

Sonic Meter®: How to Calibrate Your Tank

Your tank's intensity will vary over its volume. To properly calibrate your tank using the Sonic Meter®, we use a process called tank mapping in order to determine the overall average of the tank.

Select the 2nd menu option to begin taking the average at a particular location. The starting point is to set the averaging parameters to 1 sec samples over a 10 sec period. With the probe immersed in the tank, take 10 to 20 readings at different locations using the averaging function. After you are done, take the 10 or 20 readings and average them. This number will give you the average output of your tank. You can do this several times to see how much your final average varies. The average intensity output is the number you use for the final calibration of the tanks.

What influences a change in the overall average reading when comparing the last tank calibration to your latest calibration?

1. Cleaning fluid, a change in chemistry will affect your readings. Keep the chemistry constant.
2. Degas or not, make sure to degas or your readings will vary. Follow the tank's recommended degas procedure.
3. Temperature, make sure your tank has been running for 5 to 10 minutes.
4. Degradation of the ultrasonic transducer(s). Tank's age.
5. Operator error.

Number 5 can be more tightly controlled by making a plate that fits over your tank. The plate would have an array of holes evenly spaced covering the entire surface where the probe can slide into each hole. Then a depth stop (ring collar) can be made to fit over the probe in order to provide the same height for each measurement (initially, you could use tape to show your depth position along with a lab stand for supporting the probe). Now take 10 or 20 measurements over the tank's volume at roughly the same depth location using the averaging function for each location. If you want higher confidence in your overall average, increase the number of data points by taking more measurements at different depth locations.