

SPECIFICATIONS

TDS Range: 0-9990 ppm

Resolution: 0-999: 1 ppm

1000-9990: 10 ppm (indicated by a blinking 'x10' icon)

Accuracy: +/-2%

Conversion Factor: NaCl (avg. of 0.5)

Factory Calibration: 342 ppm NaCl

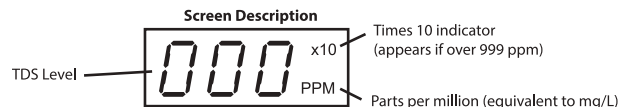
Sensor Cable Length: 24.5" (62.2 cm) (including sensor)

Power Source: 2 x 1.5V batteries (LR44)

Auto Shut-Off: After 10 minutes

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

Base Unit Weight: 2.8 oz (79.4 g) (including batteries)



CARE AND MAINTENANCE

Very little care is necessary for your TRM-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.
- Avoid removing the fittings, as doing this often may strip the plastic off the sensor and potentially cause a leak.
- If you notice the readings are off from what they should be, replace the batteries or re-calibrate.

→ **Avoid removing the fittings from the sensors. Excessive removal and insertion of the fittings could ultimately scratch the sensor and potentially cause leakage.**

Frequently Asked Questions (FAQs)

- What should the TDS readings be?
→ For drinking water and filter performance, the lower the TDS level, the better. There is never a "right" or "wrong" number. For RO performance, calculate the percent rejection to determine performance levels. Contact the manufacturer of your filter system for recommended levels.
- My TDS levels fluctuate. Is this normal?
→ Yes. Slight fluctuations are normal. A variety of factors affect the reading.
- Does the TRM-1 have an alarm or programmable set point?
→ No. You will need to view the readings. Models QC-1, PM-1, FM-2 and others have alarms.
- How will I know when the batteries need to be replaced?
→ If the display fades, the monitor does not power on, or the readings are incorrect, you may need to change the batteries.
- Can I use the TRM-1 to monitor a water softener?
→ No. Water softeners do not remove TDS.
- Where can I get more information on water quality?
→ Visit HMDigital.com

INSTRUCTIONS

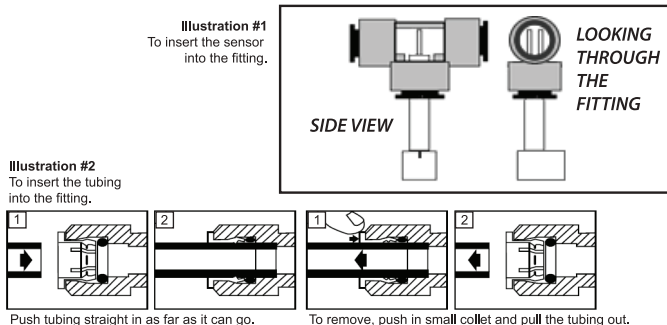
The TRM-1 can be configured in a variety of ways, depending upon your needs. For example, if using the TRM-1 with an RO/DI setup, connect Line 1 (red) to the feed (tap) water, Line 2 (blue) after the RO system and Line 3 (green) after the DI system. If using a multi-stage RO system, connect Line 1 (red) to the feed water, Line 2 (blue) after the pre-filters and Line 3 (green) after the membrane. The TRM-1 can also be used for monitoring TDS levels in up to three different tanks/reservoirs

Installation

To install the TRM-1 to an RO system and DI system:

1. Insert the white sensors fully into the bottom (stem) of the T-fittings.
2. Orient the sensor pins so that they are perpendicular to the direction of the T. The water should flow over both pins equally. (You should be able to see both pins of you look through the fitting branches.) See illustration #1 below.
3. Disconnect the water source.
4. Snip the source (tap) water tube at a point between the source and the filter. Insert both ends of the tube into the top of the Line 1 (red) sensor's T-fitting. See illustration #2.
5. Snip the RO product water tube at a point between the membrane and DI system. Insert both ends of the tube into the top of the Line 2 (blue) sensor's T-fitting.
6. Snip the DI water tube at a point after the DI system. Insert both ends of the tube into the top of the Line 3 (green) sensor's T-fitting.
7. The TRM-1 monitor can be attached anywhere on or near the water system using the Velcro tape. Most commonly, the monitor is attached to the water filter system.
8. Reconnect the water source. Your monitor is now ready for use.

NOTE: Consult a professional plumber for specific installation questions.



Changing the Batteries

If the display is fading or the readings are incorrect, you may need to change 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 both batteries with two fresh batteries (LR44). Ensure the polarity is correct.
4. Close the back panel and replace the screws. You will not need to recalibrate.

Usage

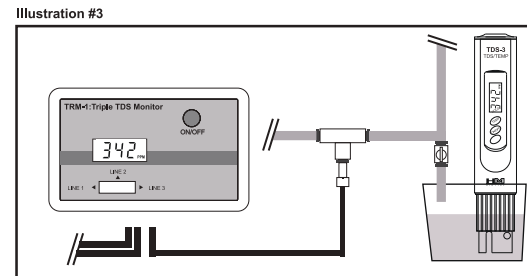
1. Press the "POWER" button.
2. To display the TDS level of the feed (tap) water or first point, slide the switch to LINE 1 (left position). To display the TDS level of the RO product water or second point, slide the switch to LINE 2 (center position). To display the TDS level of the DI water or third point, slide the switch to LINE 3 (right position).
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 feed water TDS levels with the product water TDS.
5. If the "x10" icon appears, this means the TDS level is above 999 ppm. Therefore, multiply the reading by 10. For example, if the display shows 148 ppm **with** the 'x10' icon, the actual TDS level is 1480 ppm. (If the 'x10' icon does not appear, the reading on the display is the actual TDS level.) For most filtered water, you will not see the 'x10' icon.
6. Turn off the unit. It will automatically shut off after 10 minutes.

Calibration

Your monitor was factory calibrated to 342 ppm. This level is suitable for most tap water/filtered water applications, so it is ready to use out of the box. However, you may need to re-calibrate based on your needs, as well as from time-to-time to ensure best results. To calibrate:

→ **All three sensors must be calibrated together at the same time.**

1. Connect the water tubes to the T-fitting as shown on the diagram below. The probe connected to the fitting must be displayed on the LCD. When calibrating, the TDS of water you are calibrating to must be over 10 ppm. Insert the sensor you wish to calibrate in the T-fitting. Ensure the orientation of the sensor to the fitting is correct, as shown in illustration #1.
2. Let the water flow in the tubes to allow the sensor to measure and calibrate.
3. Measure TDS of the water with a handheld TDS meter to determine the TDS of the water flowing in the tubes as shown in the diagram below. Make a note of the TDS reading as this will be the TDS value you will be calibrating your monitor. (illustration #3)
4. Turn on the Monitor.
5. slide the switch between Line 1,2,3 depending on which sensor is inserted in calibration solution. The sensor must be inserted in the T-fitting for accurate results. adjust the reading up or down by gently turning the calibration screw on the rear of the unit clockwise or counterclockwise.
6. Separate calibration is NOT required for the other two sensors
7. Your monitor is now calibrated.



What is TDS?

Total Dissolved Solids (TDS) are the total amount of inorganic elements, including minerals, salts or metals dissolved in water, other than the pure water molecules (H₂O) and suspended solids. A TDS meter works by measuring the total amount of mobile charged ions dissolved in a given volume of water, expressed in total quantity as parts per million (ppm), or in weight as mg/liter. TDS is directly related to the purity of water and the quality of water purification systems. TDS affects everything that consumes, lives in, or uses water, whether organic or inorganic, for better or for worse. For people, a lower TDS level in drinking water is typically preferred.

The U.S. EPA's Secondary Regulations for drinking water advise a maximum contamination level of 500 ppm for TDS.

TROUBLESHOOTING

Issue	Potential Solution(s)
"Err" display (error)	1. The water is out of the monitor's TDS range. 2. The sensor cable is loose or unplugged. Push the cable connector securely into the monitor.
Incorrect readings	1. Re-calibrate the monitor. 2. Change the batteries.
The reading on Line 1 is lower than Line 2 or Line 3	1. Check your connections. The sensors may be reversed.

Reverse Osmosis (RO) systems work by filtering the tap water and rejecting the waste water. You can determine your system's effectiveness by calculating the percent rejection rate.

HOW TO CALCULATE PERCENT REJECTION FOR RO SYSTEMS

$((\text{Tap TDS} - \text{RO TDS}) \div (\text{Tap TDS})) \times 100 = \text{Percent Rejection}$

Example: Tap TDS = 361 ppm and RO TDS = 18 ppm. Percent rejection = 95%.

Contact the manufacturer of your system to determine minimum percent rejection levels and when to change the filter or membrane.

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

TRM-1 LIMITED WARRANTY

This HM Digital, Inc. ("the Company") product (TRM-1) is warranted to the purchaser against defective materials and workmanship for one (1) year from the date of purchase.

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

What is NOT covered: Transportation charges for the defective products 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. The 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.

To obtain warranty service, please contact 800.383.2777 or email Warranty@HMDigital.com to receive further instructions. Before sending the product back to us, please include the following below,

- Your name
- Phone number/ Address
- Description of problem
- Proof of purchase, must include Date

*** If a returned product does not include the above-mentioned items, the Company reserves the right to refuse warranty service.**

Implied Warranties: Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to five years from the 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.

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Designed in USA and Korea

Made in India

An ISO-9001 Certified Company

TRIPLE INLINE TDS MONITOR

model TRM-1

USER'S GUIDE



Measure the TDS levels of water at three different sensing points, such as the tap water, RO water and DI water, or, in three different water lines, tanks or reservoirs.

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

Useful link for more information

More information on TDS:
HMDigital.com

