

Checking and Changing Your GLOBE Sun Photometer Battery

Lab Guide

Task

Check the battery in the sun photometer and replace it if necessary.

What You Need

- Small Phillips-head screwdriver
- Voltmeter
- Any standard, new 9 V battery if the old battery needs replacing (rechargeable batteries are not recommended for this instrument)

In the Lab

1. Open the case by removing the four screws in the cover.
Do not remove the printed circuit board or disturb the electronics in any way.
Do not touch the front surface of the LED detectors (the round green and red devices on the front of the printed circuit board).
2. With the instrument turned on, use a voltmeter to measure the voltage across the two connectors on the battery holder.
Note that new 9-volt batteries typically produce voltages greater than 9 V, and can even produce voltages in excess of 10 V.
3. If the voltage is less than 7.5 V, replace the battery. Any standard 9 V battery is OK. Alkaline batteries are more expensive than other types and are not required. Note that the connectors on the + and - terminals are different, so the battery will fit in its holder only one way. Rechargeable batteries are not recommended for this instrument.
4. When you are done, check the operation of your sun photometer by letting sunlight shine on the LED detectors. You do not have to replace the cover while you are performing this test. Whenever an LED is not shadowed, you should see a voltage substantially larger than the “dark” voltage.
5. When you are sure the photometer is working, replace the cover. If your sun photometer has a foam strip on the lid, make sure the cover is oriented so this strip pushes against the top of the printed circuit board. Tighten the screws until they are snug, but do not force them.