

DOWNLOADING SAVED DATA FROM YOUR CA-CALC™ COMBUSTION ANALYZER

APPLICATION NOTE CA-001

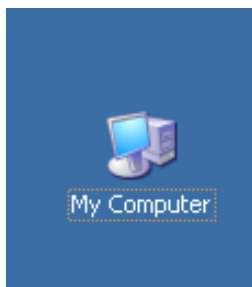
Using HyperTerminal to Communicate with TSI CA-CALC™ Combustion Analyzers

If you need to capture data from your CA-CALC™ Combustion Analyzer, you will need to use HyperTerminal® or a similar communications program.

HyperTerminal® program is a utility RS-232 communications program that is bundled with most versions of Microsoft Windows® operating system. This program can be used to communicate directly with your TSI Combustion Analyzer to send RS-232 commands and to capture data from the device. To download data, use the following procedure.

Create a Folder to Save your Downloaded Data on your Computer.

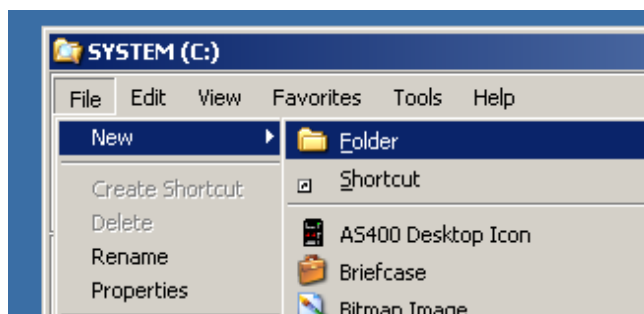
1. Click on **My Computer** on your desktop. Select the Drive where you want to save the data. Most people select their "C" Drive.



HyperTerminal is a registered trademark of Hilgraeve Inc.
Microsoft, Excel, and Windows are registered trademarks of Microsoft Corporation.
HotSync is a registered trademark of Palm, Inc.
TSI is a registered trademark of TSI Incorporated. TSI logo and CA-CALC are trademarks of TSI Incorporated.



2. On the File pull-down menu, go to New and select Folder.

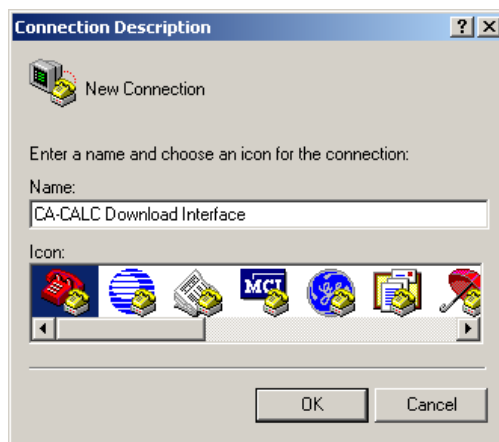


3. Name the Folder CA-CALC DOWNLOAD.

Setting up HyperTerminal® Program to Work with TSI CA-CALC™ Combustion Analyzers

Windows® 98 Users: Some versions of HyperTerminal® supplied with Windows® 98 have a bug. It will not echo typed characters even if the “*Echo Typed Characters Locally*” box is checked. You can download an updated version from Hilgraeve (the HyperTerminal® program supplier) at no cost. Go to <http://www.hilgraeve.com>. The free upgrade is called “HyperTerminal® Private Edition.” The upgrade is self-installing and does not upset existing icons or HyperTerminal® configuration files.

1. Start the HyperTerminal® program. It is normally located in the **Programs | Accessories | Communications** section of the **Start** menu. If you are asked to set HyperTerminal® program as your telnet default, select **NO**. If asked to enter your city code and dial out number, enter them and click **OK**. You will be prompted for a name and icon for HyperTerminal® program’s setup configuration. Once saved, this configuration can be recalled in future sessions. TSI suggests a name of “CA_CALC Download Interface” and an icon of your choice. Click **OK** when finished.

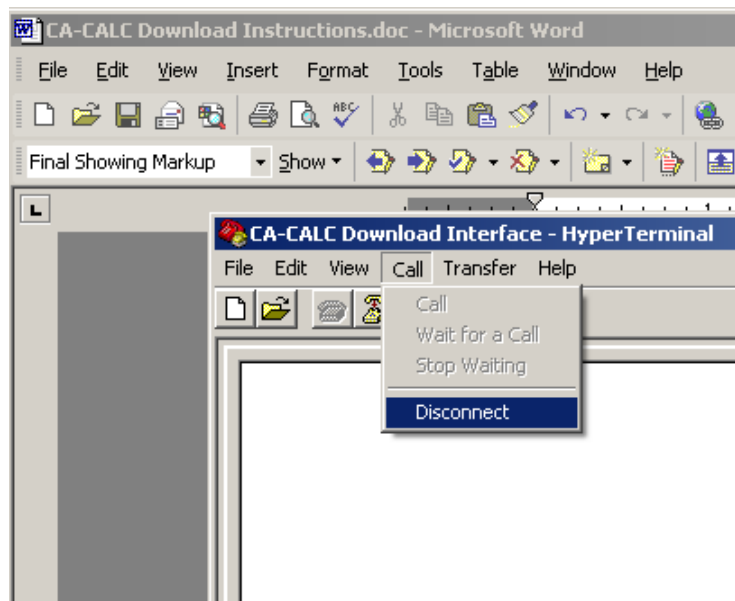


2. Select the desired COM port from the “Connect using” menu. (The ports most often used are COM1 or COM2). Click **OK**. Some versions of HyperTerminal® program will go to the window shown in step 4, “[Change Your Port Settings to Match the Settings on your CA-CALC Combustion Analyzer](#)”, of the next section

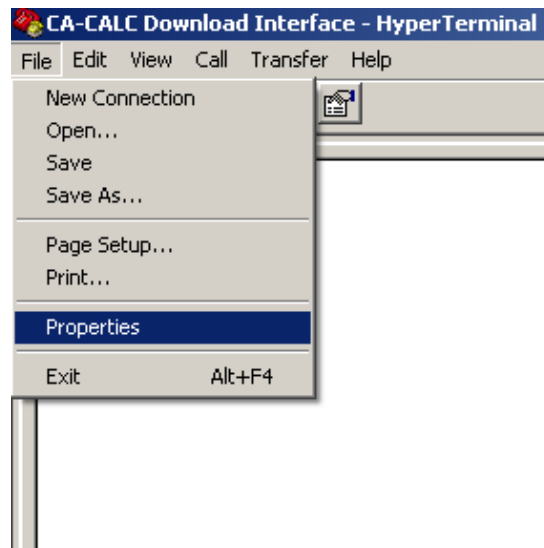


Change your Port Settings to Match the Settings on your CA-CALC™ Combustion Analyzer

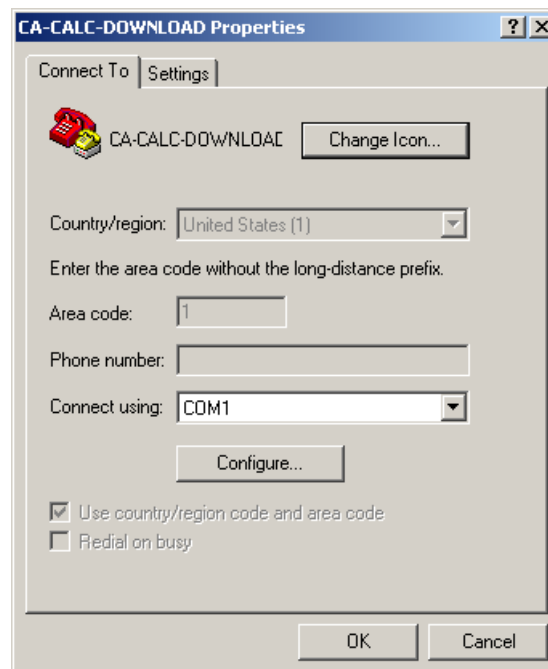
1. On the **Call** pull-down menu, select **Disconnect**. If it is not selectable, go to step 2.



2. On the **File** pull-down menu, select **Properties**.

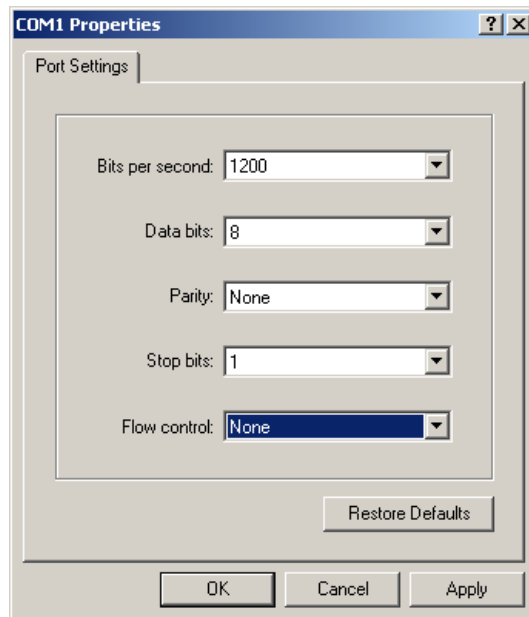


3. Click on the **Settings** tab.

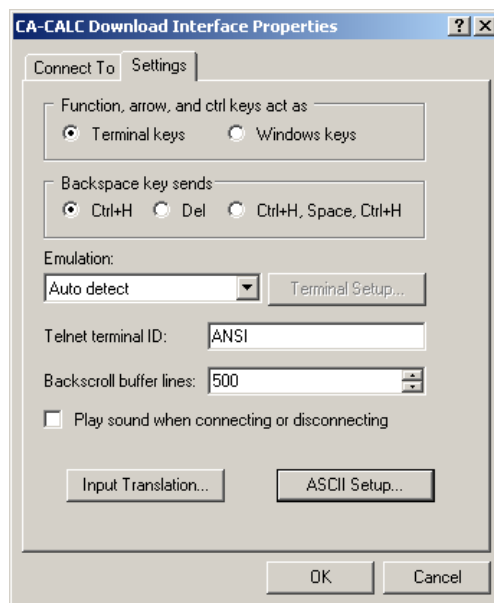


4. Set Port Settings as shown below. Click **OK**.

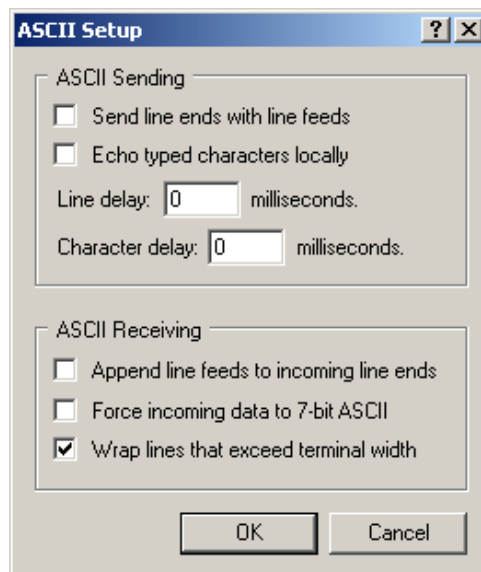
Bits per second: 1200
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None



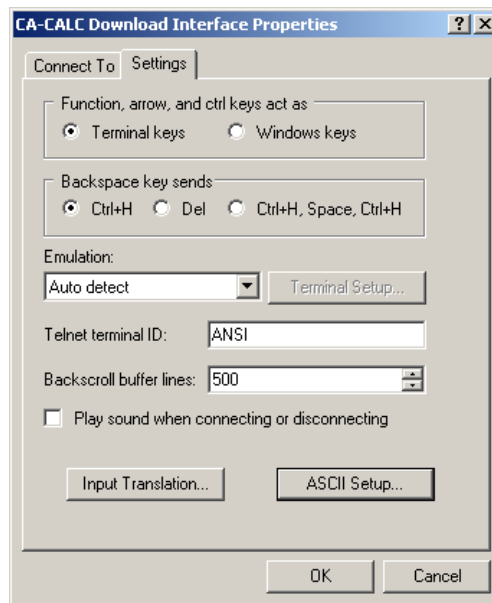
5. From the **File** menu at the top of the screen, select **Properties**. Click on **Settings**. Then click on **ASCII Setup**.



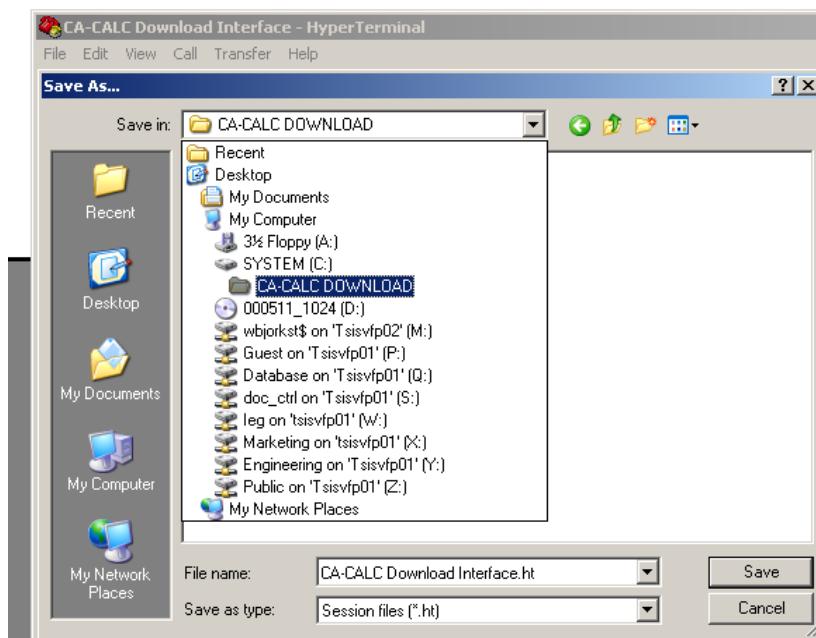
6. Make ASCII Setup selections as shown below, and then click **OK**.



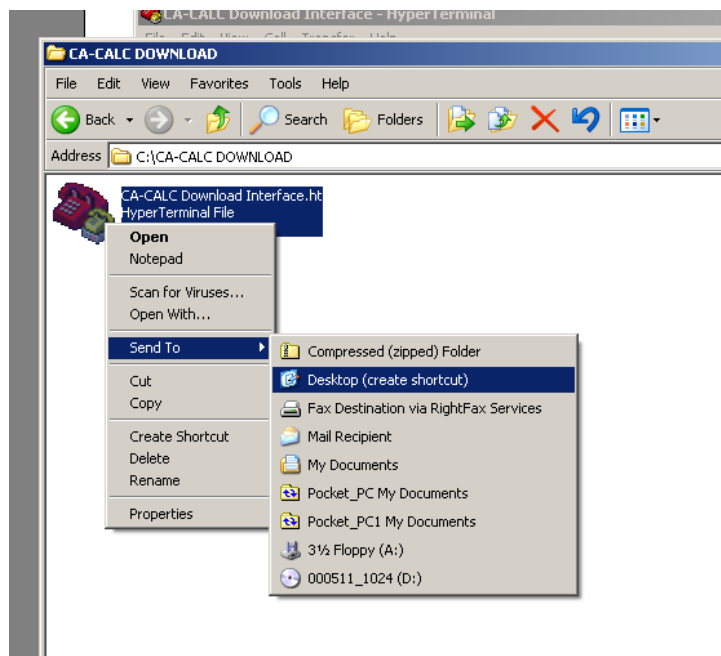
7. Click **OK** on the **Properties** window.



8. On the **File** pull-down menu, select **Save As** and save this setup in the CA-CALC™ Combustion Analyzer download folder you created earlier.



9. Create a shortcut on your desktop for downloading the data in the CA-CALC™ Combustion Analyzer. Open the folder you created. Right-click on the CA-CALC™ Combustion Analyzer Download Interface icon. Select **Send To**, then **Desktop (Create Shortcut)**.



Downloading Data

1. Connect the RS-232 connection to your CA-CALC™ Combustion Analyzer.

First, verify the following is set up on your CA-CALC™ analyzer:

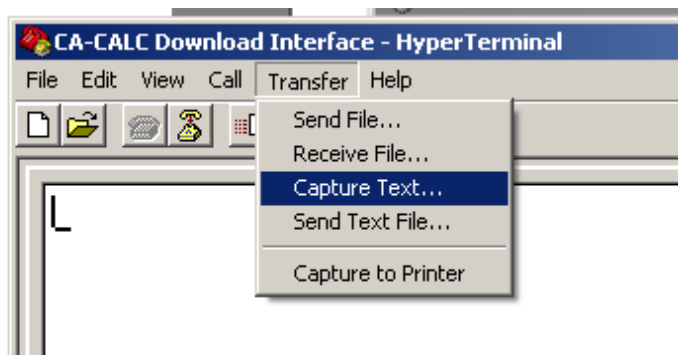
COMMUNICATION MODE	COMPUTER
BAUD RATE	1200

Then, connect the CA-CALC™ Combustion Analyzer to your computer COM PORT 1 using a Computer Download Cable (TSI P/N 8940).

Note: If you have HotSync® Manager (used with handheld PDAs), you should close it to avoid COM PORT 1 sharing violations. If you are using an IR connection to HotSync® Manager, you may need to contact the manufacturer of HotSync® Manager, your IS administrator, the computer manufacturer, or your local computer service center to make COM PORT 1 available for the CA-CALC™ Combustion Analyzer download application.

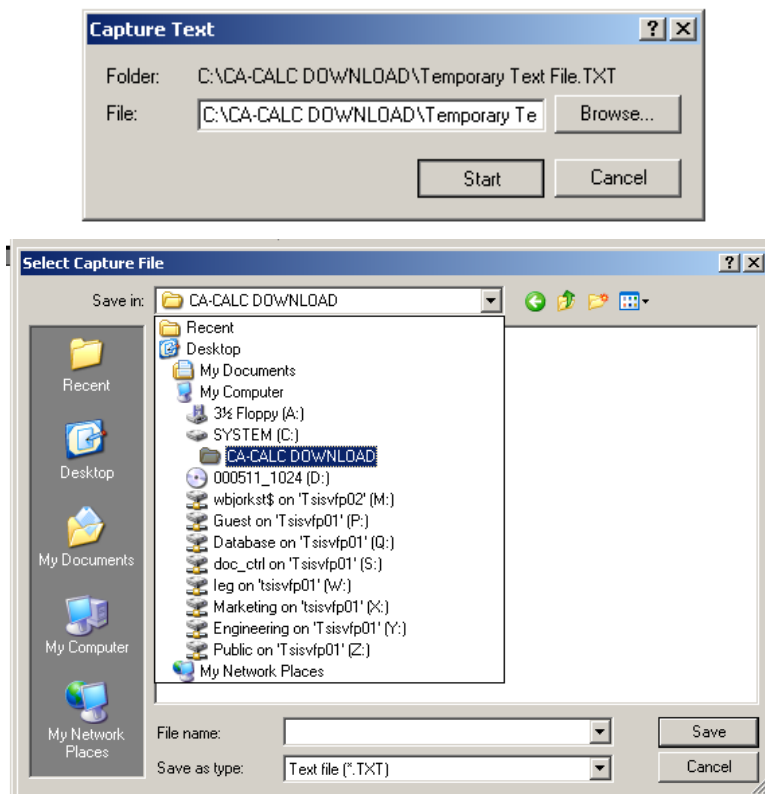
Note: You **must** have the Computer Download Cable. The similar Printer Download Cable will not function properly. Review your CA-CALC™ Combustion Analyzer Users Manual to get CA-CALC™ Combustion Analyzer menu setup and cable connection information. A copy of the CA-CALC™ Combustion Analyzer User Manual can be downloaded from the TSI website at www.tsi.com.

2. Open the HyperTerminal CA-CALC™ Combustion Analyzer Download Interface from the shortcut you created on your desktop.
3. On the **Transfer** menu, select **Capture Text**.

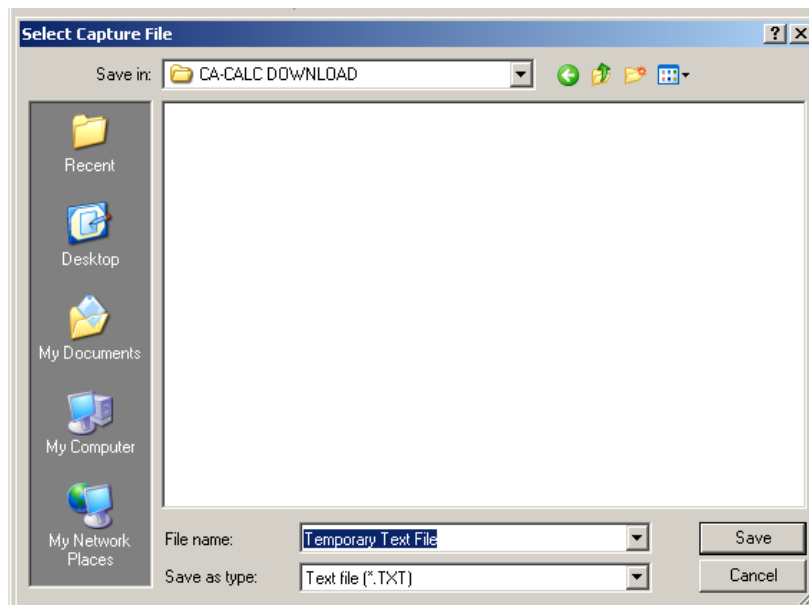


® HotSync is a registered trademark of Palm, Inc.

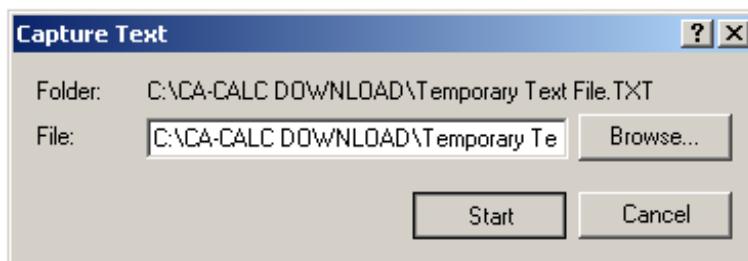
4. Browse to the CA-CALC™ Combustion Analyzer Download folder you created earlier.



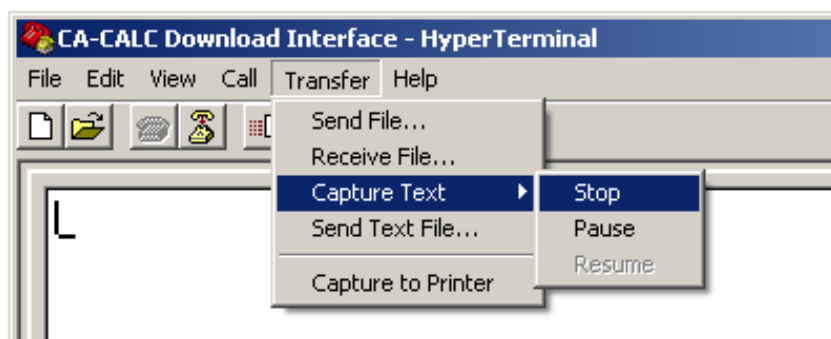
5. Type in the file name "TEMPORARY TEXT FILE". Click **Save**.



- Click the **Start** button.



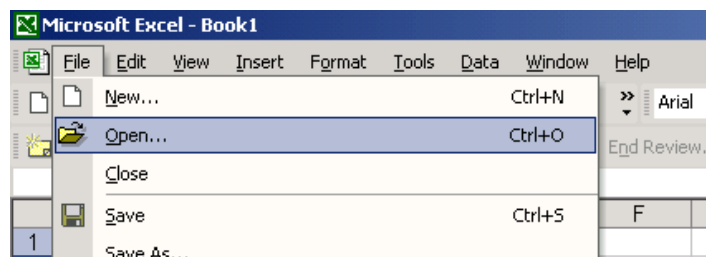
- Download current data from your CA-CALC™ Combustion Analyzer by pressing the **Print** button. Download saved data by going to the data in the CA-CALC™ analyzer you want to download, then press the **Print** button.
- After you have completed downloading the data for this session, go to the **Transfer** menu and select **Capture Text** and **Stop**.



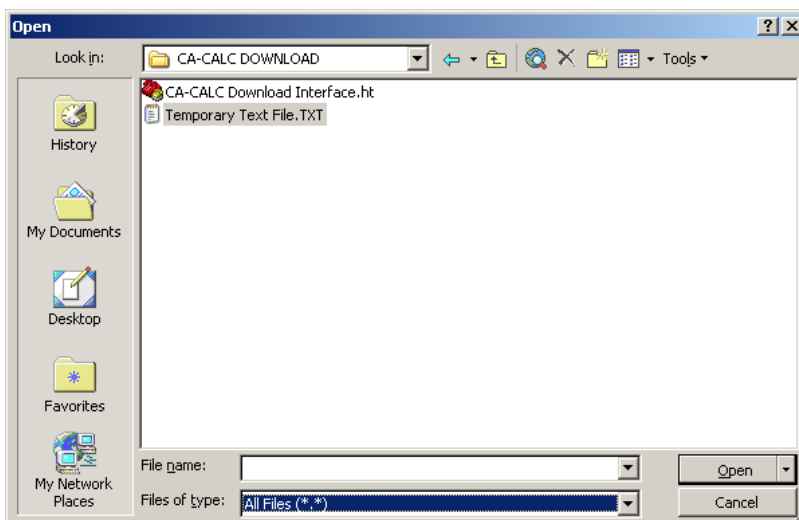
- Close HyperTerminal.

View and Save Downloaded Data Files in Excel® Spreadsheet Software

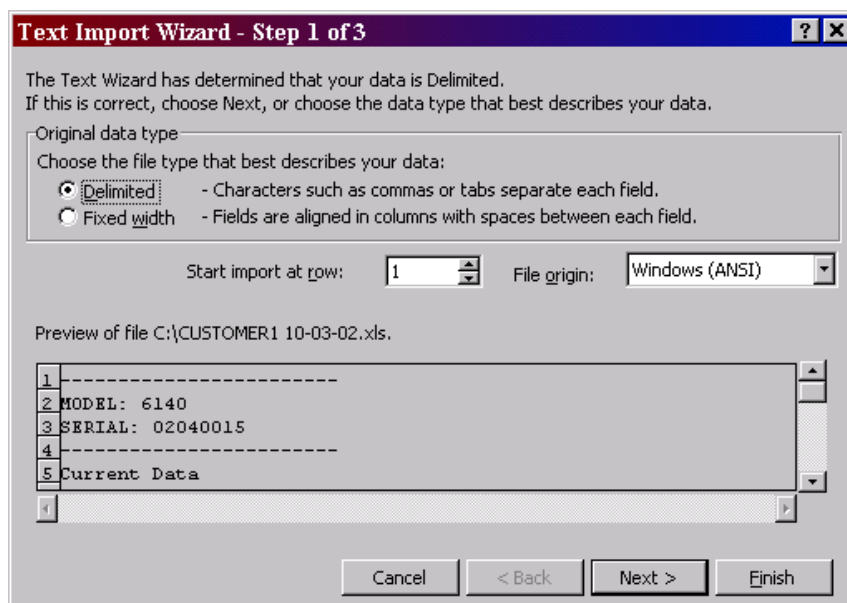
- Open Excel® software from a shortcut on your desktop or from the Start menu.
- From the File drop-down menu, click on **Open**.



3. Change the Files of Type box from pull-down menu to read **All Files (*.*)**. Open the file containing the saved data you downloaded.



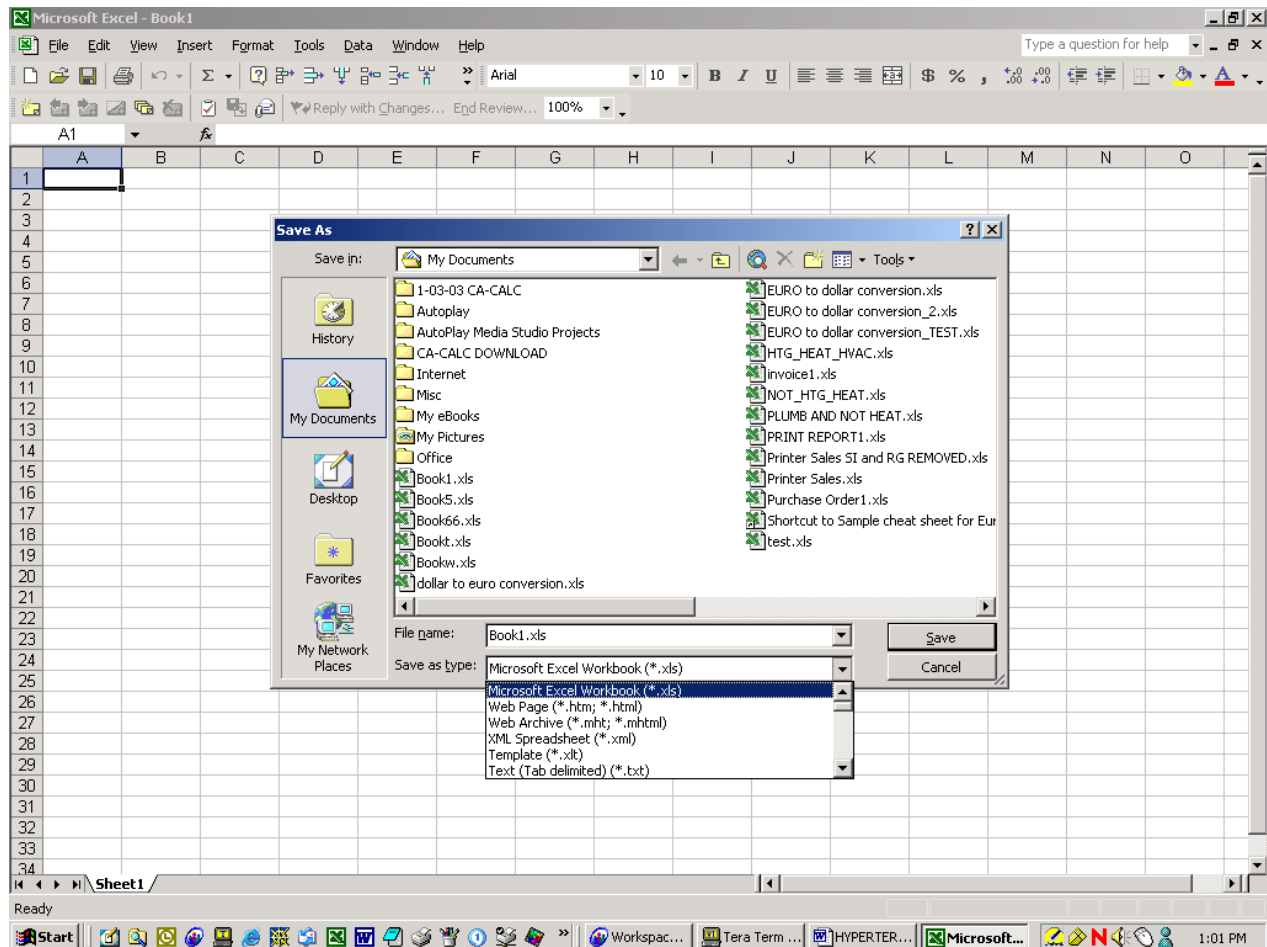
4. If the following screen comes up, select **Delimited**, then click **Finish**.



5. You will see data similar to the data shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2	MODEL:	6140													
3	SERIAL:	02040015													
4															
5	Current Data														
6															
7	Date:	3/10/2002													
8	TIME:	11:35:19													
9	Fuel:	NatG													
10															
11	Fuel Parameters:														
12	Carbon wt:	82.0	%												
13	Hydrogen:	25.0	%												
14	CO2 max:	11.8	%												
15	Sulfur wt.:		%												
16	kBTU/lb.:	23.8													
17	Moisture:		%												
18															
19	O2:	21.0	%												
20	CO:		0 PPM												
21	CO2:	0.0	%												
22	TA:		24 °C												
23	Lambda:	-9.00													
24															
25															
26															
27															
28															
29															
30															
31	Date:	3/10/2002													
32	TIME:	11:38:33													
33	Fuel:	NatG													
34															
35	Fuel Parameters:														

6. Save the file as an Excel® worksheet, *without* TEXT FORMATTING. On the **File** pull-down menu, click **Save As**.
7. On the **Save as Type** pull-down menu, switch to Excel® Workbook (*.xls) as shown below.



8. Browse to the folder you created earlier and rename the file (Example: CUSTOMER_DATE OF SERVICE). Select **Yes** to write over the existing file.



TSI Incorporated – Visit our website www.tsi.com for more information.

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France	Tel: +33 4 91 11 87 64	Singapore	Tel: +65 6595 6388
Germany	Tel: +49 241 523030		