# DOWNLOADING SAVED DATA FROM YOUR CA-CALC™ COMBUSTION ANALYZER

APPLICATION NOTE CA-001

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

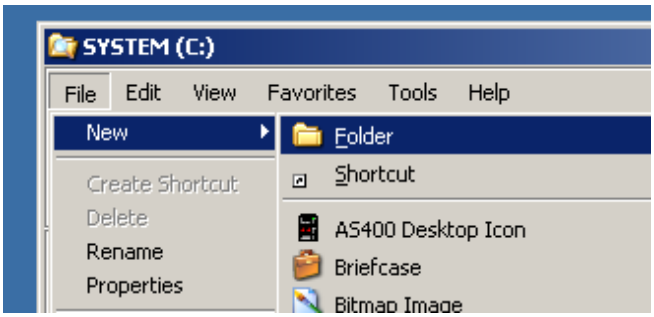
If you need to capture data from your CA-CALC™ Combustion Analyzer, you will need to use HyperTerminal® or a similar communications program.

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.

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

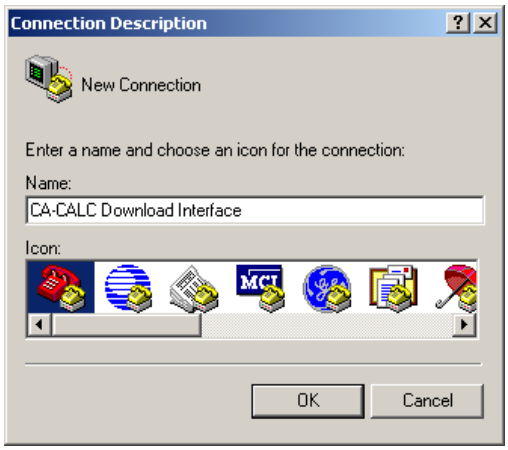



3. Name the Folder CA-CALC DOWNLOAD.

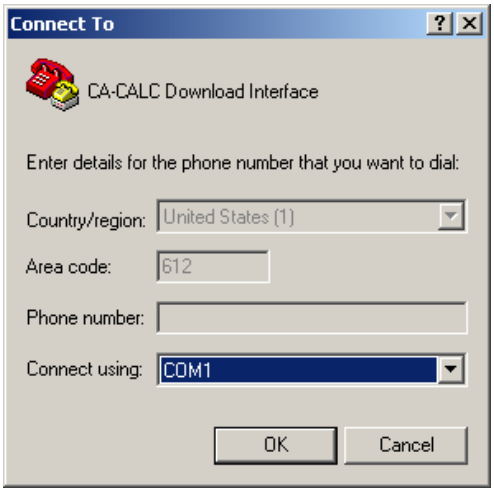
## Setting up HyperTerminal® Program to Work with TSI CA-CALC™ Combustion Analyzers

**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.

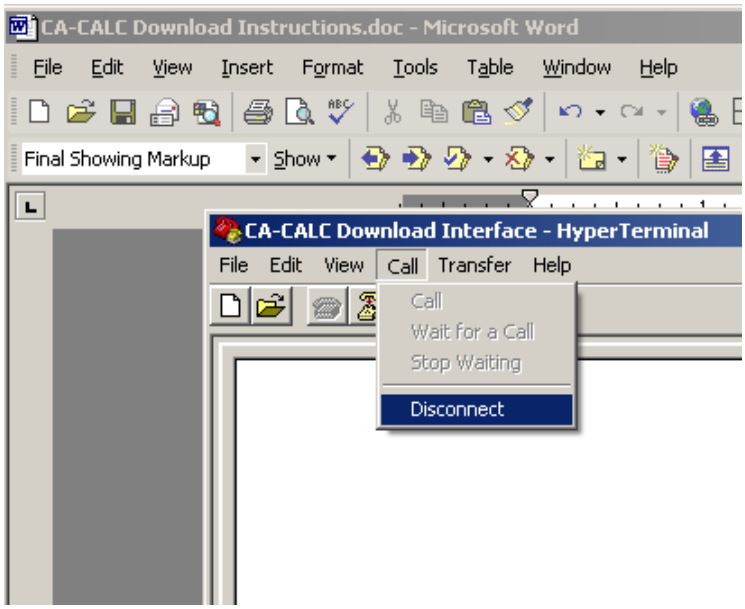


2. Select the desired COM port from the “Connect using” menu. (The ports most often used are COM1 or COM2). Click **OK**. Some versions of HyperTerminal® program will go to the window shown in step 4, “Change Your Port Settings to Match the Settings on your CA-CALC Combustion Analyzer”, of the next section

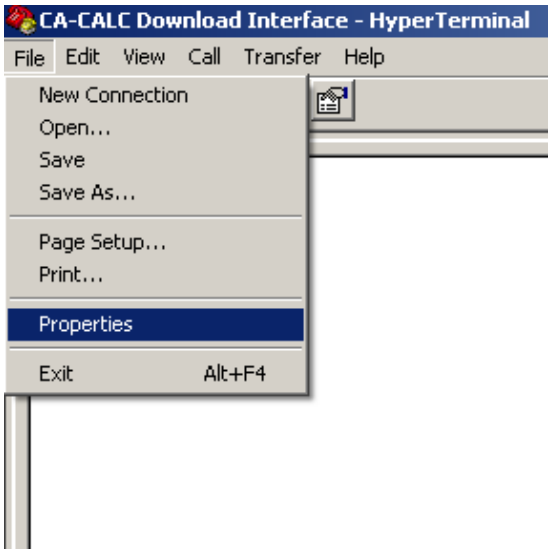



## Change your Port Settings to Match the Settings on your CA-CALC™ Combustion Analyzer

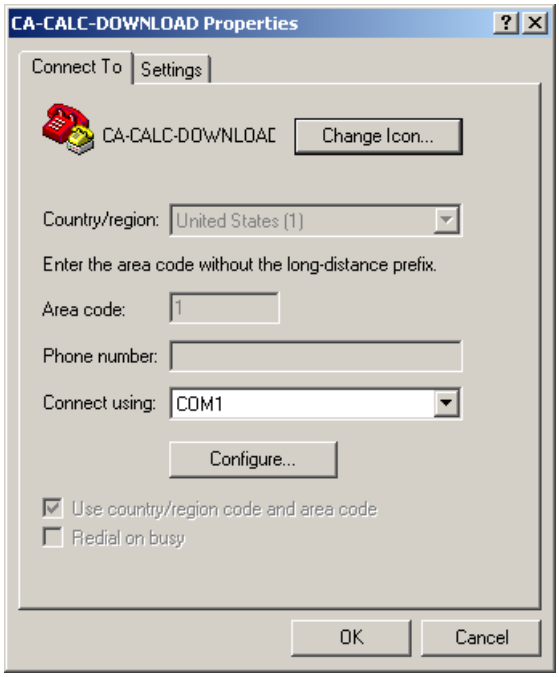
1. On the **Call** pull-down menu, select **Disconnect**. If it is not selectable, go to step 2.



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

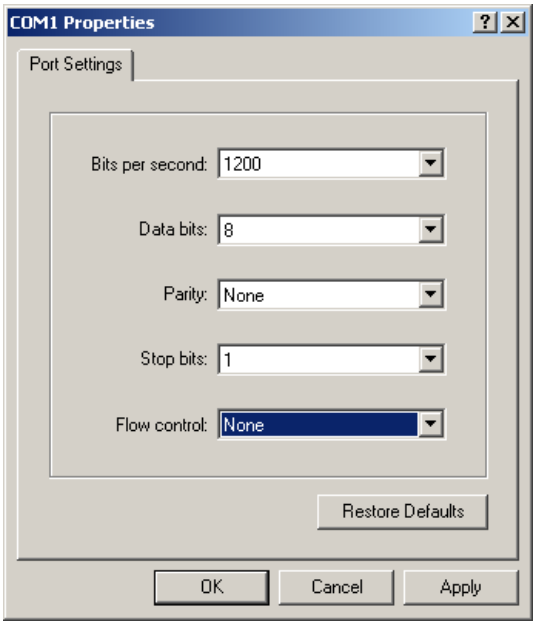



3. Click on the **Settings** tab.

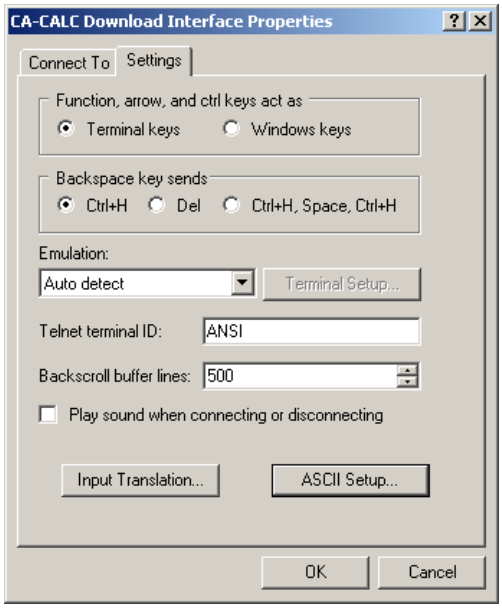


4. Set Port Settings as shown below. Click **OK**.

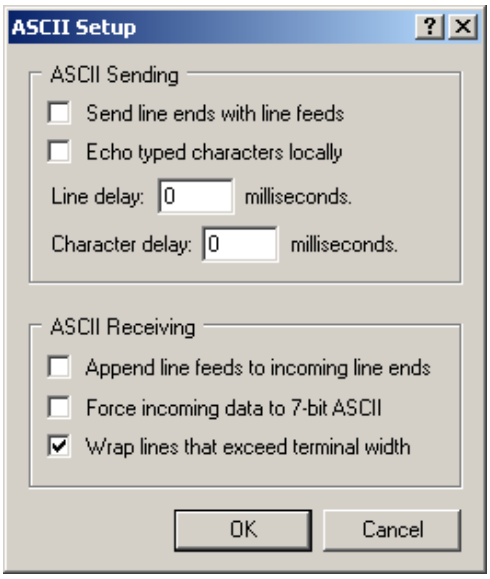
   Bits per second: 1200
   Data bits: 8
   Parity: None
   Stop bits: 1
   Flow control: None



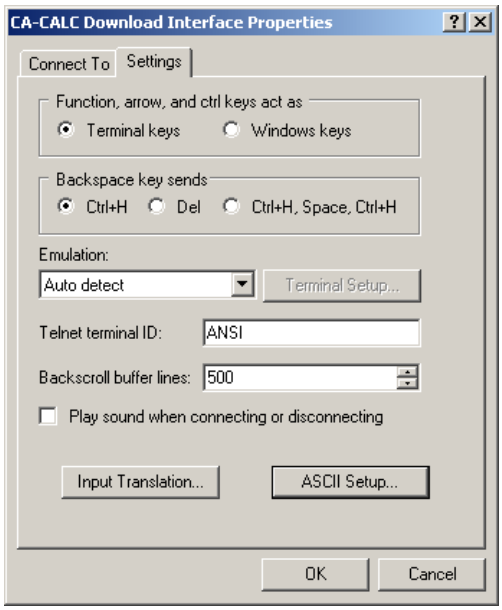

5. From the **File** menu at the top of the screen, select **Properties**. Click on **Settings**. Then click on **ASCII Setup**.



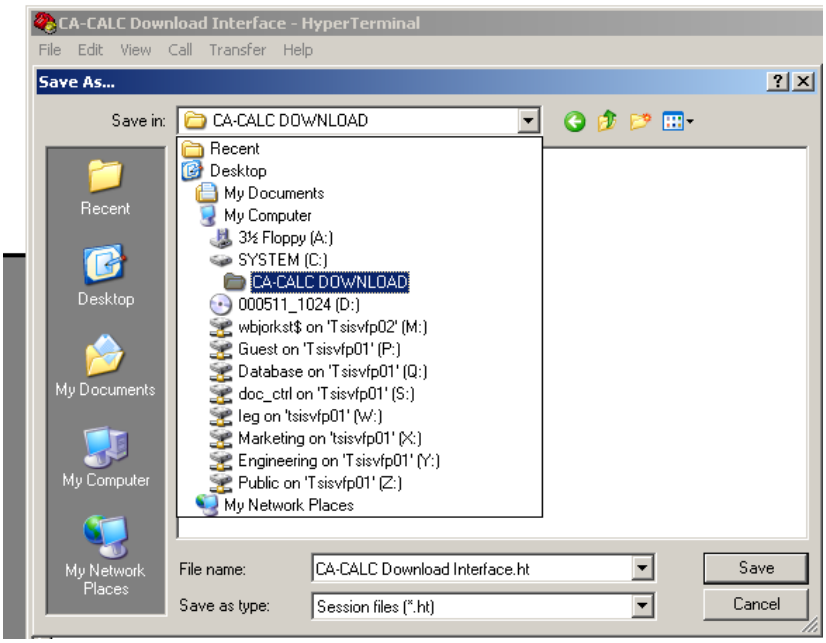
6. Make ASCII Setup selections as shown below, and then click **OK**.



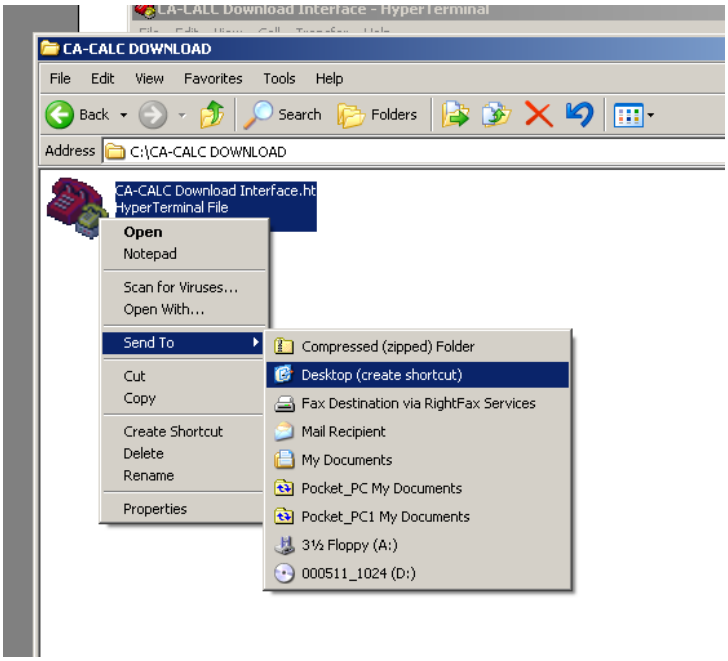

7. Click **OK** on the **Properties** window.



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 |

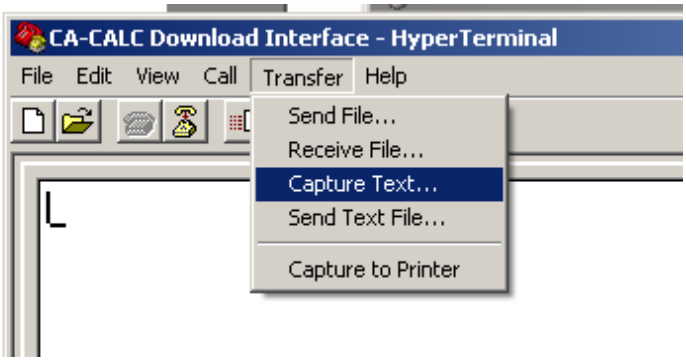
   Then, connect the CA-CALC™ Combustion Analyzer to your computer COM PORT 1 using a Computer Download Cable (TSI P/N 8940).

   **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.

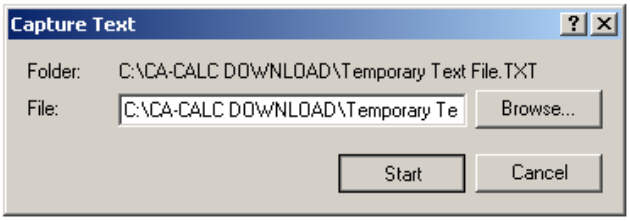
2. Open the HyperTerminal CA-CALC™ Combustion Analyzer Download Interface from the shortcut you created on your desktop.

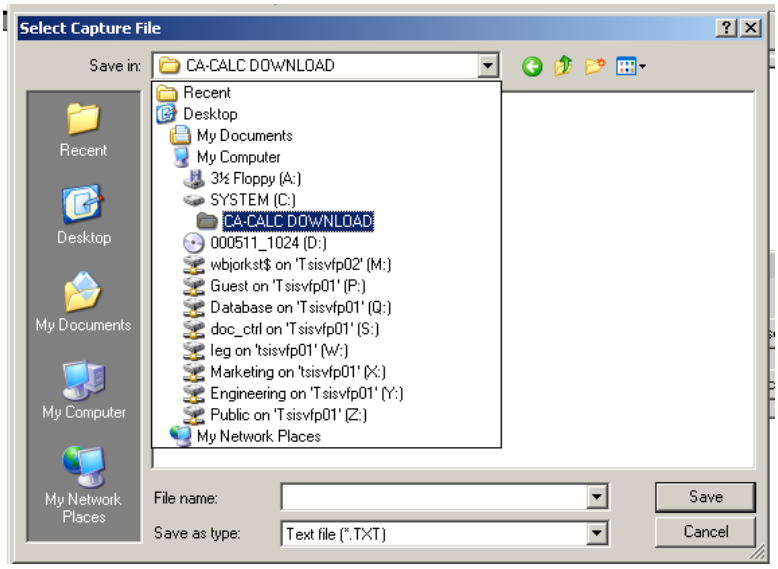
3. On the **Transfer** menu, select **Capture Text**.



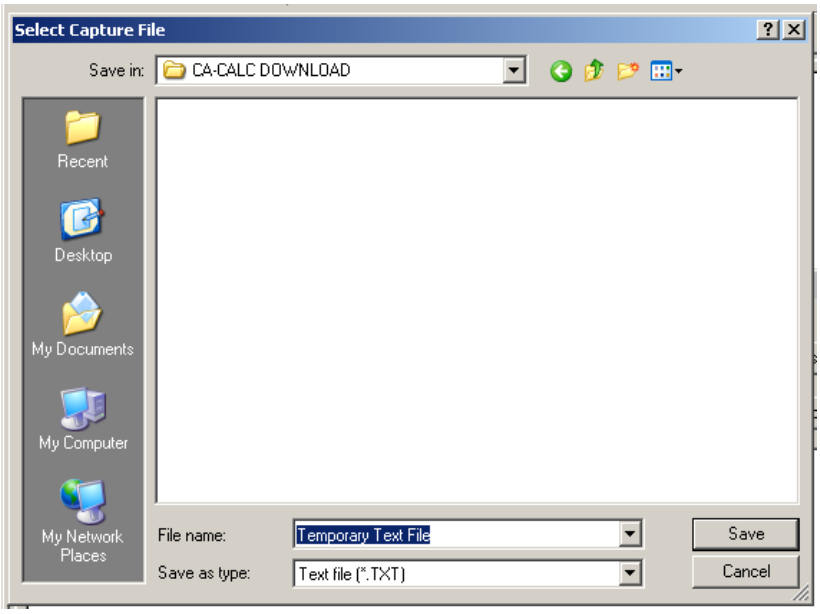

®HotSync is a registered trademark of Palm, Inc.

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

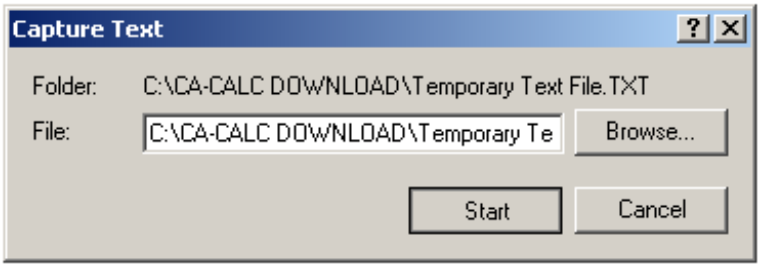



5. Type in the file name “TEMPORARY TEXT FILE”. Click **Save**.

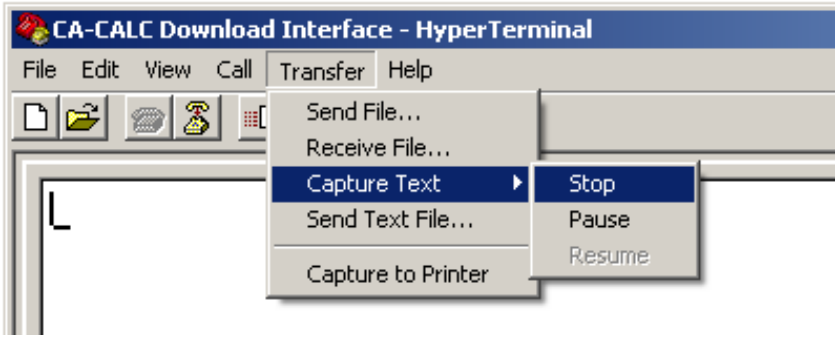


6. Click the **Start** button.




7. 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.

8. After you have completed downloading the data for this session, go to the **Transfer** menu and select **Capture Text** and **Stop**.

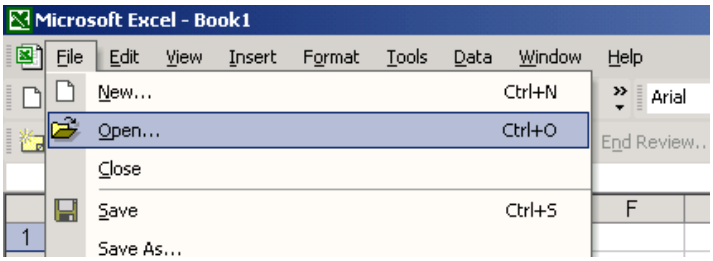



9. Close HyperTerminal.

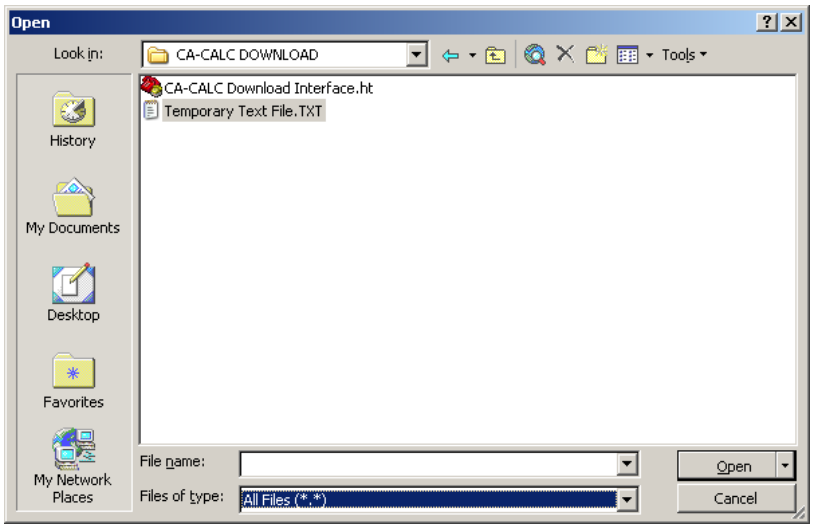
## View and Save Downloaded Data Files in Excel® Spreadsheet Software

1. Open Excel® software from a shortcut on your desktop or from the Start menu.

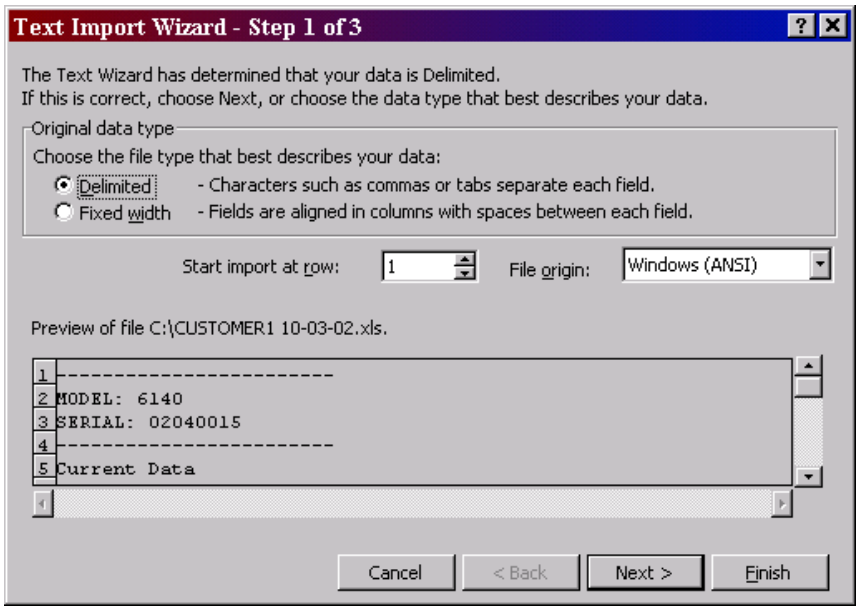
2. From the File drop-down menu, click on **Open**.



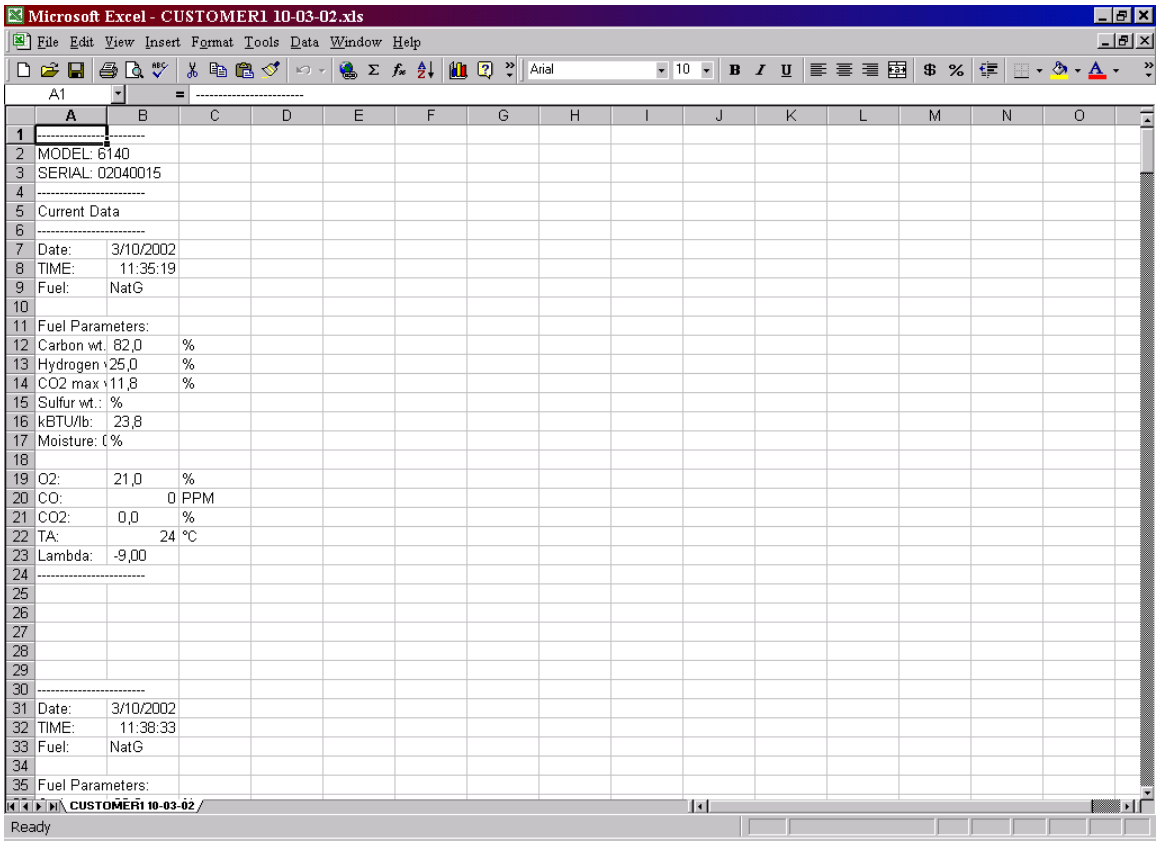
3. Change the Files of Type box from pull-down menu to read **All Files** (*.*). Open the file containing the saved data you downloaded.




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



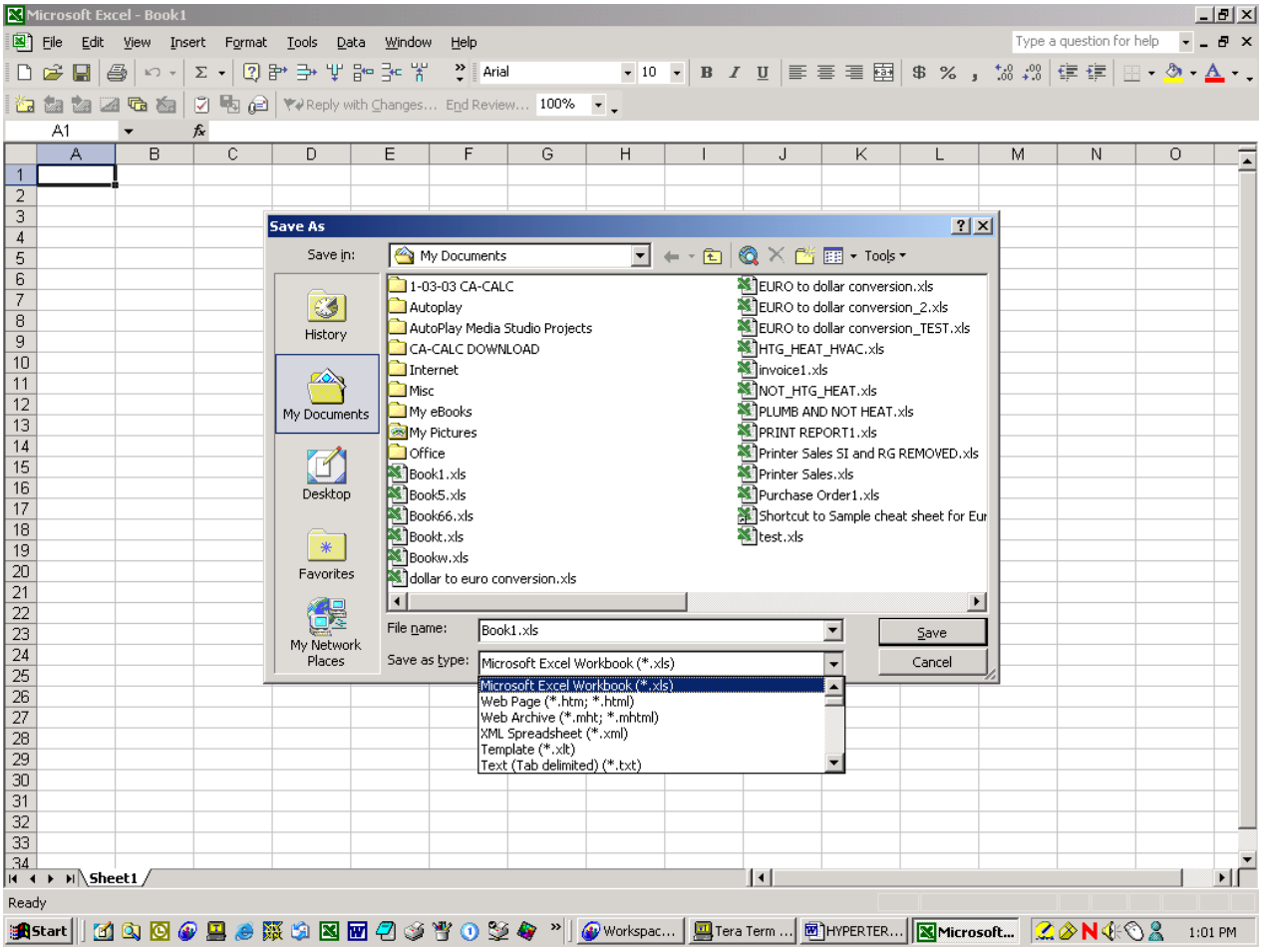
5. You will see data similar to the data shown below.




| | A | B | C |
|---|---|---|---|
| 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.


UNDERSTANDING, ACCELERATED

**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 | | |