

## Demonstrating CML modems using the DE Kits

### Equipment required

2 PCs or laptops . Both computers must have a free 9-pin COM port connection.

2 DE Kits that support the communication protocol(s) to be demonstrated.

A set of [demonstration files for the DE Kit](#) and [communication protocol\(s\)](#) to be demonstrated.

### Setting up

HyperTerminal must be installed on both computers.

The demonstration files must be copied onto both computers.

Ensure Jumper, JP1 is fitted.

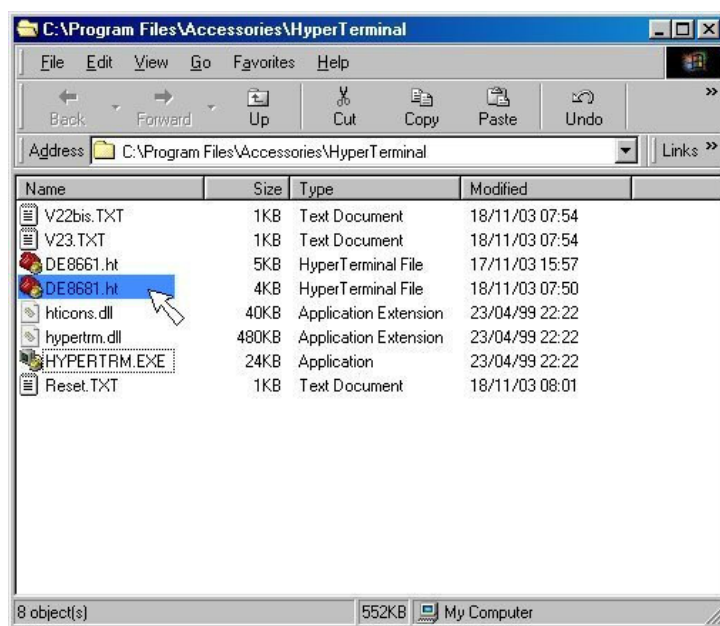
Connect the DE Kits to the base units.

Connect the phone lead between the DE Kits.

Connect both the RS232 leads to the modem and to COM1 of the PC/laptop

If COM1 is not available then see [changing the COM port settings](#)

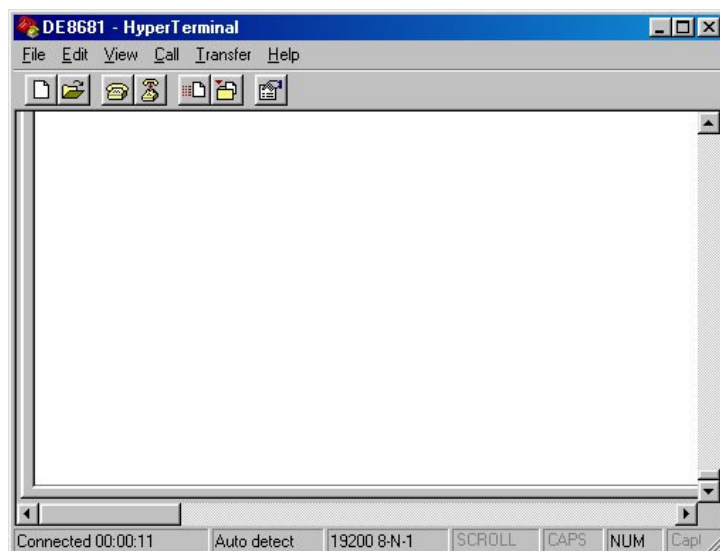
### Starting HyperTerminal



Start HyperTerminal by double clicking-clicking on the connect icon for the DE Kit you are using.

The connect icon looks like a small yellow telephone next to a large red one. The file type is always 'ht'.

Double-click the file for your Kit. Eg. DE8681.ht should be double-clicked for the DE8681 Kit.



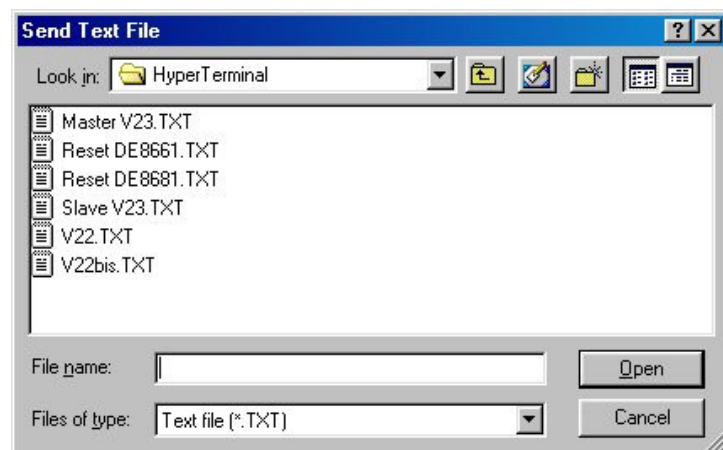
HyperTerminal will now start and you will see a screen like this:

This screen allows you to send AT commands to the modem.

Press <Alt> + T then T to send one of the sample AT command files to the modem.

You can use the menu instead of the keyboard. Click on the Transfer menu then select ‘Send Text File’.

These commands will open up a browser window allowing you to [select files to send](#)



The text files allow you to set the modem into different modes. Some files will not work with the modem because the mode is not supported. The table below gives this information.

Files prefixed Reset have been included to restore the default settings on the DE Kits. They will also ensure that returned messages are in text not number form.

| Text File Name   | Kit supported                            | Use                                                  |
|------------------|------------------------------------------|------------------------------------------------------|
| V23 75-1200.txt  | DE8681, DE8661, EV8500,<br><b>DE8691</b> | Sets up a V.23 link at 75/1200 (Master) <sup>1</sup> |
| V23 1200-75.txt  | DE8661<br><b>DE8691</b>                  | Sets up a V.23 link at 1200/75 (Slave) <sup>1</sup>  |
| V22.txt          | DE8681, DE8661, EV8500                   | Sets up a V.22 link at 1200/1200                     |
| V22bis.txt       | DE8681, DE8661, EV8500                   | Sets up a V.22 bis at 2400/2400                      |
| Bell103          | DE8691                                   | Sets up a Bell 103 link at 300/300                   |
| V22auto.txt      | DE8691                                   | Sets up a V.22 link at 1200/1200                     |
| V22bisauto.txt   | DE8691                                   | Sets up a V.22 bis at 2400/2400                      |
| V.32 4800.txt    | DE8691                                   | Sets up a V.32 link at 4800/4800                     |
| V.32bis 7200.txt | DE8691                                   | Sets up a V.32 bis link at 7200/7200                 |
| V.32 9600.txt    | DE8691                                   | Sets up a V.32 link at 9600/9600                     |
| V.32bis 9600.txt | DE8691                                   | Sets up a V.32 bis link at 9600/9600                 |
| V.32bis 12k.txt  | DE8691                                   | Sets up a V.32 bis link at 12k/12k                   |
| V.32bis 14k4.txt | DE8691                                   | Sets up a V.32 bis link at 14k4/14k4                 |
| Reset DE8661.txt | DE8661                                   | Sets the DE8661 to default settings                  |
| Reset DE8681.txt | DE8681                                   | Sets the DE8681 to default settings                  |
| Reset EV8500.txt | EV8500                                   | Sets the EV8500 to default settings                  |
| Reset DE8691.txt | DE8691                                   | Sets the DE8691 to default settings                  |

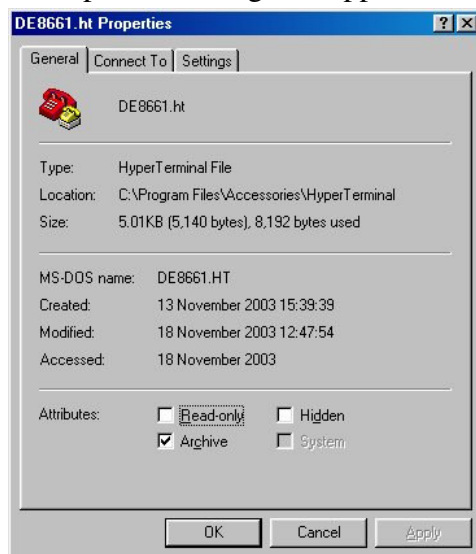
<sup>1</sup> To do a V.23 data transfer select either Master V23.txt or Slave V23.txt **ON BOTH MODEMS**. The originating modem will operate at the selected rate (Master V.23 = Tx 75 / Rx 1200) and the answering modem will automatically configure to operate at compatible rates.

## Configuring HyperTerminal

Normally the provided files will set-up HyperTerminal correctly but sometimes it may be necessary to change the settings. To access the connection settings:

- |                      |                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Win95/98             | Right-click on the connect icon (for example, DE8661.ht).<br>Select 'Properties' from the menu.                             |
| Win95/98/<br>2000/XP | The Properties Dialog can also be opened from within the application<br>through the File Menu or by typing <alt> + f then r |

A Properties Dialog will appear like the one below:



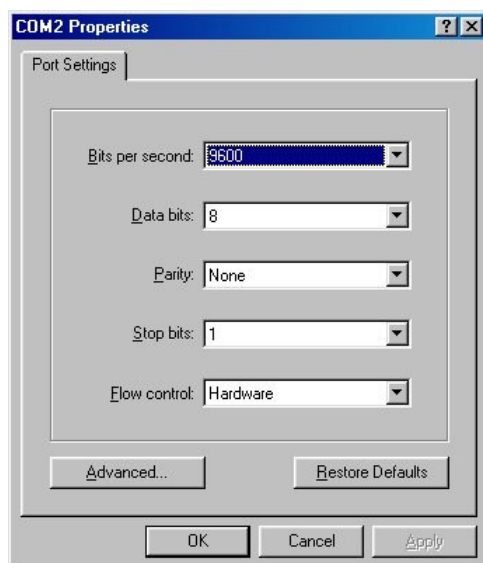
Changing the COM port settings:  
Click on the Connect To tab.



Click to access the menu in the Connect using: edit box. Select Direct to Com1 or Direct to Com2 as appropriate.

## Configuring the Com Port

If a new port is selected it may need to be configured. Click on the Configure... button.



The Port Settings Dialog will open.

The settings are shown for the DE8661.

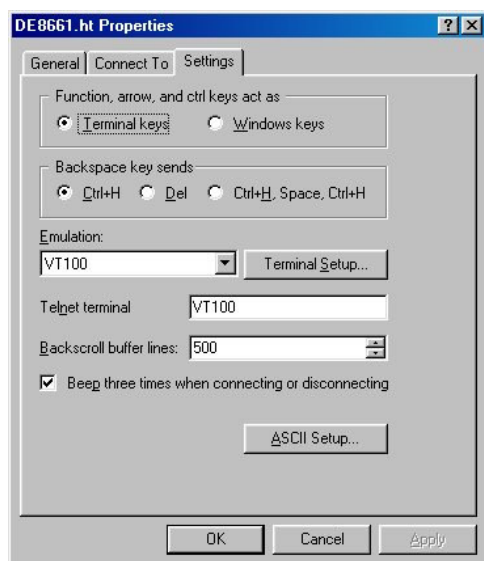
The Bits per second should be changed to 19200 for the DE8681, EV8680 and EV8500.

Do not change any other settings.

There should be no need to modify the Advanced settings.

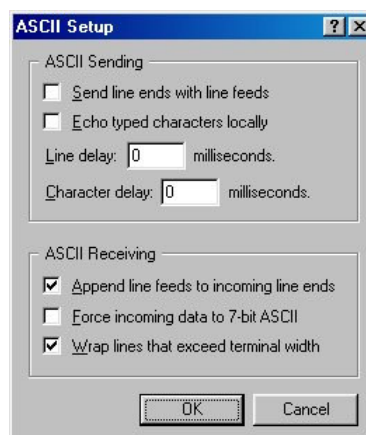
Click OK to save the settings and return to the Properties Dialog for the connection.

Next click on the Settings tab to open the Dialog below:



Do not change any of the settings shown.

Click on ASCII Set-up... and change the settings to those shown below.<sup>2</sup>



Close the ASCII Setup Dialog by clicking OK.

Close the Properties Dialog by clicking OK

HyperTerminal is now configured.

### Basics of using modems without a line or exchange simulator

**This section assumes that two CML modems will be used. Modems are controlled using text strings and these are generally very similar. However, most manufacturers use different strings to configure their modems. Please refer to the user manual for 3rd party modems connected to a CML modem.**

Connect two modems directly via a short length of telephone lead fitted with an RJ11 plug at each end. This is a back-to-back connection.

Connect each modem to a separate PC using an RS-232 cable.

Power up both modems.

Start and configure HyperTerminal following the instructions in this document.

Reset the CML modems using the reset button and see that a short message appears in the HyperTerminal window for that modem. See the modem's User Manual for more details.

The modems are now in command mode and ready to accept commands.

Next, configure the CML modems. Send the text file to the modem that matches with the type of modem and data transfer you require. For example, if you are using a DE8681 and want a V.22 (1200bps, full-duplex link) send V22.txt. The section 'Starting HyperTerminal' describes this and gives a table of the available files.

The modems are now ready to make a connection.

Modems are normally referred to as a calling modem and an answering modem. The names are logical as the calling modem starts a call and the answering modem responds.

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<sup>2</sup> The CMX8661 board settings are slightly different; the Send line ends with line feeds should also be ticked.

On the calling modem, type, ATD1234. This means Dial 1234. You can dial any digits. For a back-to-back connection, the dialling is actually ignored but the 'D' command replaces a set of commands that will cause the modem to establish a connection and set up a data link at the rate required.

Wait for three seconds and then, on the answering modem, type ATA. This means Answer. Because there is no exchange, there is no ringing signal or the answering modem would have automatically answered the call. The 'A' command forces the modem to answer and it try and set up the data link with the calling modem.

A link can take a few seconds or perhaps a couple of tens of seconds to establish. Once set-up, the HyperTerminal window of each modem will display the message "Connected xxxx" where xxxx is the maximum data rate that can be supported. Both modems will automatically enter Data Transfer Mode.

The modems are now ready to transfer data. If the link is full-duplex, data can travel both ways at the same time, otherwise data can only go in the direction master to slave. Type some characters at the keyboard of one modem. These should appear in the HyperTerminal window of the other modem.

Data transfer of files can be demonstrated by following the instructions in the following section, 'Demonstrating File Transfer'.

When finished with data transfer, you can return to command mode using the escape sequence. Type +++ (three plusses) in the Hyperterminal window. Data transfer will no longer be possible and only AT strings will give sensible responses.

Type ATH0 when done. This means go on-hook or hang-up. If you type this on one modem the other modem will display sum garbage and then indicate that the connection has been lost and hang up itself. On modems with a hookswitch state indicator, the light will be on when the modem is off-hook (making a call) and off when the modem is on-hook (not connected to the line).

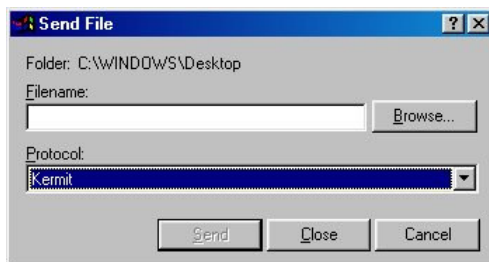
The User Manual for each modem has list of the AT commands supported.

## Demonstrating File Transfer

In any mode it is possible to demonstrate data transfer in two ways.

1. Type characters on the keyboard of one computer and these will echo on the screen of the other computer.<sup>3</sup> With full-duplex protocols you can type on both keyboards at the same time and this is useful when demonstrating full-duplex V.23 because the 75bps channel will be visibly slower at transferring (and thus displaying) characters.
2. Use HyperTerminal's built in file transfer mode:
  - Press <Alt> + T then S to send a file.
  - Alternatively you may use the menu system:
    - i. Click Transfer.
    - ii. Click Send File.

This Dialog will appear.



Type in the name of a file you wish to send to PC2.

You can use any file. Try a text file or a graphic. Use the Browse... button to select a file if you cannot remember the name or pathname.

The protocol should be Kermit so change this if a different one is shown.

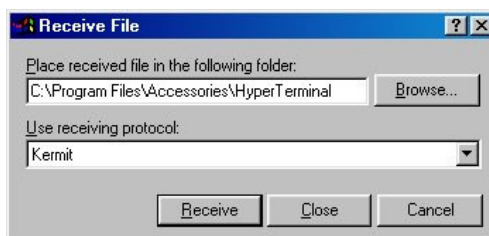
For convenience, there are three text files you can use for the transfer:

- data transfer med.TXT
- data transfer sml.TXT
- Very short test.txt

The data in the first two files are formatted strings that are useful for testing data corruption. The last file is a sequence of 'a' characters. This gives an ideal bit pattern for testing impaired lines.

## DO NOT PRESS SEND YET.

On PC2 press <Alt> + T then R or use the menu to select Transfer then Receive File. The following window will open:



Type in or browse to a folder where you want the file to be copied to.

Again, make sure the Kermit protocol is selected.

Click the Receive button.

On PC1 click the Send button.

Data transfer will now begin, a window will open to show the progress and **A COPY** of the file will be sent from PC1 to PC2.

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<sup>3</sup> For convenience these will be referred to as PC1 and PC2 respectively.

*TIP. Show that the files are the same by transferring a text (txt filetype) or jpeg graphic (jpg filetype). You can normally view either of these types of files by double-clicking on them.*