

A Quick Guide to Calibrating the SC-1 Porometer

For more information, see the **SC-1 User's Manual**

When should I calibrate my Leaf Porometer?

- Every day and,
- If environmental conditions change more than 15 C or 20% humidity

Precautions

- DO NOT get water on the leaf porometer clip. If you do, be sure to dry thoroughly before calibrating or making a measurement
- DO NOT get fingers near Teflon filter on leaf clip during calibration or measurement
- NEVER breathe or blow on the sensor

Before Starting

1. You must calibrate the porometer under field conditions.
2. The leaf clip must be in thermal equilibrium with the environment. This may take 10 minutes or more if the clip starts at a very different temperature (e.g. air conditioned vehicle or office)
3. Assemble a complete calibration kit:
 - calibration plate
 - filter paper
 - distilled water
 - tweezers

Calibrating the Sensor

1. Use the "Menu" button to select the Configuration menu. Select the Calibration submenu and then Calibrate
2. Enter sensor serial number found on cable tag
3. Open sensor head and wave in air to mix air in sensor head

4. Wetting the filter paper correctly is critical to a good calibration. The filter paper must be wet, but have no excess water.

- Saturate filter paper with DI water from dropper bottle
- Using tweezers, give the filter paper a sharp flick of the wrist or two to knock off any excess water
- Once you have wet the filter paper, DO NOT re-wet during the calibration
- If the filter paper dries and falls off the calibration plate, re-wet and re-start the calibration at the beginning
- See user manual and online video for more detailed information on wetting the filter paper correctly

5. Lay the filter paper over the hole in the calibration plate on the side marked "Filter Paper"

- The filter paper must lay flat across the hole
- The filter paper must cover the entire hole
- Check to make sure that no water wicks into the hole from the filter paper

6. Attach sensor head

- Moist filter must be in place and flat
- Orient calibration plate with "Metal Block" toward the aluminum side of the leaf clip
- Calibration plate must be inserted until aluminum block seats firmly against hard stop

7. Hydrating sensor

- Sensor hydration takes 3 minutes
- Do not remove calibration plate during hydration
- Do not set sensor head on Teflon filter. The water vapor must be able to diffuse freely to the atmosphere. Set the porometer head on its side or upside down.

8. Equilibrate to ambient conditions
 - Sensors must be equilibrated back to ambient conditions
 - Opening the sensor head and waving in air speeds the process
 - When the indicator bar reaches “AMB”, you will be prompted to attach the sensor head and begin a calibration measurement

9. Calibration measurements
 - Follow instructions in #6 above to attach sensor head
 - 30 second measurement will start
 - Hold the sensor head still or set it down during the 30 second measurements
 - When the measurement is finished, you will need to equilibrate (#8 above) and re-attach sensor head (#6 above) to start another calibration measurement
 - You will need to repeat the calibration

measurement up to 10 times until stable measurements are achieved.

- The Leaf Porometer will alert you when the calibration is complete.
- If the you take 10 calibration measurements and don't achieve stable readings, see Calibration chapter in user manual for troubleshooting tips

10. Accuracy Verification

It is always a good idea to verify that the calibration was effective. If you wish to do this, go to the measurement menu and make a measurement on the calibration plate. The verification should be conducted immediately after the calibration has finished, and without re-wetting the filter paper. The measured conductance should be close to $240 \text{ mmol m}^{-2} \text{ s}^{-1}$.