

Marine Salt Testa

Digital meter for the measurement of salinity, specific gravity and temperature


Operation Manual

1. PRECAUTION


The **Marine Salt testa** is for the sole purpose of measuring the Temperature, Salinity and Specific Gravity of natural seawater and / or synthetic seawater. This meter has been factory calibrated and performance tested to ensure accurate readings.

Please read the entire operation manual before using this **Marine Salt testa**. Failure to read this manual prior usage may result in equipment damage and will void the warranty.


1.1 Notes on safety

	<p>Please keep this product away from children. Ingestion of small parts may lead to choking and serious injury. If the sensor protection cap or battery is ingested; please consult a physician immediately.</p> <p>Be careful not to scratch the surface of the platinum-plated sensors.</p> <p>Do not use chemicals such as acetone or benzene for cleaning as it may cause deterioration of the plastic housing.</p> <p>Never attempt to disassemble or modify this product, this will void warranty.</p>
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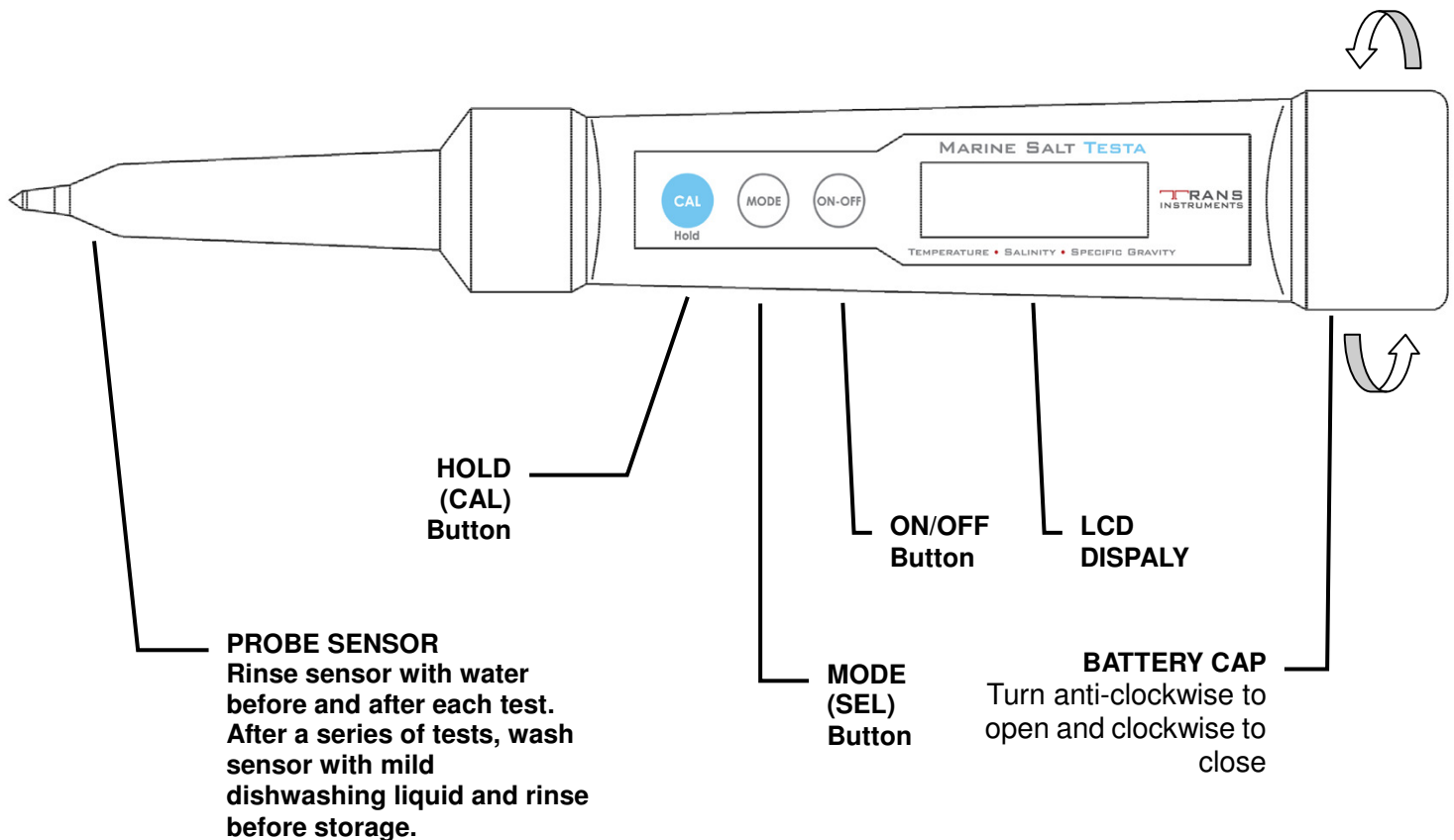
1.2 Notes during measurement

	<p>Always rinse the Probe Sensor before and after each test.</p> <p>Make sure sensor do not contact any of the walls of the aquarium or sump while in measurement mode. Keep sensors at least 1cm away from all sides and bottom of the measuring container.</p>
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1.3 Notes on storage

	<p>Avoid keeping Marine Salt testa in high humidity environments, direct exposure to sunlight, high temperatures, dust and moisture to prevent damage.</p> <p>Please keep sensor cap in-place to protect the sensors when not in use.</p> <p>Always remove the batteries if tester is not use over a long period of more than one month.</p>
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2. Product Diagram and Functions



2.1 Buttons Definition:



The **ON-OFF** button is used to turn the power on and off. Once turned on, **Temperature** measurement is displayed in the LCD Display window.




The **MODE** button is used to select the display of temperature, Salinity, or Specific Gravity measurement. Pressing the button once will switch it to **Salinity** measurement (ppt), pressing again will switch to **Specific Gravity** measurement and a third time back to **Temperature** measurement in a cyclical mode. This button is also used to change the display units of temperature (**°C/°F**, see section 6)



The **HOLD** button is used to “**hold**” the measurement value during a test. Pressing it again will resume continuous measurement. This button is also used for performing Calibration in **Salinity** mode. (See section 5)

2.2 Display Definition:

°C / °F	Indicates the Temperature of the sample.
ppt	Indicates the Salinity of the sample.
HOLD	Is displayed in the LCD display window when the measured value is put on hold or freezed.
ERROR	Appears when the measurement is outside the normal testing range. Temp. range (0 °C ~ 100 °C) Salinity Range (0 ~ 50 ppt) Specific Gravity (1.000 ~ 1.037)
	Is displayed when battery level is low and replacement of battery is needed.

3. Product Specification

	Salinity	Specific Gravity	Temperature
Measurement Range	0-50ppt	1.000-1.037sg	0-70°C 32-158°F
Resolution	1ppt	0.001sg	0.1 °C / 0.2 °F
Accuracy	±2ppt	±0.002sg	±1 °C / ±2 °F
Operating Temperature	0-70 °C 32-158 °F	0-40 °C 32-104 °F	0-70 °C 32-158 °F
Auto-off	Around 1 minute		
Battery type	2 x 3Volt Button Cell (CR2032H or equivalent)		
Battery life	Approx. 150 hours continuous use		
Size (LxWxH)	210 × Dia.32 mm		
Weight	Approximately 61grams (including batteries)		

4. Measurement of Salinity, Temperature and Specific Gravity

4.1 Principle of salinity measurement

The salinity measurement principle of this product is based on the electric conductivity measurement method. Salt exists as sodium ion and chloride ion within aqueous solution. As the quantity of sodium ion and chloride ion increases, the solution conductivity also increases proportionately to the increased salt concentration. Using this principle, salinity is determined by calculating the conductivity of a given sample.

4.2 Testing Temperature, Salinity and Specific Gravity

1. Press **ON/OFF** button once to switch on, temperature reading will appear on the display.
2. Dip the **PROBE SENSOR** into the liquid and shake vigorously to remove bubbles on probe.

**Note: Presence of bubbles will affect reading accuracy*

3. Wait for the temperature reading until it stops changing and for a stabilized temperature to establish. Now you can press the **MODE** button to switch to **Salinity** measurement.
4. Wait **10** seconds and confirm the **Salinity** (ppt) measurement.
5. Press **MODE** button to display **Specific Gravity** measurement. Wait **10** seconds for the Specific Gravity before reading results.
6. Press the **HOLD/CAL** button at anytime to “Hold” or “Freeze” the displayed reading. Press it again to “Release” for another test.
7. After each test, rinse the sensors with distilled water between each test and wipe it dry with a clean cloth or tissue paper.
8. After a series of tests, clean the **PROBE SENSOR** in mild detergent then rinse with water thoroughly. Wipe the **PROBE SENSOR** dry before storing away.
9. Press the **ON/OFF** button to switch off. The battery saving function will automatically shut off the meter if no activity for about 1 minute.

5. Calibration

1. Perform calibration regularly or before a series of tests.
2. Use only 30ppt standard solution for this procedure.
3. Make calibration only in liquid of between 15 to 30°C
4. Switch on unit and press **MODE** button once to switch to salinity mode (ppt).
5. Dip the sensor into 30ppt solution centrally; making sure the sensor does not contact the bottom or sides of the bottle.
6. While the sensor is in the solution, press and hold-down **HOLD(CAL)** button for about **15 seconds** or until it display shows **CAL** flashing.
7. In a while, display will show 30ppt and return to normal measuring mode.
8. Calibration is completed
9. If display show 31, 32 or any other values, repeat the calibration.

Note: Never perform calibration if unit is not dip into 30ppt solution, as this will cause inaccuracy to the unit. If reading is wrong, repeat this calibration procedure.

6. Temperature display Selection (°C / °F)

1. Switch on the unit. Ensure display is in the temperature mode.
2. Press and hold-down **MODE** button until display shows °F.
3. Release the button, °F reading will be displayed everytime.
4. To switch to °C temperature display, repeat step 1 to 3.

7. Replacement of the Battery

When the **B** sign appears on the LCD display, the batteries will need replacement. The unit will automatically shut-off when battery life is out.

How to replace the batteries

1. Unscrew the battery cap and open it. Pull out the battery holder, Take a note at the directions of each battery placed and remove all of them.
2. Replace with two (2) new batteries (CR2032H or equivalent) ensuring each battery's polarity are placed in direction (positive '+' sign face up as shown below).



3. Switch on power to confirm whether the batteries were placed correctly, replace the cover.

8. Troubleshooting

Status	Cause	Remedy
LCD display becomes dim Or stop working	Low battery / Worn out batteries	Replace all batteries
	Wrong battery placement	Check all batteries are placed correctly accordingly
Unstable measured value	Contamination of sensors	Wash sensors with neutral detergent and rinse with water. Dry with cloth or tissue paper
	Salinity or temperature is not homogeneous	Please refer to 4.2 (salinity measurement) and 1.3 (cautions on measuring)

WARRANTY:

Trans Instruments (Singapore) Pte. Ltd., warrants this product for a period of 12 months and 3 months on probes and electrode from date of purchase; against all defects in material and workmanship.

This warranty does not apply to the abuse or misuse of the instrument. If repairs or adjustments are required, please return the defective product freight prepaid. Instrument within warranty will be repaired at no charge.

Make sure that the product is properly packed and insured against possible damage or loss in shipment.

Purchase invoice **MUST** be accompanied in returned product or else warranty is considered void.

Please obtain authorization from Trans Instruments (Singapore) Pte Ltd. Directly or through your local sales representatives prior to returning the product.

Trans Instruments staff can be contacted at the following email address or through our web-page contacts:

sales@transinstruments.com

TRANS INSTRUMENTS

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