LI-1800 Spectroradiometer Communications with "PC1800", HyperTerminal, and newer computers (dumping data)

There are a couple options to initially troubleshoot to see if this is a communication-related issue. (1) First, check to make sure the Serial Cable is the same one that has been used successfully in the past. If the Serial Cable is new and one that typically has not been used before, make sure it is the correct type. There are two different types of Serial Cables that are largely used with instrumentation, the 'Null Modem' Serial Cable and the 'Straight Through' Serial Cable. The LI-1800 will not communicate if the Serial Cable is the 'Null Modem' variety, the cable needs to be a 'Straight Through" cable. This includes any gender-changers and pin-adapters that might be used in the conjunction with the cables. Make sure to connect the cable to the 25-pin 'Terminal Port' and not the 'Output Port'. If you have either the 1800-01, -01A, or -01B Portable Terminal, disconnect this from the System since you will use the Computer instead. Further details on this can be found in the LI-1800 Manual in the Section titled, "Interfacing the LI-1800". (2) Secondly, verify that the correct COM Port is chosen, according to where the cable is connected to the computer. Try to connect directly to the RS232 Serial Port of the computer. If these are both okay, proceed with the solution below.

LI-COR is aware that the DOS-based software program for the LI-1800 Spectroradiometer, "PC1800.exe" experiences communications problems when run on newer computers with newer Windows Operating Systems, such as Windows XP. The "PC1800.exe" software program will launch when run on Windows XP, but will probably demonstrate strange behavior when trying to interface with the LI-1800 instrument. Examples of this strange behavior may include, but are not limited to:

- Newly created scan files may not show up in the LI-1800 memory bank when a file list is created. It may take several attempts at creating a file list for the file to appear.
- If a scan file does appear in the file list, "PC1800" software may not be able to display (View) the file. A possible error message may indicate that "File is too large" or "File cannot be found". Again, after several attempts at viewing the file, it might work properly.
- When keying in parameters (using the PA command from the terminal prompt), "PC1800" software may not accept some of the parameters that were entered.
- No indication of communications at all.

There are a couple of options to pursue to establish this communications path:

1. Run "PC1800.exe" on an older computer with Windows 95 or 98 Operating Systems. Compatibility with Windows 2000 is uncertain. The problem with running a DOS communications program on Windows XP is apparently in how the operating system allocates resources to the Serial Port. Attempting to run "PC1800" in Windows 95 or 98 'compatibility mode' does NOT solve the problem, nor does changing settings for the Serial Port. If an older computer is available, continue to use it for communications with the LI-1800 instrument.

2. Successful communications with the LI-1800 can be established on computers with a Windows program called "HyperTerminal". Users can still utilize the "PC1800" software for analysis and computations. This software will still work on the computer; there is only a problem with the communication process. Below is a list of the steps/procedures to establish communications.

   First, locate the "HyperTerminal" program on the computer. This should be under the [Start] menu -> Programs -> Accessories -> Communications -> HyperTerminal. (Different versions of Windows may have it this program stored in different locations and Windows Vista will not have this program at all).

After selecting "HyperTerminal" a small message window may appear. It may ask if to make this the 'default' program. Answer 'no' for this.

Another new window might open, labeled "Location Information" and ask for phone numbers. Press the [cancel] button to exit. Another message window may open asking to continue with the 'cancel', press [yes]. Click [OK] on the next window before the new "HyperTerminal" window finally opens.

There should be a new window labeled "Connection Description". Enter a new Name for this connection, for example, "1800" or "licor". Also choose an Icon from the list to use. Press [OK].

The "Location Information" window may open again. If so, press the [cancel] button to exit. Again, to continue with the 'cancel', press [yes]. Then click [OK] to continue.

A new window should open up labeled "Connect To". Leave the "Country/Region", "Area code", and "Phone Number" all blank. However, for the entry, "Connect Using:", change this to COM1 (or the appropriate Comm Port). The labels above should 'gray out'. Press [OK].

Another window will open, this one labeled "COM1 Properties". Change the settings to the values listed below:

- Bits Per Second - 4800
- Data Bits - 8
- Parity - None
- Stop Bits - 2
- Flow Control – None

Click on the [Apply] button after making the appropriate changes, and then press [OK] when done.

The main screen of "HyperTerminal" should now open up and it should say 'connected' in the lower left corner.

Turn on the LI-1800 Spectroradiometer.

Press [ENTER] on your computer's keyboard.

The initialization message from the LI-1800 should appear with the date and time. Then a "FCT:" prompt should appear

Remember to only give the LI-1800 instrument commands in CAPITAL LETTERS.

To collect data from a scan:

At the "FCT:" prompt enter SC and proceed with the scan as normal.

Back in the "HyperTerminal" program, click on the "Transfer" pull down menu and move down to select "Capture Text...".

Select a destination folder and a file name. Choose a location that is easy to access.

At the "FCT:" prompt enter SH and follow the steps to show the data file. The instrument will show data on the "HyperTerminal" screen, and it will also be capturing the data in the (.txt) file.

When the scan is complete, click on the "Transfer" pull down menu again and select "Capture Text - Stop".

If planning to analyze the data in Excel:

Import the text file, delete the extra lines from the beginning, and the file is ready.

If planning to analyze the data in the "PC1800" software:

Locate the (.txt) file with Windows Explorer and rename it to a (.prn) file with a name that is 8 characters or less. Since this is a DOS program, it is not recommended that you use long file names. Similarly, try to place the file in a folder with a short name (and the names of any folders that are in that path should also have shorter names). For example, C:\TEMP\TEMP.PRN.

Open the file with Notepad on the computer and edit the header formatting. Delete some extra lines from the captured data and then re-format the required header lines. Here is an example of a file that "PC1800" will recognize:

        "FILE:LAB1"
        "REM: BENT PLOT 5 REF "
        "LIMS: 300-350NM"
        "INT: 1NM"
        "DATE: 08/27 12:16"
        "MIN: 337NM -.4000E 010"
        "MAX: 311NM .1000E 0100"
        300 -.1000E 01
        301 -.3000E 01
        302 .0000E 00
        303 -.2000E 01
        etc., etc., etc.

Be sure that all of the quotes, spaces, etc. are correct or "PC1800" will not read the file.

Open "PC1800.exe".
(Tip: Since this is a DOS program, the mouse will not work in this program screen. To choose menu items, move the highlighted indicator by using the up-and-down arrows or by simply entering the letter of the menu option).

Enter the "Config" menu, and using the down arrow key, scroll to the label, "Data Disk Path:". Change this to reflect the location of the (.prn) file. Remember, if any of the folder names are longer than 8 characters, use the (~1) notation (For example, "Program Files" becomes "Progra~1"). Do not include the actual file name here. Using our earlier example, enter only, C:\TEMP\

Move down to the next selection. Make sure the "Source/Path" is set to PC/LI-1800 (not LI-1800/PC). If this needs to be changed, do so by using the right-arrow key.

When done with these changes, press [esc] to get back to the main menu.

Next, enter the "File Operations" menu

Move down and select "Text -> Bin". Press [enter] and a new window will open with the file choice(s).
Use the arrow keys to highlight the desired file and press [ENTER] to select it. Then press [esc].

Wait a few seconds.

While still in the "File Operations" menu, go to the "List/Select" menu.

Use the arrow keys to highlight the file and press [ENTER] to select it.

Normal functions can now be performed as usual, if the data been downloaded using the old method.

We are confident that this procedure works with the LI-1800 cables (1800-04) directly connected, but it should also still work with a USB-to-RS-232 Serial Port Adapter. The USB-to-RS-232 Adapter needs to be installed correctly (using the adapter's installation driver) and have the correct COM Port Number for the USB port, then the communication channel should be open. We have found that different manufacturers' brands of Adapters have different specifications that can affect their compatibility with LI-COR products. We can provide a compatible adapter if needed.