

## What is TDS?

Total Dissolved Solids (TDS) are the total amount of inorganic elements, including minerals, salts or metals, dissolved in a given volume of water, other than the pure water molecules (H<sub>2</sub>O) and suspended solids. TDS is expressed in parts per million (ppm). TDS affects everything that consumes, lives in or uses water. For people, a lower TDS level in drinking water is preferred.

Useful links for more information:

More information on TDS:

<http://www.tdsmeter.com/abouttds.html>

RO Percent Rejection Calculator:

[http://www.tdsmeter.com/abouttds\\_filter.html](http://www.tdsmeter.com/abouttds_filter.html)

SM-1 page:

<http://www.tdsmeter.com/products/sm1.html>

Designed in Korea and USA  
Made in China

[www.hmdigital.com](http://www.hmdigital.com)  
[info@hmdigital.com](mailto:info@hmdigital.com)

An ISO-9001 Certified Company

## Warranty

This product is warranted to the purchaser against material and workmanship for one (1) years from the date of purchase.

**What is covered:** Repair parts and labor, or replacement at the Company's option. Transportation charges for repaired or new product to be returned to the purchaser.

**What is not covered:** Transportation charges for the defective product to be sent to the Company. Any consequential damages, incidental damages, or incidental expenses, including damages to property. This includes damages from abuse or improper maintenance such as tampering, wear and tear, water damage, or any other physical damage. This product is not waterproof and should not be fully submerged in water. Products with any evidence of such damage will not be repaired nor replaced.

**How to obtain warranty performance:** Include with the product, your name, address, phone number, description of problem, and proof of date of purchase and return to:

HM Digital, Inc.  
5819 Uplander Way  
Culver City, CA 90230  
U.S.A.

**Implied Warranties:** Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to five years from date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. To the extent any provision of this warranty is prohibited by federal and state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

**NOTE:** Warranties are product-specific. Third-party products and products deemed by HM Digital as "accessories" are not covered under warranty. Third-party products include, but are not limited to, batteries, fittings and adhesives.

# SINGLE INLINE TDS MONITOR



## Model SM-1

Measure the TDS levels of a water line, such as the tap water or filtered water, at any time.

The SM-1 is an ideal monitor to know if a filter cartridge or membrane is functioning effectively. Install the SM-1 so you'll always know how a water filtration or purification system is performing.

## Specifications

TDS Range: 0-9990 ppm

Resolution: 1 ppm (0-999); 10 ppm (1000-9990, indicated by a blinking 'x10' image)

Accuracy: +/- 2%

Cable Length: 24.5" (including sensor)

Power Source: 2 x 1.5V button cell batteries (size: 357-A)

Battery Life: Approx. one year

Dimensions: 7.6 x 2 x 4.7 cm (3 x 0.8 x 1.9 in)

Weight: 79.5 g (2.8 oz)

## Care, Maintenance and Troubleshooting

Very little care is necessary for your SM-1.

- Never touch the sensor pins, as skin oils may adversely affect the TDS measurement.
- To clean the sensor pins, clean with rubbing alcohol and let air dry.
- If you notice the readings are off from what they should be, replace the batteries or re-calibrate.
- If your meter displays an 'ERR' message this could be for one of the following reasons:
  - The TDS level is out of the range of the meter (over 9,990 ppm).
  - The sensor connector has been pulled out of the monitor.
  - There is something wrong with the unit. Contact HM Digital.

**Please contact the manufacturer of your water system  
for recommended TDS levels.**

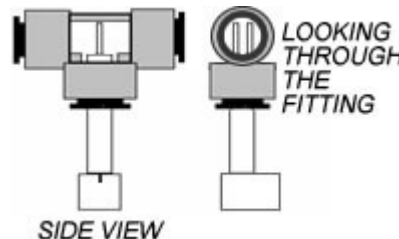
## Instructions

The SM-1 can be configured in a variety of ways, depending upon your needs. Typically, the sensor is connected to the product (filtered) water. The SM-1 can also be used in conjunction with HM Digital's Dual In-Line TDS Monitor (model DM-1), or a handheld TDS meter, such as HM Digital's TDS-EZ, for checking the tap water.

### Installation

To install the SM-1 to a water purification or filtration system:

1. Ensure the white sensor is fully inserted into the T-fittings.
2. Orient the sensor pins so that they are perpendicular to the direction of the T. (You should be able to see both pins if you look through the fitting.) See the illustration below.
3. Disconnect the water source.
4. Select the water line on which you will attach the SM-1. Snip the water hose at a point between the tap and the filter (for monitoring the source water) OR at a point between the filter and a dispenser (for monitoring the product water).
5. Insert the two snipped ends of each water hose into the corresponding T-fitting.
6. The DM-1 monitor can be attached anywhere on or near the water system using the Velcro tape.
7. Reconnect the water source. Your monitor is now ready for use.



## Usage

1. Press the "ON/OFF" button.
2. The monitor will display the TDS level of the selected line.
3. The displayed TDS will be most accurate after approximately 10 seconds.
4. Determining filter effectiveness depends on your particular system. For an RO system, for example, compare the tap water TDS levels with the product water TDS.
5. Turn off the unit. It will automatically shut off after 10 min.

### Changing the Batteries

1. Unscrew the three metal screws (not the orange plastic screw) on the rear of the unit and remove the back panel.
2. Remove the batteries.
3. Replace with new batteries (size 357-A). Ensure the polarity is correct.
4. Close the back panel and replace the screws.

### Calibration

Your monitor was factory calibrated to 342 ppm (NaCl). This level is suitable for most tap water/filtered water applications. However, you may need to re-calibrate based on your needs, as well as from time-to-time to ensure best results.

1. Purchase a calibration solution from your dealer that is correct for your needs.
2. Disconnect the T-Fitting from its hose. Do not remove the sensor from the T! Ensure the orientation of the sensor to the fitting is correct, as in the illustration.
3. Turn on the monitor and place the T-Fittings (with the sensor in it) into the calibration solution. You will get a reading.
4. If the reading on the monitor does not match the solution, adjust the reading up or down by gently turning the orange screw on the rear of the monitor clockwise or counter-clockwise.
5. The monitor should read approximately 10% below the calibration solution. The monitor is designed for flowing water and this discrepancy will compensate for that. (NOTE – if you are calibrating with a flowing solution, ignore this).
6. Once the reading is correct, turn the monitor off and remove from the solution. Your monitor is now calibrated.