitable text editor such as notepad or as RTF text in applications like Microsoft® Wordpad.

#### Colour Printing

The on-screen data can be printed off in colour. Use the menu item “File->Print Setup...” to setup the printer and page settings then use “File->Print” to print.

### 3.8 New Session / Clear Screen

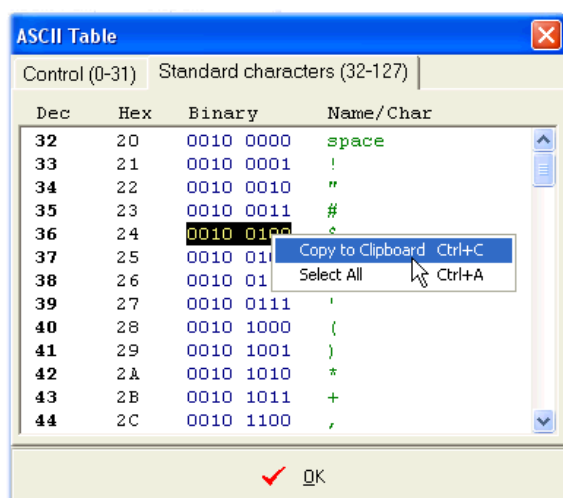
The communication window’s contents may be cleared using the menu item “Edit->New Session”. This also resets any screen, error message or character information on the status bar (such as the byte count). Only the running timer in the status bar (indicating the duration the COM port has been opened for) is not reset.

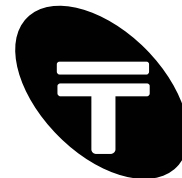
To just clear the communication window of data then use the menu item “Edit->Clear Screen” or click on the tool bar icon shown here:



### 3.9 ASCII table

An ASCII Table is provided for reference under the menu item “ Help->ASCII Table...”. ASCII characters 00-7F hexadecimal are displayed in various notations including decimal, hexadecimal and binary. The text within this window may be selected and copied to the clipboard.





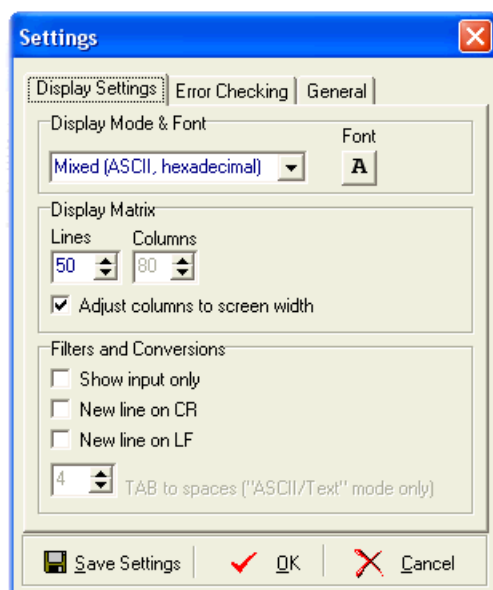
## SimpleTerm Standard (SE) – User Guide

### 3.10 Settings Window

This settings window is shown when the menu item “Settings->Display...” is clicked or alternatively click on the following tool bar icon:



This window is split into three tab separated sections for configuring the applications behaviour and display options.



The three buttons at the bottom of the Settings Window allow any changes to the configuration to be applied temporarily (“OK” button), saved permanently to the configuration settings \*.ini file (“Save Settings” button) or discarded (“Cancel” button).

#### Display Settings

The first tab section (Display Settings) contains various settings to configure the display options of the communication window:

##### Display Mode & Font

The data viewing options for the communication window are available here via a drop down list. The selections of viewing modes include “ASCII/Text”, “Mixed (ASCII, hexadecimal)” and “Hexadecimal” modes.

The font used to display data on the communication window may be changed by clicking on the button labelled “A” under the label “Font”.

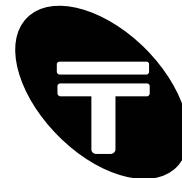
##### Lines / Columns

The communication window displays data on a matrix of lines and columns.

“Adjust Columns To Screen Width” - the column width will be automatically adjusted as the application screen width is adjusted if this item is ticked. Leave un-ticked to enable the column width to be set manually.

##### Filters and Conversion

“Show input only” – if this item is ticked then only incoming data from the opened COM port is



## SimpleTerm Standard (SE) – User Guide

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displayed on the communication window.

“New line on CR” – if this item is ticked then a new line is inserted into the communication window after a CARRIAGE RETURN character (0D hex) has been received.

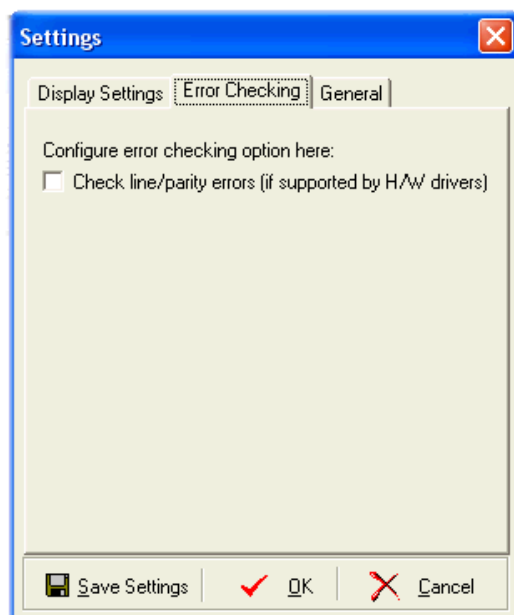
“New line on LF” – if this item is ticked then a new line is inserted into the communication window after a LINE FEED character (0A hex) has been received.

“TAB to spaces (“ASCII/Text” mode only)” – TAB (09 hexadecimal) characters are replaced with space (20 hexadecimal) characters for correct display and alignment when running in ASCII (display) mode. Insert an integer between 1 and 40 for the number of spaces per TAB.

### Error Checking

The second section “Error Checking” contains an Option to enable the checking of communication errors including parity errors.

This option is dependent on the support of error checking within the COM port drivers installed for your serial port hardware e.g. some early (non-compliant) device drivers for USB to Serial adaptors did not support parity error checking.



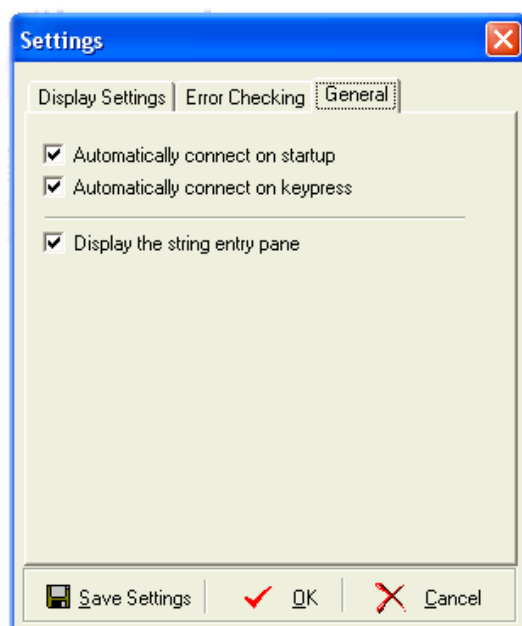
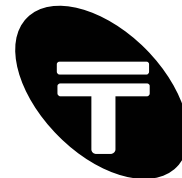
### General

The third section “General” contains other miscellaneous options:

“Automatically connect on startup” - if this item is ticked then on startup, SimpleTerm will attempt to automatically open the COM port (preset in the saved configuration settings).

“Automatically connect on keypress” - if this item is ticked then SimpleTerm will attempt to automatically open the COM port (preset in the saved configuration settings) when a key has been pressed within the communication window.

“Display String Entry Pane” – if this item is ticked then the String Entry Pane is visible otherwise it is hidden.



### 3.11 Import and Export SimpleTerm Profiles

For rapid configuration when working with different devices or applications which require different configuration settings, SimpleTerm supports the saving of all configuration information in named text files (with extension .stp) known as Profiles. Instead of reconfiguring all the settings every time a different RS232 / COM port device is used, simply import (a previously exported) SimpleTerm Profile.

Note that SimpleTerm SE will still automatically load the default settings (within its ST.ini configuration file) when it starts.

#### Export as a Profile

Allows saving of the current SimpleTerm configuration as a Profile so that the configuration may be recalled in future by importing the Profile.

Generally export a Profile for each new device so all the information does not have to be entered again in the future.

To export a Profile:

- 1) Adjust all SimpleTerm settings appropriate for the device or application used. Insert any data for saving within the String Entry pane.
- 2) Click the menu item “Settings->Export as a Profile” and type the name of the Profile using the displayed “Save As” dialog box.

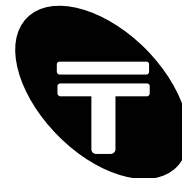
#### Import Profile

Reconfigures SimpleTerm by loading the configuration settings from a Profile (of file extension .stp). This option also clears the communication window after re-configuration by starting a new communication session.

To import a Profile, click the menu item “Settings->Import from Profile” and select a file using the displayed “Open” dialog box.

### 3.12 Status Bar and Byte Selection Information

The status bar is a horizontal area at the bottom of the communication window



## SimpleTerm Standard (SE) – User Guide

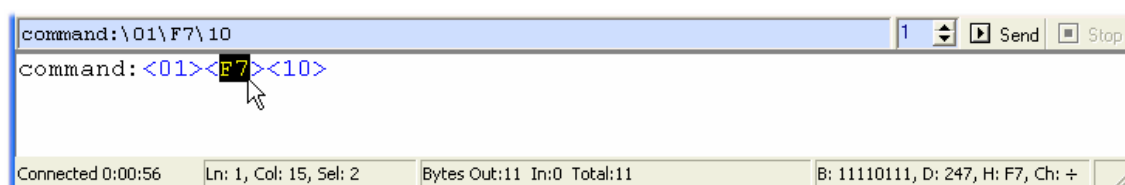
in SimpleTerm for providing additional user feedback and information about the communication status, errors, input / output byte count and screen selection.

The bar is split into 5 sections and each section is described here in visual order from left to right:

Section 1 displays a running timer indicating the duration for which the COM port has been in a connected state.

Section 2 displays the line and column number (abbreviated to “Ln:” and “Col:” respectively) of the last character in a selection made in the communication window’s display matrix. Also displayed is the number of selected display characters on screen (abbreviated to “Sel:”).

Section 3 displays the number of bytes recorded as having been sent (“Bytes Out:”) or received (“In:”) through the open COM port. A total of outgoing and incoming bytes is also displayed (“Total:”) . Note that to reset the byte count (and also clear the screen) use the menu item “File->New Session”.



Section 4 displays a selected byte within the communication window in binary, decimal and hexadecimal notations. The selection must be for a single byte of data. To select a byte that is already displayed on screen in hexadecimal, both characters within the “<>” envelope must be selected as shown above.

Section 5 may be used to display miscellaneous text for user feedback or to indicate communication errors.

### 3.13 User Notes

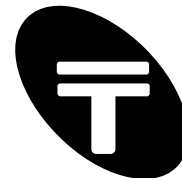
The User Notes is a simple, yet feature rich single page notepad for storing handy notes or data during a debugging session for example. The “User Notes” screen is displayed when the menu item “View->User Notes” is clicked or alternatively click on the following tool bar icon:



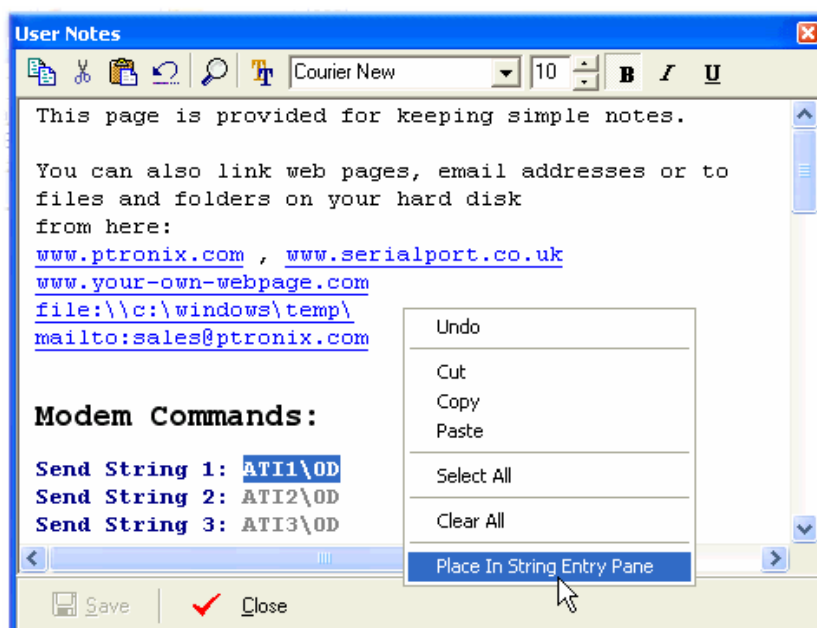
The notepad supports different font colour and style selections within the page and provides a lot of editing functionality similar to the Microsoft WordPad application. In addition, hyperlinks to internet web sites and pages, email addresses or to files and folders on your computer may be stored.

To save changes made in the User Notes screen press the “Save” button. When the notes are saved, the data is stored in a RTF (Rich Text Format) file called notes.rtf within Simpleterm’s main directory. This file is importable into other applications that support RTF files including Microsoft WordPad and Word if required.

To close the User Notes screen press the “Close” button.



## SimpleTerm Standard (SE) – User Guide



### User Notes - Toolbar and Pop-up Menu

Toolbar icons from left to right and pop-up (context) menus are described here:

**Copy** - copies text so you can paste it in another location by selecting the text and then clicking the Copy icon or alternatively “right-click” using the mouse and select “Copy” from the pop-up menu.

**Cut** - cuts text so you can move it to another location by selecting the text and then clicking the Cut icon or alternatively select “Cut” from the pop-up menu.

**Paste** – inserts text you have cut or copied by clicking in the document where you want to insert the text and then clicking the Paste icon or alternatively select “Paste” from the pop-up menu.

**Find** – use to search for words or characters in your User Notes document by clicking the Find icon. To find additional instances of the same text, continue to click Find Next.

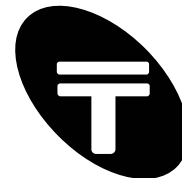
**Font Selector** - changes a font type, style, size and colour by selecting the text that you want to change and then clicking the “Font Selector” icon to display the font options.

**Select All (Pop-up menu only)** – selects all the text within the document.

**Clear All (Pop-up menu only)** – clears the notes screen for a blank document.

**Paste In String Entry Pane (Pop-up menu only)** – places selected text into the “String Entry Pane” ready for sending to the serial port.

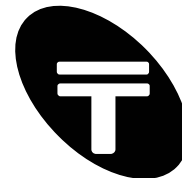
There are also icons/buttons (at the top right of the User Notes screen) for quick changes to the font and style of selected text. These include a drop down list of available system fonts and a “B”, “I” and “U” button for changing the style of selected text to bold, italic or underlined respectively.



## User Notes - Editing Keyboard Shortcuts

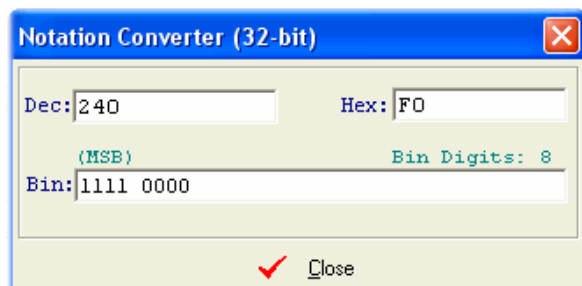
Key Strokes	Shortcut to
CTRL+A	Select all text
CTRL+C	Copy
CTRL+X	Cut
CTRL+V	Paste
CTRL+F	Font selector
CTRL+B	Bold
CTRL+I	Italics
CTRL+U	Underline
Increment Font Size	CTRL+}
Decrement Font Size	CTRL+{
CTRL+S or ALT+S	Save Changes
CTRL+Z	Undo (multiple undo support)
CTRL+Y	Redo (multiple redo support)
ALT+C	Close (User Notes screen)
F3	Find





### 3.14 Notation Converter

This dialog box is shown when the menu item “View->Notation Converter” is clicked. Use this to convert data to and from decimal / hexadecimal notation. Conversion of binary to decimal and hexadecimal is also possible.



The following example shows how to use this dialog box to view three different number representations (hex, decimal and binary) of hexadecimal F0:

- 1) Type F0 in the Hex field. Notice that “240” is displayed in the Dec field and “1111 0000” is displayed in the Bin field.
- 2) Similarly, (delete the current text) and type 240 in the Dec field. Notice that F0 will be displayed in the Hex field and “1111 0000” is displayed in the Bin field.
- 3) Click the Close button to close the Notation Converter dialog box.

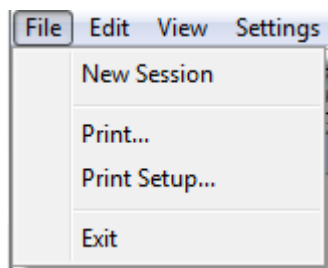
Note:

- a) The label “(MSB)” indicates that the most significant bit in the binary representation is the leftmost bit within the “Bin:” field.
- b) The “Bin Digits” label indicates the number of binary bits entered/displayed in the “Bin:” field.

## 4 Reference: Menu, Toolbar and Keyboard Shortcuts

Most menu items have an ALT+key combination keyboard shortcut to select items within the menu. For example, to the menu item “File->New Session”, hold down the ALT key and then press the ‘f’ key for the file menu. Then press the ‘n’ key for New session. Other menu items have a Function key (F2-F10) associated and these are shown below.

### 4.1 File Menu

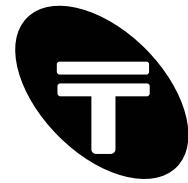


#### **New Session**

Clears the display screen and resets the byte count in the status bar.

#### **Print / Print Setup...**

Setup the printer and print the contents of the communication window.



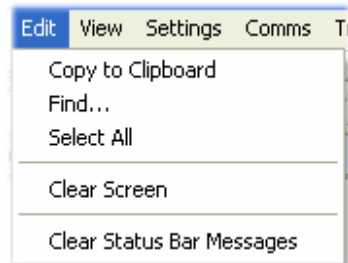
## SimpleTerm Standard (SE) – User Guide

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### Exit

Exit the SimpleTerm application. Keyboard shortcut: F10.

## 4.2 Edit Menu



### Copy to Clipboard

To copy the text in the communication to the clipboard so that you can paste it in another application, select the text, and then on the “Edit” menu, click “Copy to Clipboard”.

### Find...

Search for words or characters in the communication window. Keyboard shortcut: F3.

### Select All

You can select all text/characters in the communication window at once by clicking “Edit”, and then clicking “Select All”.

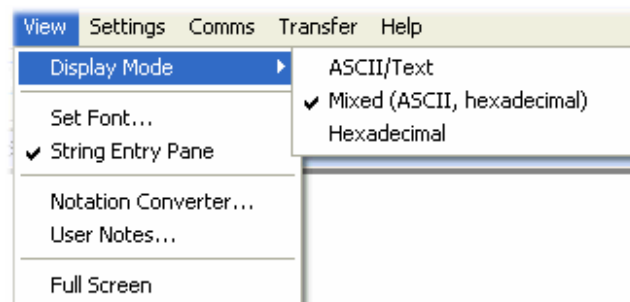
### Clear Screen

Clear the contents of the communications window. Note that this does not affect the byte count in the status bar (see File Menu->New Session). Keyboard shortcut: F4.

### Clear Status Bar Messages

Clears any notification or error messages in the status bar.

## 4.3 View Menu



### Display Mode

This expanding menu item allows selection of the data viewing options for the Communication Window. A sub-menu allows the selection between “ASCII/Text”, “Mixed (ASCII, hexadecimal)” and “Hexadecimal” modes.

### Set Font...

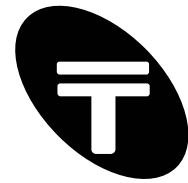
Set the font used for displaying data in the communication window.

### String Entry Pane

Toggle the display of the Quick Entry Pane.

### Notation Converter

Toggle the display of the Notation Conversion window.



## SimpleTerm Standard (SE) – User Guide

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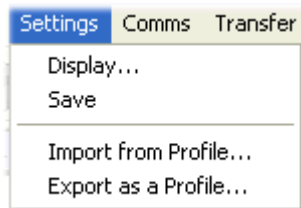
### User Notes

Show the User Notes window. Keyboard shortcut: F6.

### Full Screen / Exit Full Screen

Full Screen option maximises the SimpleTerm application window so it covers the full screen. Exit Full Screen option (shown when window is already maximised) restore the window to its previous size. Keyboard shortcut: ALT+ENTER (toggle action).

## 4.4 Settings



### Display...

Show the Settings window for selecting the application program options (e.g. for display and other communication settings). Keyboard shortcut: F5.

### Save

Save application settings (which include the serial port line settings) to a file called STGold.ini in the current directory.

### Import from Profile

Reconfigure SimpleTerm by loading the configuration settings from a Profile (file extension .stp).

### Export as a Profile

Save the current SimpleTerm configuration as a Profile so that the configuration may be recalled in future by importing the Profile.

## 4.5 Comms

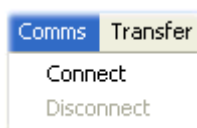
### Connect

Open the communication port selected in the Quick Configuration Panel and enable serial data transfer. Keyboard shortcut: F2 (toggle action).

### Disconnect

Close the communication port selected in the Quick Configuration Panel and enable serial data transfer. Keyboard shortcut: F2 (toggle action).

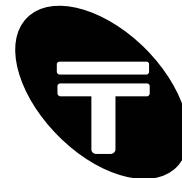
## 4.6 Transfer



### Send File (Binary)...

Send binary data within a file through the serial port (when connected).

### Capture To File (Binary)...



## SimpleTerm Standard (SE) – User Guide

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Capture/save incoming serial data into a file (when connected).

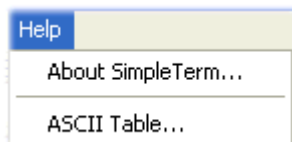
### **Send Ctrl Char (00...0F hex)**

Transmit a control char within the range 00 and 0F hex to the serial port (when connected).

### **Send Ctrl Char (10...1F hex)**

Transmit a control char within the range 10 and 1F hex to the serial port (when connected).

## 4.7 Help



### **About SimpleTerm...**

Display information about your SimpleTerm application including version number and copyright information.

### **ASCII Table...**

Displays the ASCII Table window.

## 4.8 Toolbar



Icons from left to right:

### **Connect / Disconnect**

Open / close the communication port. Keyboard shortcut: F2 (toggle action).

### **Find**

Search for words or characters in the communication window. Keyboard shortcut: F3.

### **Clear Screen**

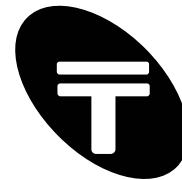
Clear the contents of the communications window. Keyboard shortcut: F4.

### **Show Settings Window**

Show the Settings window. Keyboard shortcut: F5.

### **User Notes**

Show the User Notes window. Keyboard shortcut: F6.



## Appendix A – ASCII Chart

ASCII, the American Standard Code for Information Interchange, was developed in the 1960's as a standard 7-bit code for identifying letters, numbers, symbols, and special characters in the English language. It was later expanded (as Extended ASCII) to include additional symbols and foreign language characters. Standard ASCII consists of 128 characters, ranging from 0 to 127 which can be broken down into the following subgroups:

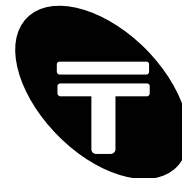
- 0 to 31, 127: Control codes (includes null, backspace, line feed and others)
- 32 to 47, 58 to 64, 81 to 86, 123 to 126: Punctuation marks, mathematical (and other) symbols
- 48 to 57: Numbers 0 through 9
- 65 to 80: Capital letters A through Z
- 87 to 122: Lower case letters a through z

### Standard ASCII Chart

The standard chart includes the ASCII character or control and their related decimal and hexadecimal values. Also shown are the control key sequences for the control codes. Note, to obtain codes 0 to 31, console Control Key is pressed while simultaneously pressing a Letter Key, e.g. ^J is the line feed character. Control Key subtracts decimal 64 (40h) from Letter Key pressed.

Dec	Hex	^Key	ASCII	Dec	Hex	ASCII	Dec	Hex	ASCII	Dec	Hex	ASCII
0	0	^@	NUL (Null)	32	20	(Space)	64	40	@	96	60	~
1	1	^A	SOH (Start of Heading)	33	21	!	65	41	A	97	61	a
2	2	^B	STX (Start of Text)	34	22	"	66	42	B	98	62	b
3	3	^C	ETX (End of Text)	35	23	#	67	43	C	99	63	c
4	4	^D	EOT (End of Transmission)	36	24	\$	68	44	D	100	64	d
5	5	^E	ENQ (Enquiry)	37	25	%	69	45	E	101	65	e
6	6	^F	ACK (Acknowledgement)	38	26	&	70	46	F	102	66	f
7	7	^G	BEL (Bell)	39	27	'	71	47	G	103	67	g
8	8	^H	BS (Backspace)	40	28	(	72	48	H	104	68	h
9	9	^I	HT (Horizontal Tab)	41	29	)	73	49	I	105	69	i
10	A	^J	LF (Line Feed)	42	2A	*	74	4A	J	106	6A	j
11	B	^K	VT (Vertical Tab)	43	2B	+	75	4B	K	107	6B	k
12	C	^L	FF (Form Feed)	44	2C	,	76	4C	L	108	6C	l
13	D	^M	CR (Carriage Return)	45	2D	-	77	4D	M	109	6D	m
14	E	^N	SO (Shift Out)	46	2E	.	78	4E	N	110	6E	n
15	F	^O	SI (Shift In)	47	2F	/	79	4F	O	111	6F	o
16	10	^P	DLE (Data Line Escape)	48	30	0	80	50	P	112	70	p
17	11	^Q	DC1 (Device Control 1)	49	31	1	81	51	Q	113	71	q
18	12	^R	DC2 (Device Control 2)	50	32	2	82	52	R	114	72	r
19	13	^S	DC3 (Device Control 3)	51	33	3	83	53	S	115	73	s
20	14	^T	DC4 (Device Control 4)	52	34	4	84	54	T	116	74	t
21	15	^U	NAK (Negative Ack.)	53	35	5	85	55	U	117	75	u
22	16	^V	SYN (Synchronous Idle)	54	36	6	86	56	V	118	76	v
23	17	^W	ETB (End of Transmit Block)	55	37	7	87	57	W	119	77	w
24	18	^X	CAN (Cancel)	56	38	8	88	58	X	120	78	x
25	19	^Y	EM (End of Medium)	57	39	9	89	59	Y	121	79	y
26	1A	^Z	SUB (Substitute)	58	3A	:	90	5A	Z	122	7A	z
27	1B	^[	ESC (Escape)	59	3B	;	91	5B	[	123	7B	{
28	1C	^\	FS (File Separator)	60	3C	<	92	5C	\	124	7C	
29	1D	^]	GS (Group Separator)	61	3D	=	93	5D	]	125	7D	}
30	1E	^^	RS (Record Separator)	62	3E	>	94	5E	^	126	7E	~
31	1F	^_	US (Unit Separator)	63	3F	?	95	5F	_	127	7F	(Delete)

Legend: ^Key - Control Key + Letter Key combination except 30 (1E hex) = Control +caret.



## Appendix B – Radix Conversion Charts

### Converting Hexadecimal to Decimal

This chart shows the conversion between hex and decimal.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	000	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015
1	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030	031
2	032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047
3	048	049	050	051	052	053	054	055	056	057	058	059	060	061	062	063
4	064	065	066	067	068	069	070	071	072	073	074	075	076	077	078	079
5	080	081	082	083	084	085	086	087	088	089	090	091	092	093	094	095
6	096	097	098	099	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Usage example:

Hex 31 is equivalent to decimal 49. Alternatively decimal 255 is equivalent to hex FF.

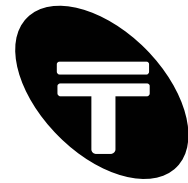
### Converting Hexadecimal to Octal

This chart shows the conversion between hex and octal

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	000	001	002	003	004	005	006	007	010	011	012	013	014	015	016	017
1	020	021	022	023	024	025	026	027	030	031	032	033	034	035	036	037
2	040	041	042	043	044	045	046	047	050	051	052	053	054	055	056	057
3	060	061	062	063	064	065	066	067	070	071	072	073	074	075	076	077
4	100	101	102	103	104	105	106	107	110	111	112	113	114	115	116	117
5	120	121	122	123	134	125	126	127	130	131	132	133	134	135	136	137
6	140	141	142	143	144	145	146	147	150	151	152	153	154	155	156	157
7	160	161	162	163	164	165	166	167	170	171	172	173	174	175	176	177
8	200	201	202	203	204	205	206	207	210	211	212	213	214	215	216	217
9	220	221	222	223	224	225	226	227	230	231	232	233	234	235	236	237
A	240	241	242	243	244	245	246	247	250	251	252	253	254	255	256	257
B	260	261	262	263	264	265	266	267	270	271	272	273	274	275	276	277
C	300	301	302	303	304	305	306	307	310	311	312	313	314	315	316	317
D	320	321	322	323	324	325	326	327	330	331	332	333	334	335	336	337
E	340	341	342	343	344	345	346	347	350	351	352	353	354	355	356	357
F	360	361	362	363	364	365	366	367	370	371	372	373	374	375	376	377

Usage example:

Hex 7F is equivalent to octal 367. Alternatively octal 377 is equivalent to Hex FF.



## Appendix C – Pinout and Signals for the PC RS232 Connector

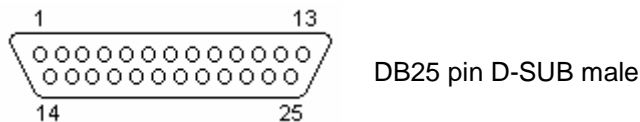
### DB9 RS232 Port (IBM PC XT/AT)



Pin	Signal Name	Direction (DTE ← DCE)
1	CD (Carrier Detect)	←
2	RXD (Receive Data)	←
3	TXD (Transmit Data)	→
4	DTR (Data Terminal Ready)	→
5	GND (System Ground)	-
6	DSR (Data Set Ready)	←
7	RTS (Request to Send)	→
8	CTS (Clear to Send)	←
9	RI (Ring Indicator)	←

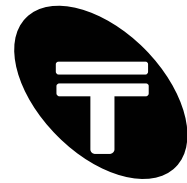
Note: a) Signal names are with respect to the computer/PC. b) Direction is from peripheral/modem (DCE) to the computer (DTE) e.g. RXD is the computer's input pin.

### DB25 RS232 Port



Pin	Signal Name	Direction (DTE ← DCE)
1	SHIELD (Shield/Protective Ground)	-
2	TXD (Transmit Data)	→
3	RXD (Receive Data)	←
4	RTS (Request to Send)	→
5	CTS (Clear to Send)	←
6	DSR (Data Set Ready)	←
7	GND (System Ground)	-
8	CD (Carrier Detect)	←
9	n/c	-
10	n/c	-
11	n/c	-
12	n/c	-
13	n/c	-
14	n/c	-
15	n/c	-
16	n/c	-
17	n/c	-
18	n/c	-
19	n/c	-
20	DTR (Data Terminal Ready)	→
21	n/c	-
22	RI (Ring Indicator)	←
23	n/c	-
24	n/c	-
25	n/c	-

Note: a) Signal names are with respect to the computer/PC. b) Direction is from peripheral/modem (DCE) to the computer (DTE) e.g. RXD is the computer's input pin. c) Do not connect SHIELD(1) to GND(7).



## Appendix D – SimpleTerm Half Duplex Monitoring Cable

SimpleTerm may be used as a low cost half duplex RS232 data monitor with the addition of some minimal external hardware. Two devices that take turns sending data are said to be communicating in "half duplex" mode. See Figure C1 below for the pass through hardware required.

With this straightforward pass through arrangement, DEVICE A will still communicate with DEVICE B and vice versa but the communication (if half-duplex) may be monitored via a connection to the PC's serial port.

**Figure C1:** Half Duplex Monitoring Adaptor / Cable

