

## Additional Information About Calibrating TDS/EC Meters and Testers

Any brand TDS meter can be calibrated to any brand of calibration solution.

The issues are 1) what the calibration solution composition is; and 2) what the value of that calibration solution is.

### Calibration Solution Composition

The calibration solution composition should match the conversion factor of the meter. HM Digital's TDS-3, for example, uses the NaCl conversion factor, so a NaCl calibration solution should be used. HM Digital's COM-100 uses one of three selectable conversion factors (NaCl, 442 or KCl), so any of these three types of calibration solutions can be used for the COM-100.

It should be noted that calibration compositions have equivalent values in alternate compositions. Better brands of calibration solutions print the equivalent values directly on the label or in the instructions. For example, 1060 ppm KCl = 1000 ppm NaCl. Therefore, if you have a 1060 ppm KCl calibration solution, but a meter with the NaCl conversion factor, such as the TDS-3, you can still calibrate the TDS-3 with the KCl calibration solution. In other words, if putting the TDS-3 into a 1060 ppm KCl solution, the meter should read 1000 ppm.

For EC meters, there is no conversion factor, so the points above are not relevant.

**\*\*Note** - Some brands do not print the calibration solution composition on the label. Though NaCl is the most common, it is always recommended to contact the calibration solution manufacturer for verification of the composition.

### Calibration Solution Values

All of HM Digital meters can be calibrated to any point within the range of the meter. For example, the TDS-4 has a range of 0-9990 ppm. Therefore, it can be calibrated to any point within that range. The COM-100 has varying ranges depending upon the conversion factor that is selected. On the TDS side, these ranges are



from 0-5000 ppm to 0-8560 ppm. On the EC side, the COM-100's range is 0-9990  $\mu$ S. Therefore, the COM-100 can be calibrated to any value within the selected range.

Certain brands of TDS/EC meters can only be calibrated to specific values that are pre-programmed into the meter. HM Digital does not do this.

### Benefits of HM Digital's TDS/EC Calibration Solutions

*Laboratory quality NIST-traceable solutions*

Solutions list alternate composition equivalents on the bottle labels.

Bottles are a convenient 3 oz. (88 ml) size - neither too big nor too small.

Bottles have a convenient wide mouth, allowing a user to simply insert the meter into a stable bottle (much easier to use than a wobbly Mylar pouch).

### Additional Notes about TDS/EC Meters and Calibration

For best results, a meter should be calibrated as close as possible to what will be tested. For example, if the water you are testing is always around 150 ppm, then the meter should be calibrated as close to 150 ppm as possible.

If you are testing a range of values, the meter should be calibrated to the upper third of that range. For example, if you are testing RO water and tap water, and the RO water is approximately 0-10 ppm and the tap water is typically 400-500 ppm, the meter should be calibrated to approximately 350 ppm.

The average tap water in the U.S. is approximately 350 ppm (though this varies widely from location to location and can be anywhere from zero to greater than 1000 ppm). Therefore, HM Digital factory calibrates our meters to 342 ppm.

All HM Digital meters are factory calibrated. Therefore, calibration is not necessary out of the box. Typically, with proper care and normal usage, HM Digital TDS and EC meters will retain their calibration for at least a year.

Only calibrate a meter if you are sure you need to. As a general rule of thumb, if you are unsure if you need to calibrate, you probably don't. It is always safer not to calibrate than to attempt doing so.

Though calibrating correctly will improve results, for normal usage and ranges, the difference will not be dramatic.

Never calibrate a meter to the air.

Never calibrate a meter to distilled water.

Never calibrate a meter to tap water, or any water or solution that is not certified.

HM Digital calibration solutions have a shelf life of approximately 1 year unopened.

Once opened, HM Digital calibration solutions have a shelf life of approximately 6 months, if properly stored and not contaminated.

All calibration solutions should be stored in a cool place, out of the heat and sun.

Contamination can occur if dipping a meter in water or a second calibration solution with a different value, and then dipping that meter back into the first calibration solution. The droplets from the water and other calibration solution will change the value. If testing between water and a calibration solution, always let the meter air dry or spray it with a compressed air can to avoid contamination.



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