



## Features

- Highly efficient and accurate due to its advanced microprocessor technology.
- Hold Function: saves measurements for convenient reading and recording.
- Auto-off function: the meter shuts off automatically after 10 minutes of non-use to conserve batteries.
- Measurement Range: 0-9990 ppm. From 0-999 ppm, the resolution is in increments of 1ppm. From 1000 to 9990 ppm, the resolution is in increments of 10ppm, indicated by a blinking 'x10' image.
- Display: large and easy-to-read LCD screen.
- Factory Calibrated: our meters are calibrated with a 342 ppm NaCl solution. Meters can be recalibrated with a mini-screwdriver.
- Fun, translucent blue housing that's very strong and durable.
- Includes a TDS chart sticker on the back of the meter that explains TDS values.

## Specifications

**Range:** 0 - 9990 ppm (mg/L)

**Resolution:** 1 ppm (0-999 ppm); 10 ppm (1000-9990 ppm)

**Accuracy:** +/- 3%

**Power source:** 2 x 1.5V button cell batteries (included)

**Battery life:** Approx. 1000 hours of usage

**Dimensions:** 15.5 x 3.1 x 2.3cm (6.1 x 1.25 x 1 inches)

**Meter weight:** 56.7g (2 oz)

**Weight with package:** 76.5g (2.7 oz)

## Care & Maintenance

1. Do not drop or completely submerge the unit in water or dip beyond the maximum immersion level. This unit is not watertight and is not covered under the warranty if water gets into the unit. (NOTE - The COM-100 is watertight and completely submersible. Please ensure that the battery compartment and probe gasket ring are firmly tightened before submersing in water.)
2. Do not store the unit in high temperature or direct sunlight. This will shorten the lifespan of the product.
3. After repeated usage in high TDS water, it is advised to clean the electrodes to prevent residue build-up.
4. When necessary, clean the electrodes by soaking the tip in an acid (e.g., vinegar or diluted hydrochloric acid (muriatic acid)) and then rinsing well in water. If it is heavily fouled with organic material, soaking the tip in alcohol or bleach may help. Gentle wiping with a soft, nonabrasive cloth may also be acceptable.
5. The batteries may need to be replaced after extended usage or lifespan. To change the batteries, remove the top compartment of the meter (on the opposite end of the sensor) and insert new batteries according to the polarity of the diagram inside. For maximum life, use battery style SR-44 (silver oxide) button cell such as No. 357A, R1154 or GPS78E.

## **TDS Meter General Usage and Calibration Instructions:**

### **Proper Usage:**

- Immerse the meter in the water/solution up to the maximum immersion level (2").
- Lightly tap or stir the meter to remove any air bubbles.
  - *Pockets of air between the electrodes may interfere with the electrical current.*
- Wait 10-20 seconds for the reading to stabilize.
  - *In hot (or ice cold) water, wait 20-30 seconds for the meter to compensate for temperature. As the water temperature will adjust to room temperature, the reading will change to accommodate the proper compensation.*
- To ensure greater accuracy, turn the meter off and on for each reading.
- Shake any water off the meter after each use.
  - *This is to remove the droplets of water that may adhere to the surface between the sensors and the housing around them. These drops may interfere with readings.*
- Rinse in de-ionized water or other filtered water after use to ensure proper readings.
- Rinse in alcohol or acid after use in high-TDS beverages.
- The meter is not waterproof: Do not drop or submerge the unit in water.
- Do not store the unit in high temperature or direct sunlight.

### **Calibration:**

- The meters are factory-calibrated at 342ppm NaCl and designed to stay consistent.
  - *However, you may need to recalibrate your meter from time to time, or for certain applications. TDS meters are most accurate when calibrated as close as possible to the sample to be tested. For best results, calibrate at 25 °C (77 °F)*
- To ensure accuracy and consistency, recalibrate your meter using a commercial standard solution. This can be done prior to usage and should be done after prolonged usage.
- For drinking water, we recommend calibrating in a range of 90ppm to 700ppm

**Step 1:** Measure the TDS level of the solution (follow usage instruction above).

**Step 2:** If the meter does not read within 2% of the solution, adjust the reading by inserting a mini screwdriver into the trimmer pot (small hole on the rear of the meter). Gently turn the trimmer clockwise to increase the reading and counter clockwise to decrease the reading.

- *Make sure the screwdriver fits evenly into the groove of the screw.*
- *Note that the trimmer pot is very sensitive! Remove the screwdriver carefully.*
- *Try to keep the meter vertical.*

**Step 3:** Once the meter reads within 2% of the solution, gently release pressure on the screwdriver and remove from the trimmer pot.

– *If the screwdriver is retracted abruptly, the reading may jump.*

**Step 4:** With the meter in the solution and the reading at the correct level, press the 'HOLD' button. Let the reading hold for approximately 10 seconds to fully stabilize.

**Step 5:** Remove the meter from the solution. Shake it to remove any water drops that may adhere to the probes and casing, creating air gaps.

– *Water droplets or air gaps may cause the meter to display an incorrect reading.*

**Step 6:** Turn the meter off, wait a moment and turn the meter on again.

**Step 7:** Insert the meter into the solution and verify the reading. If the reading is accurate, calibration is complete. If not, repeat the procedure.

## **TDS**

Total Dissolved Solids correlates to the ability of water to conduct electricity. It is also an index used to determine the concentration of dissolved minerals. The more minerals that are dissolved, the more conductive the water will be. A TDS meter is calibrated to read in parts per million (PPM). TDS is the concentration of a solution as the total weight of dissolved solids. (1ppm = 1 milligram/litre). TDS is a mass estimate and is dependent upon the mix of nutrients as well as the concentration.

## **Conductivity**

Electrical conductivity is a measure of the ability of a solution to carry a current and depends on the total concentration of ionized substances dissolved in the water. (The electricity flows by ion transport).

Although all ions contribute to conductivity, their valences differ, so their actual and relative concentrations affect conductivity. When the concentration of ions is high, conductivity is high, and the resistance to electrical passage is low. No meters have the ability to distinguish between different types of ionic salts.

Conductivity measurements are also complicated by the fact that not all salts conduct an electric current equally.

## **How the TDS meter works**

TDS meters are, in reality, conductivity meters. They work by applying a voltage between two or more electrodes. Positively charged ions will move toward the negatively charged electrode, and negatively charged ions will move toward the positively charged electrode. Because these ions are charged and moving, they constitute an electrical current. The meter then monitors how much current is passing between the electrodes as a gauge of how many ions are in solution. This measure of conductivity,  $\mu\text{S}/\text{cm}$  is then converted to ppm by a factor of

approximately 0.5, on a curve ranging from 0.47 to 0.55, depending on the level. The factor is related directly to the level of conductivity. This meter is built and calibrated according to an NaCl standard. Other meters may be calibrated to either a KCl standard (0.51 conversion) or the 442 standard.(0.7 conversion)

#### **What the TDS meter actually detects:**

Since TDS meters are often used to test water "purity," it is important to understand what they do not detect. As conductivity meters in disguise, TDS meters will only detect mobile charged ions. They will not detect any neutral (uncharged) compounds. Such compounds include sugar, alcohol, many organics (including many pesticides and their residues), and unionized forms of silica, ammonia, and carbon dioxide. These meters also do not detect microscopic particulates, as those are too large to move in the electric fields applied. So if you see "rusty" looking water from iron oxide particulates, that won't be measured. Neither will anything else that makes the water look cloudy. Bacteria and viruses also won't be detected. "Total charged ions" is likely a much better term for what the meter measures. Fortunately, a measurement of total charged ions is good enough for most purposes.

#### **Temperature Compensation:**

The conductivity of ions in water depends upon temperature. The ions are naturally moving around faster as they get warmer. When the same numbers of ions are moving faster, the apparent conductivity is increased. Our meters are capable of compensating for temperature by simultaneously measuring the conductivity and the temperature. The internal electronics then take the temperature into account, and normally provide a value that is "corrected" to what the conductivity would be at a standard temperature (25°C).

#### **How external factors may affect readings**

While pure water has a TDS well below 1 ppm, uncertainties from carbon dioxide in the air (which gets into the water and ionizes to provide some conductivity) and the TDS meter itself may yield results of 1 or 2 ppm even from pure water. The entire electrode assembly must be submerged in the sample without a lot of bubbles or solids present between the electrodes. So, for example, you cannot typically get a good reading by holding it in a stream of tap water because air often gets between the electrodes that way (resulting in an artificially low reading).

Require further help: -

Please refer to our "Water Maintenance Levels" link on the web sites below.

[www.purepool.co.uk](http://www.purepool.co.uk)

[www.purepoolincrete.com](http://www.purepoolincrete.com)

[www.cheshire.luxurypools.co.uk](http://www.cheshire.luxurypools.co.uk)

[www.crystalclearpool.co.uk](http://www.crystalclearpool.co.uk)

Registered office – Hamilton Lodge, 58 Queens Rd, Chadderton, Oldham, OL9-9HU. Tel. No. 0161 345 1110.

For any further help contact:

**England:** - Garry/Ray, 0844 884 9519/0161 345 1110.

**Crete:** - Gerwyn: - Home: 0030 2824301192 Mobile: 0030 6945801044.