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Testing Serial Cards

Instructions on How to Use HyperTerminal to Test Serial Ports

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1. Introduction

This document describes how to use the Microsoft HyperTerminal application in order to prove that your serial card is functioning correctly. This assumes that the card is correctly installed. Windows 2000 Professional is used in the example. However, the document also applies to Windows 7, Windows Server 2008, Vista, XP and Server 2003.

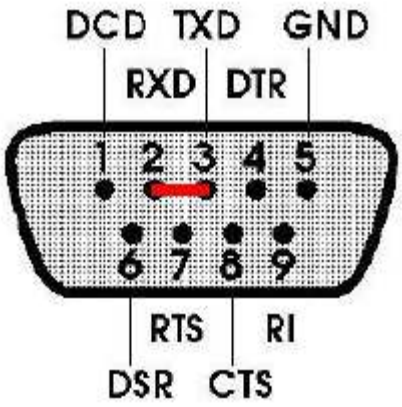
Please Note:

HyperTerminal is not distributed with Windows 7, Vista and Server 2008 and needs to be downloaded from http://www.hilgraeve.com/htpe/download.html.

Alternatively, a test application called **SerialTest.exe** is available from your CD. This application will test your Brainboxes com port for the external loopback. Please, run the application and follow on screen instructions to perform the test correctly.

2. Loopback for RS232 serial cards

On the 'D' type connector, electrically short pins 2 and 3. This can be easily achieved by placing an electrical jumper over the pins. See below:



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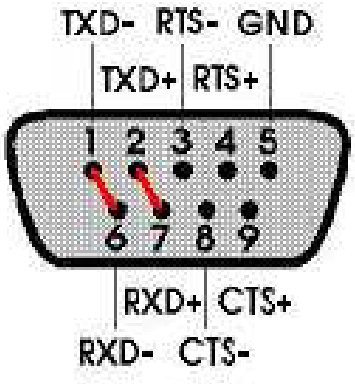
3. Loopback for RS422/485 serial cards

On the 'D' type connector, electrically short pins 1 and 6, 2 and 7 This can be easily achieved by placing an electrical jumper over the pins. See below:

Please note: The port must be set to Full Duplex mode in Device Manager to perform a loopback test for RS422/485 cards. Check product documentation for details on how to change the duplex mode.

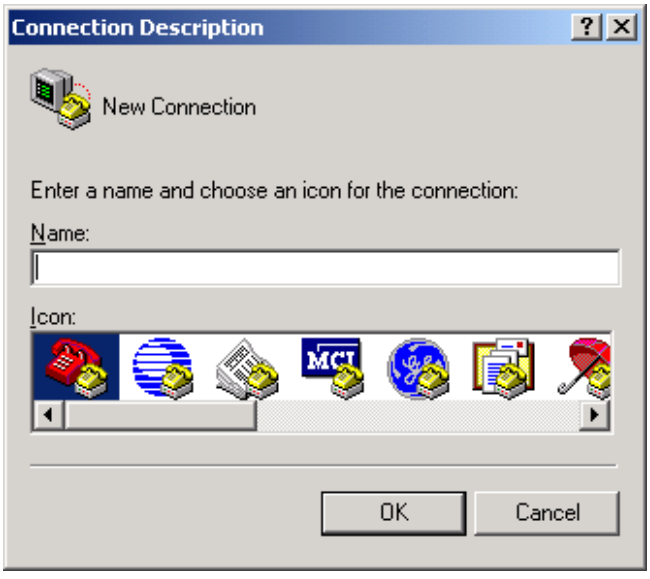


4. Using HyperTerminal to perform a Loopback test

Ensure card has been set up to perform a loopback. See Section 2 or 3 depending on your card.

From the Start menu select Programs\Accessories\Communications\HyperTerminal or perform a search in My Computer for "HyperTerminal"

Double click on the application and the following window will appear:



Type in a connection identifier name say "Test1" and click OK. The only restriction here is it cannot be a device name e.g. "COM1"

You will then be presented with the following dialogue box:

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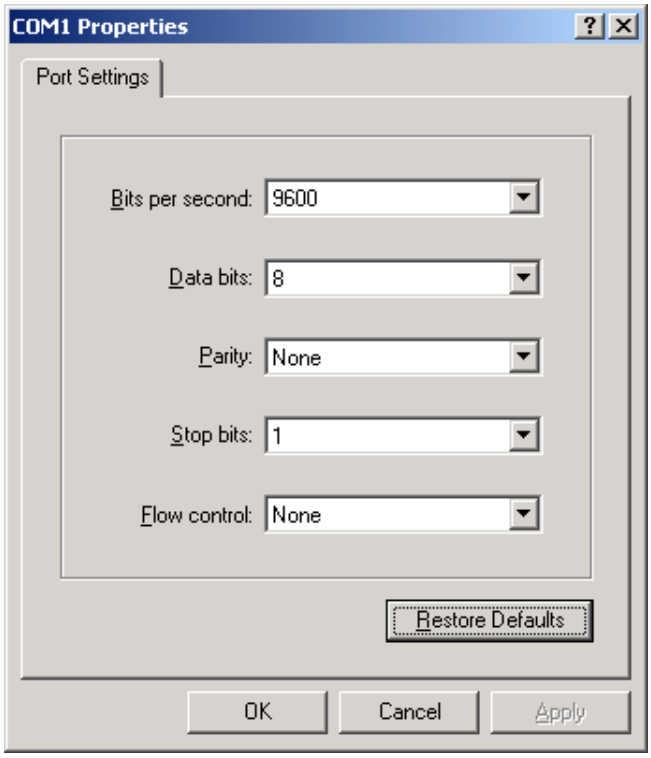
Here it is possible to choose the COM port to test using the drop down box. In this example we will use the onboard port COM1. Click OK.

The next dialogue box will ask for the Port Communication Settings:



Click “Restore Defaults” then OK.

If all went well you would then be give a blank dialogue box with a flashing cursor. The COM port is now open and ready to transmit and receive data.

From the File menu choose Properties:

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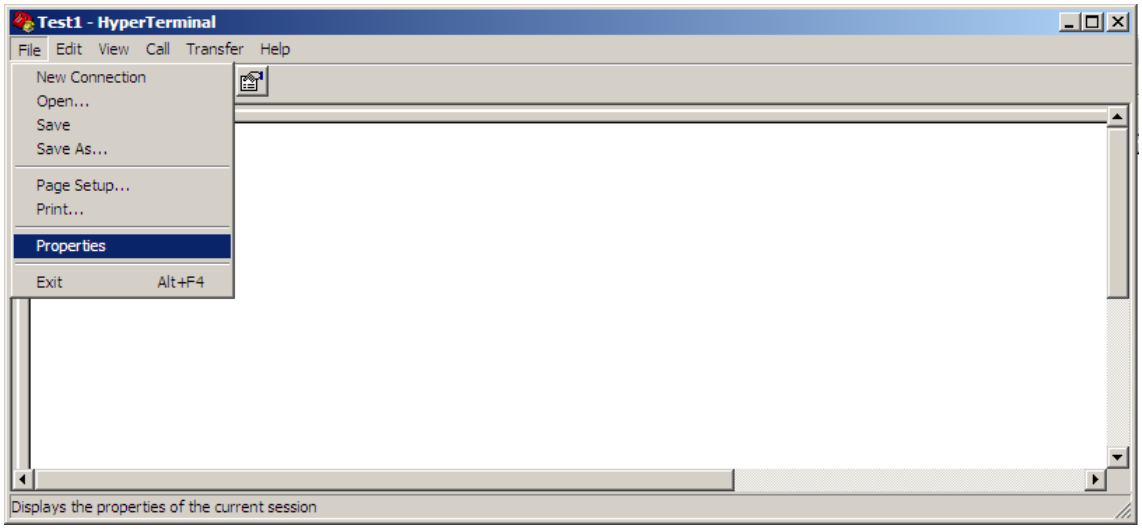

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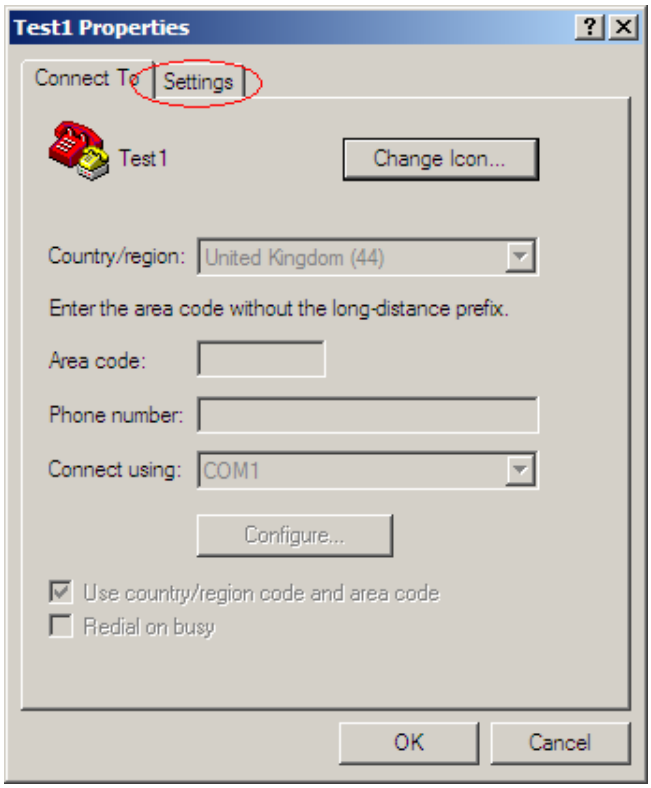
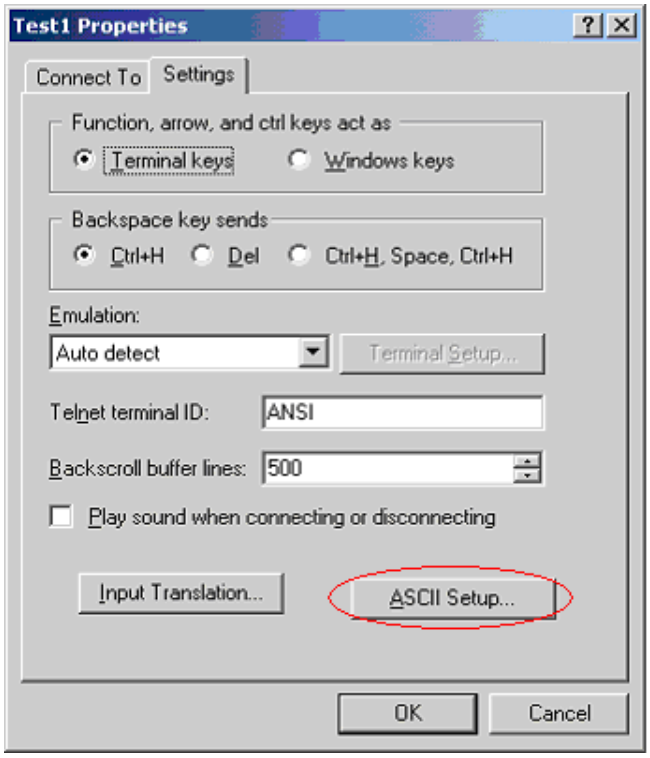
Click on the Settings tab:



Click on the ASCII Setup button:



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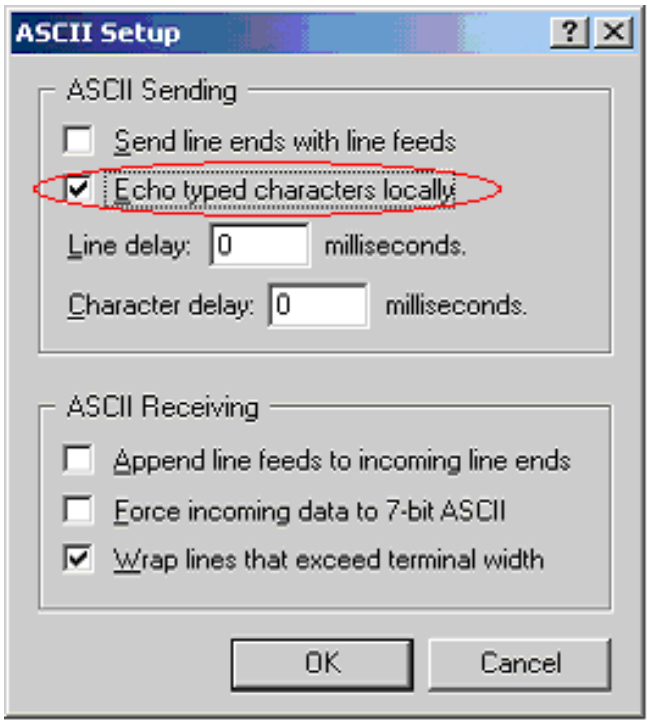
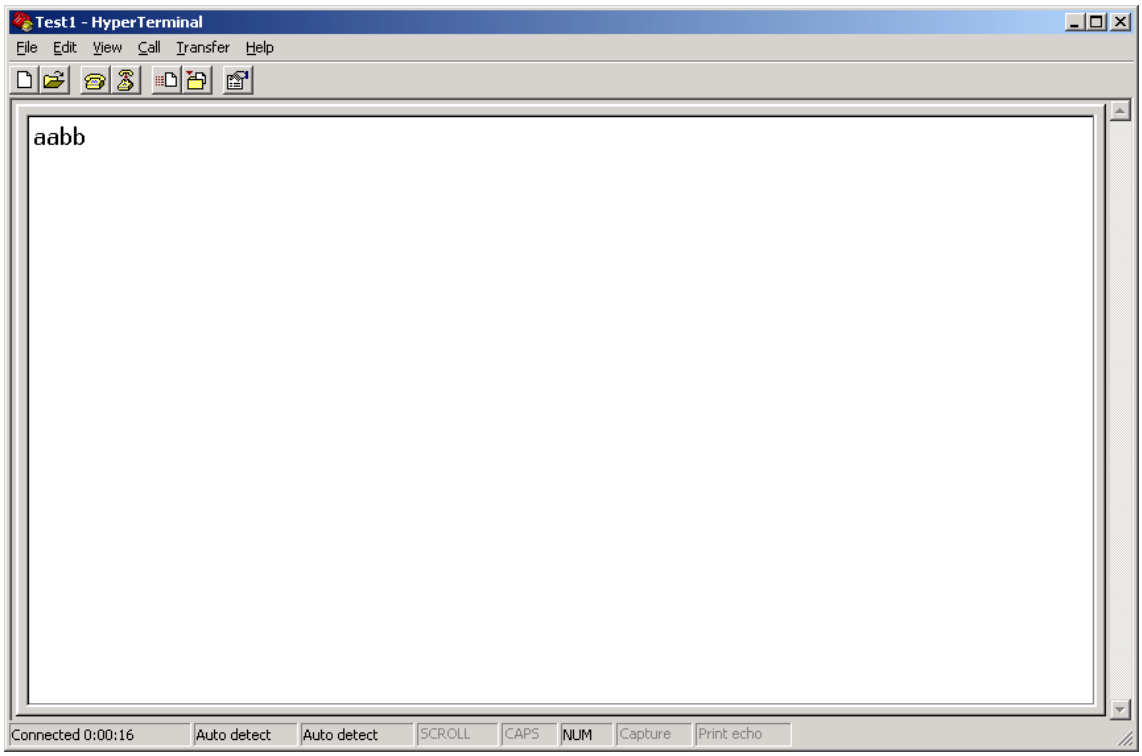
Then check the “Echo typed characters locally” tick box:



Click OK for both open dialogue boxes and the original blank screen will appear again. Ensure the loopback connector is connected as described in section 2.

Now, every time a character on the keyboard is pressed two will appear on the screen:



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This means that characters are being transmitted and received through the loopback. If you are not certain, remove the loopback connector. This time you should only see one character each time a key is pressed.

Please note in Windows 98 only one character will be seen. This is the received character.

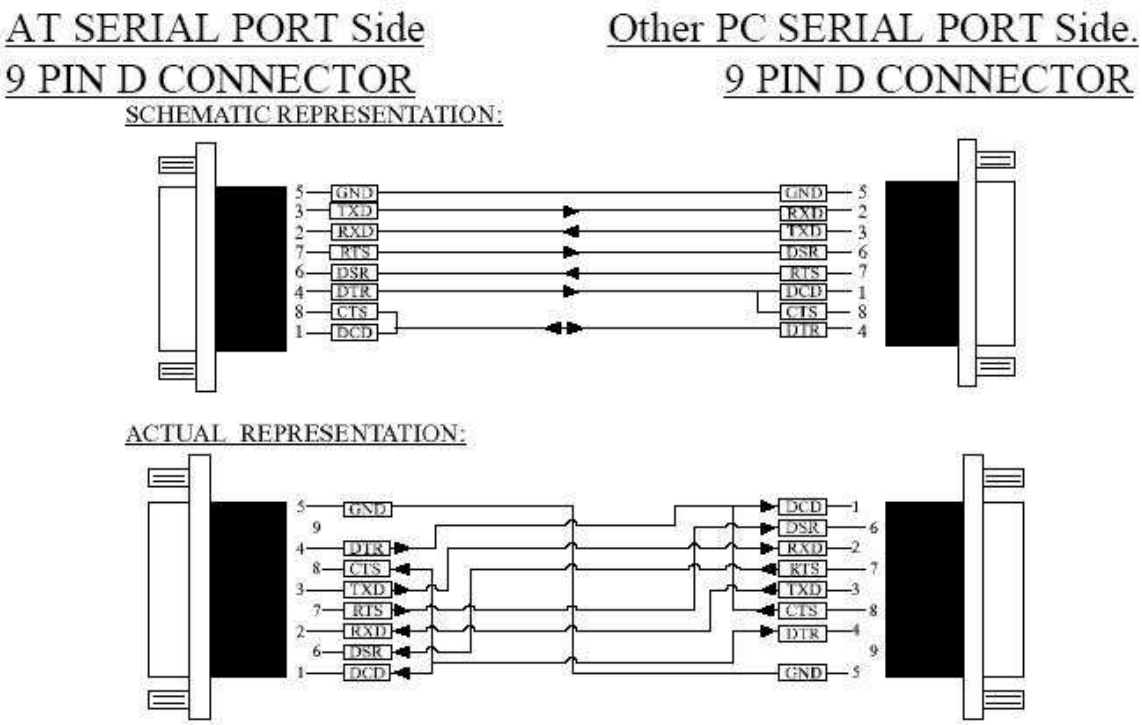
5. Crossover cable (Null modem) for RS232

A cable from a serial port always connects to another serial port. An external modem or other device that connects to the serial port has a serial port built into it. For modems, the cable is always straight thru: pin 2 goes to pin 2, etc. The modem is said to be DCE (Data Communications Equipment) and the computer is said to be DTE (Data Terminal Equipment). Thus for connecting DTE-to-DCE you use straight-thru cable.

For connecting DTE-to-DTE you must use a null-modem cable (also called a crossover cable). There are many ways to wire such cable. (see page 12 for an example of typical crossover cable)

Today the PC is usually used as DTE instead of a terminal (but real terminals may still be used this way). The names of the pins are the same on both DTE and DCE. The words: "receive" and "transmit" are from the "point of view" of the PC (DTE). The transmit pin from the PC transmits to the "transmit" pin of the modem (but actually the modem is receiving the data from this pin so from the point of view of the modem it would be a receive pin). Today, people wanted to connect DTE to DTE (for example a computer to a terminal) and various ways were found to do this by fabricating various types of special null-modem cables. In this case what pin connects to what pin becomes significant.

This is one of the examples how to create DTE to DTE crossover cable connection.



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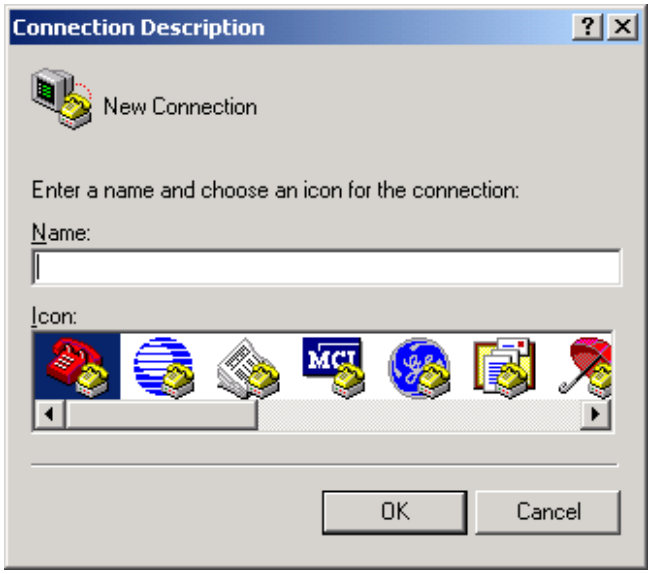
6. How to perform Port to Port test

Set up the card to be able to perform a port to port test. Use a “good” working port as a reference port (can be on-board port if testing RS232 or a port on a different PC). Connect two ports with Cross over cable (for more information see previous section of this document.)

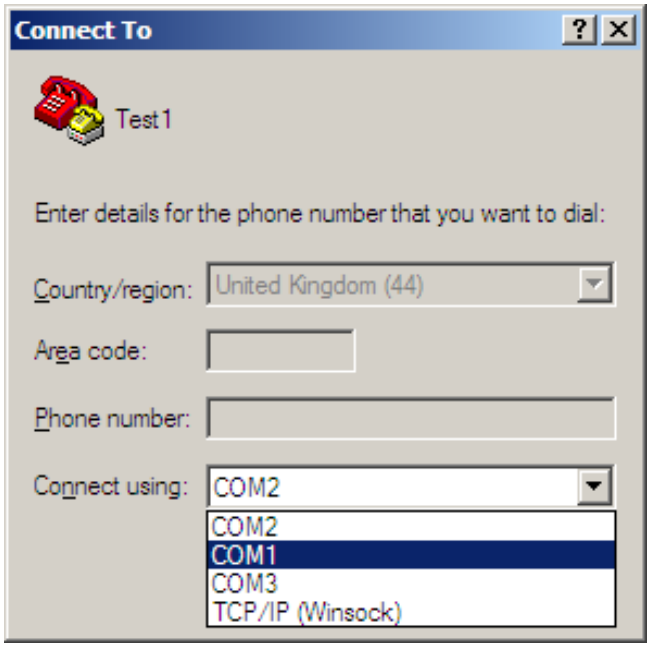
Open two sessions of HyperTerminal, one for each port.

From the Start menu select Programs\Accessories\Communications\HyperTerminal or perform a search in My Computer for “HyperTerminal” Double click on the application and the following window will appear:



Type in a connection identifier name say “Test1” and click OK. The only restriction here is it cannot be a device name e.g. “COM1”

You will then be presented with the following dialogue box:



Here it is possible to choose the COM port to test using the drop down box. In this example we will use the onboard port COM1. Click OK.

The next dialogue box will ask for the Port Communication Settings:

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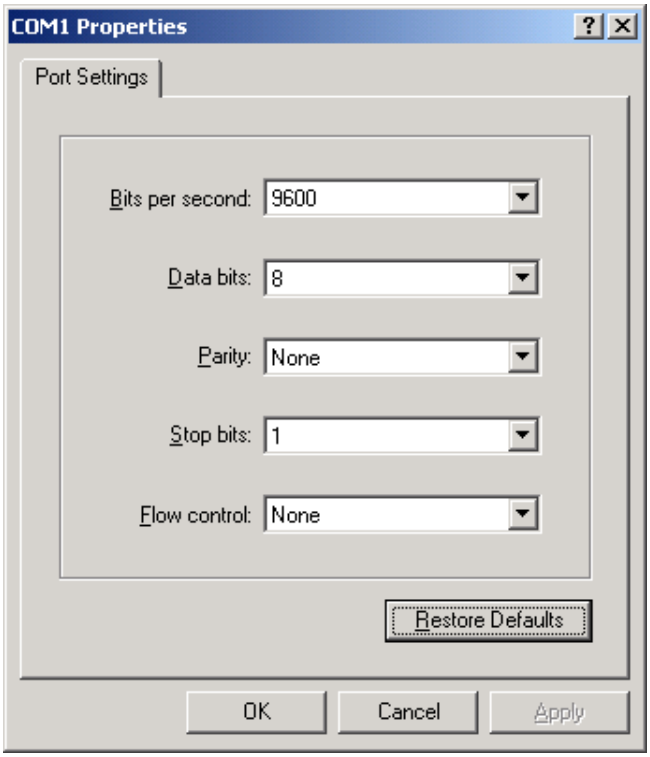

Click “Restore Defaults” then OK. Same settings need to be applied for both ports.

If all went well you would then be give a blank dialogue box with a flashing cursor. The COM port is now open and ready to transmit and receive data. Whatever you type in one window shall be displayed in second window. This means the data is transferred between two ports. If you noticed a garbled character, make sure that the selected baud rate is identical on both sides of the connection.

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Version History

Version	Date	Author	Checked By	Comments
1.0	23/04/2008	AH		
1.0.1	08/08/08	AH		Added SerialTest.exe
1.0.2	05.12.08	AH		Added 422/485 support

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