

LI-1800 Spectroradiometer will not communicate or will not power on

The LI-1800 Spectroradiometer does not have an LED or other indicative measure to signify that the LI-1800 is properly powered on. The LI-1800 may not power on due to an old battery or a bad power switch. However, both of these might be okay, and the issue is with the communication between the LI-1800 and a computer. Without communication available, this might give the appearance that the LI-1800 is not being properly powered.

To examine possible communication errors:

There are a couple of options to troubleshoot to see if this is a communication issue. 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. 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". Also verify that the correct COM Port is being used. The cable needs to be a 'Straight Through' cable connection, from instrument to computer.

Next, LI-COR is aware that the DOS-based software program for the LI-1800 Spectroradiometer, "PC1800.exe" experiences communications problems when run on 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 experience some strange behavior from the program 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.

If the Serial Cable is correct, but the computer has a newer Operating System, then see the 'Solution' titled: ["LI-1800 Spectroradiometer communications with "PC1800", HyperTerminal, and newer computers \(dumping data\)"](#)

To examine the other possible LI-1800 power issues:

There are three main points to troubleshoot to determine whether this is a power-related issue or a communication issue. First, the issue may be related to a bad (old) **Internal Battery**. The LI-1800 Spectroradiometer is wired in such a way that the AC line power is transformed through the internal battery to convert a DC voltage to operate the instrument. So even if the LI-1800 is plugged into AC Power, the instrument may not power on if the internal battery is not functional. In addition, it is not good for the LI-1800 and Internal Battery to be used with continuous AC power because of this transformation.

The User may encounter 'freezes' in the software, where the LI-1800 displays a continuous message and won't progress any further. This can happen while using the Portable Terminal or when using a Computer.

The Internal Battery can be recharged after it has been drained. However, over years of continuous usage and recharging, the battery may not be able to hold its charge any longer. Similarly, if the LI-1800 has been sitting unused for a period of several years, the battery may be discharged and is unable to hold a sustained voltage level after recharging.

Further description about the Internal Battery can be found in the LI-1800 Manual. (Due to different versions of LI-1800 Manuals, this may be found in different locations). Typically this can be found in Section I Pre-Operation, sub-section 1.3, "The Internal Battery". Once the battery voltage drops to 5.3 volts, the LI-1800 will automatically switch OFF to prevent erratic operation. There are instructions for charging the Internal Battery also located in the Manual. Again, this can be found in different locations, but typically can be found in Section VI Maintenance, sub-section 6.6, "The Internal Battery".

See the figures to the right with basic instructions on how to open the LI-1800 case to access the Internal Battery. This is also described in Section 6.4 (in most Manuals) titled, "Removing the Cover".

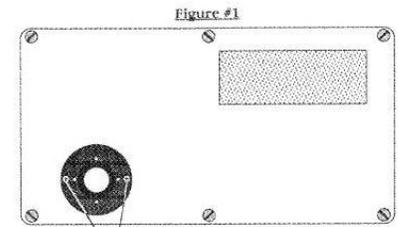
A voltmeter can be used to measure the voltage across this battery. Check the voltage shortly after a 16-hour recharging session. Monitor the maximum voltage that the battery is holding. A new, freshly charged battery should hold between 6 and 7 volts DC. This can periodically be checked over the next few hours as well to verify its 'holding power'. If a new battery is needed, LI-COR still carries these batteries in its inventory. The part number for a rechargeable replacement battery is **3000B**.

Make sure you don't leave the LI-1800 plugged in and charging for longer than 24-hours. This will damage the battery over time as it continues to 'trickle charge'. This causes the Battery to lose its capacity. During periods of non-use, recharge the Battery every two months. There is a small current drain for memory retention and time keeping.

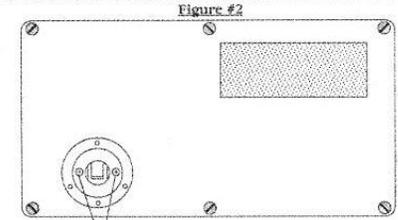
Also verify that none of the **Fuses** are blown. This can cause the LI-1800 to not power on and will also prevent the recharging of the Internal Battery. See Section 6.3 (in most Manuals) titled, "Fuses".

Finally, if everything else seems to be in working order (correct serial cable, correct Windows operating system (or HyperTerminal), correct battery voltage of 6 to 7 volts, correct COM ports, etc.), there may be a problem with the **Power Switch** on the LI-1800.

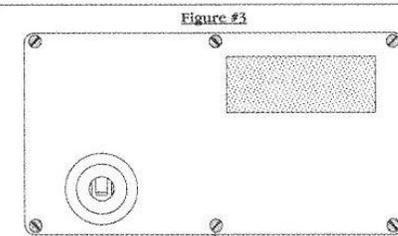
Sometimes a User may be able to toggle this switch a little bit (pushing with a little more force, for example), causing the switch to power on the LI-1800. However, this indicates that the switch is indeed beginning to fail and will need to eventually be replaced.



Remove these two screws and remove the Cosine Receptor



Remove these two screws



Loosen the six lid retaining screws and remove lid