



VOLUNTEER MONITORING FOR SHALE GAS IMPACTS LaMotte Tracer PockeTester

LaMotte Tracer PockeTester Basics

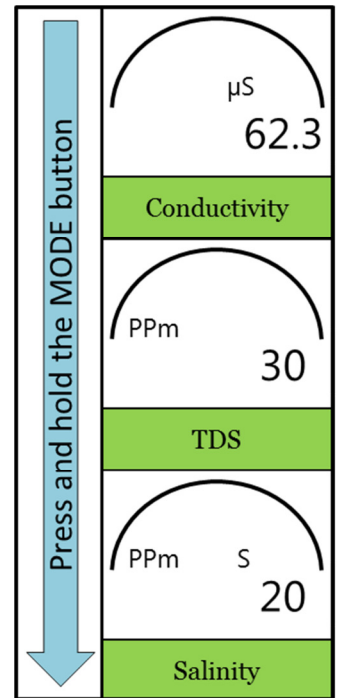
The LaMotte meter has three measurements modes:

- 1) Conductivity
- 2) Total dissolved solids (TDS)
- 3) Salinity

You will need to cycle through the three modes when using the meter by pressing and holding the MODE button. The ALLARM Shale Gas Volunteer Monitoring Protocol uses the meter to test for conductivity and TDS.

Calibrate your meter at home every time before going streamside to monitor.

- If you monitor several sites in one day, calibrate the meter only once on that day.
- If you monitor several sites over several days, calibrate the meter every day before you monitor.
- If you are doing a dual calibration, calibrate the low range first, keep the meter on and then do the middle range. We recommend a dual calibration for sites where conductivity is less than 500 $\mu\text{S}/\text{cm}$.

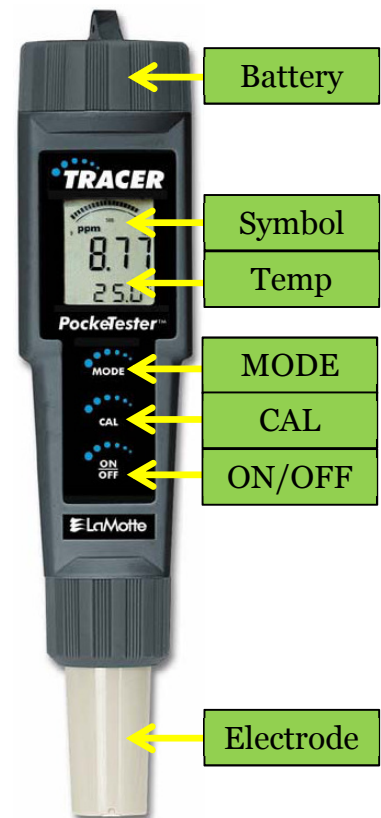


Step #1: Calibrate the Meter (home) option for single or dual calibration.

1. Turn the meter on – press the **ON/OFF** button.
2. Take the cap covering the electrodes off.
3. Set the meter to conductivity mode – μS will be displayed above the reading (see diagram for symbols). To change modes, press and hold the **MODE** button until it switches modes (~3 seconds), then immediately release the button. Repeat until μS is displayed on the screen.
Tip: If the meter enters the “hold” mode, press the mode button to exit.
4. Shake the bottle of 84 $\mu\text{S}/\text{cm}$ or 1413 $\mu\text{S}/\text{cm}$ calibration solution and pour ~20 mL of solution into the calibration vial.

If doing a dual calibration you must start with low range 84 $\mu\text{S}/\text{cm}$, keep the meter on and then do the middle range 1413 $\mu\text{S}/\text{cm}$. If you are doing a single calibration, use the middle range 1413 $\mu\text{S}/\text{cm}$.

5. Place the electrode into the solution, and allow the reading to stabilize. This may take up to two minutes.
6. Once the reading is stable, press and hold the **CAL** button for ~2 seconds, until **CAL** appears on the bottom of the screen and **84** or **1413** flashes. When the meter has been calibrated, **SA** and **End** will briefly flash and the meter will return to the conductivity measurement mode. **SA** will not flash if the calibration fails.
7. Rinse the electrode with distilled water, shake dry, and turn the meter off.
8. Make a note on your data sheet that you calibrated your meter – step #4 on the ALLARM Chemical and Stage Monitoring Data Sheet.



Step #2: Measure Conductivity (stream-side)

1. Turn the meter on – press the **ON/OFF** button.
2. Take the cap covering the electrodes off.
3. Set the meter to conductivity mode – **μS** will be displayed above the reading (see diagram for symbols). To change modes, press and hold the **MODE** button until it switches modes (~3 seconds), then immediately release the button. Repeat until **μS** is displayed on the screen.
4. Place the electrode into the water so that it is fully covered – either directly into the stream or your stream testing bottle. Allow the reading to stabilize, this may take up to two minutes.
5. Record the conductivity measurement on your data sheet.

An instructional video on how to use the meter can be viewed at:
http://www.youtube.com/watch?v=zECBNcey_BA.

Visit ALLARM's Shale Gas Monitoring Toolkit for additional monitoring resources at:
<http://blogs.dickinson.edu/marcellusmonitoring/>.

Step #3: Measure Total Dissolved Solids (stream-side)

1. Change the meter to total dissolved solids mode. Press and hold the **MODE** button for ~3 seconds – **Tds** will flash on the bottom of the screen and **PPm** will be displayed above the reading.
2. Allow the reading to stabilize.
3. Record the total dissolved solids measurement on your data sheet.

Step #4: Replicates & Wrap-up (stream-side)

1. Repeat steps #2 and #3 to measure the second replicates for each parameter.
2. Press and hold the **MODE** button to switch from TDS to salinity.
3. Press and hold the **MODE** button to change from salinity to conductivity mode (**μS** will be displayed above the reading).
4. Record the second conductivity and TDS results on your data sheet.
5. Average the two replicates for each parameter and record the average value on your data sheet.
6. Rinse the meter with distilled water, shake dry, and turn the meter off – press the **ON/OFF** button.

Troubleshooting the LaMotte Tracer PockeTester

If you are having difficulties calibrating or using your meter, try the following options:

Reset the meter	Replace the batteries
<ol style="list-style-type: none">1. Turn the meter off.2. Simultaneously press the ON/OFF, CAL, and MODE buttons momentarily. "dFlt" will be displayed on the screen.	<p>The batteries in the PockeTester will need to be replaced every 2-5 years, depending on use. There is a low battery indicator on the meter that displays "BAT" when the batteries become weak. You can find replacement batteries (CR2032) at any local box/grocery/home improvement store or online. Four new batteries cost ~\$2. Replace the batteries following the instructions above.</p>

For additional help troubleshooting your meter, contact ALLARM.