

CE

Digital Salt Tester

MODEL: DMT-20

Instruction Manual



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1. Checking item before Use

- Please be fully aware of Operation Manual before using this meter.
- Clean clearly Sensor Part with neutral detergent using a soft cloth or sponge before use and later.
- When the measured value is abnormal during use, Make good use of meter after calibrating with 2% Standard solution attached in Box.
- Accurate measurement depends on careful calibration.

2. Definition (Salt-Tester)

- This product measures the concentration of dissolved NaCl in water using this Meter.
- Simply immerse the tip of this Meter into liquids and know the NaCl content/Temperature measurement in water.

3. Application Field: (Home /Health /Food Industry)

- Food: Salt amount of food (Food /Seafood /Salted food /Processed food)
- Health: Measuring the Salt intake amount periodically
- Standard: Preservation of fixed taste of food
- Fishery: Aquatic products /Sea fishing place
- Temp. Test: Portable Thermometer for normal low temperature
- Industry: Boiler /Cooling tower /Reservoir /Print /Lab etc.

Precautions in us

This product

- Has been developed for the purpose of measuring the concentration salt contained in food in water and its Temp.
- Can be used as a health tool to help users with their eating habits through a quick measurement of the approximate salt concentration (%) within food so that they can ingest a proper volume of salt.
- Can be used as a supplementary device to make users gradually reduce their salt intake by understanding the amount of salt being ingested.

1. Precautions before use

Please be fully aware of the operation manual before using this Digital Handheld Salt-Tester(DMT-20), and also observe the procedures and methods specified in the manual to ensure accurate, reliable measurements and user safety.



Please observe the procedures and methods specified in the operation manual to ensure accurate, reliable measurements and user safety. When the procedures and methods are not observed, accuracy and reliability of the measurements cannot be guaranteed. Moreover, this may lead to issues of safety and equipment trouble.

2. Cautions on safety



Please keep this product away from the hands of children. When children hold it in their mouths and the sensor surface (gold plated) is damaged, this may cause trouble. If the sensor protection cap or battery (button type) is swallowed, please consult a doctor.

Since only the sensor probe was treated for waterproof, please be careful to avoid water getting into the body from above the probe.

If the sensor is hit or dropped, or strong force is applied to the sensor, or rough things such as sponge gourd or metal are used during washing, please be careful since the surface plated with gold could be damaged and may not work properly.

When wiping main body, please go so gently, using a wet cloth or tissue. Use of chemicals such as acetone or benzene may cause deterioration of material (ABS) or cause the device to not work properly.

When using the sensor part at high temperature, do not touch it since it may be hot.

Never attempt to disassemble or modify this product.

3. Cautions on measuring



When the sensor is exposed to temperatures below 0°C or above 100°C for an extended period of time, it may be damaged. Be sure to pull out the sensor from food promptly after measurement.

Please wash the sensor with neutral detergent using a soft cloth or sponge before and after use. After rinsing fully with water, wipe the sensor softly using dry cloth or tissue and always keep dry while not in use.

While measuring, make sure the sensor does not contact the container bottom or sides or solid material within the measured sample. When it contacts with the container or solid materials, measurement can be lower than they should be.

4. Cautions on ownership



Avoid keeping it in places where humidity is high, or where it is exposed to direct sunlight, high temperature, dust, or moisture.

Please keep the sensor cap inserted to protect the sensor when not in use.

When it is not used for a long time (over one month), store it with its battery (button type) pulled out. When internal liquid leaks out due to the corroded dry cell, it may cause it to work improperly.

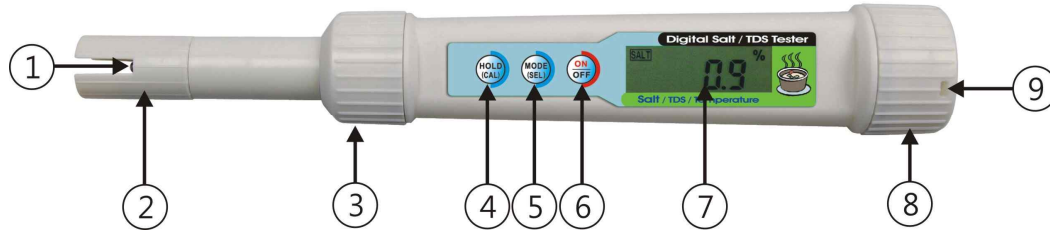
► Day Salt Intake Limitation Amount

: Main Country

1. USA : 6g (salt) per day
2. Japan : 10g "
3. Britain : 4g "
4. Korea : 8.7g "
5. WHO : 6 g "


(World Health Organization)

Main Parts and the Functions



- ① Sensor: Stains should be cleaned by dishwashing liquid and sponge.
- ② Sensor Cap: Upon measurement, always use the sensor cap on it. Detach the sensor cap to wash.
- ③ Sensor connecting cap(Sensor ribbed collar): Do not open, to avoid the leakage.
- ④ HOLD(CAL) Button: Press to hold the measure and calculate the liquid solution.
- ⑤ MODE(SEL) Button: Press to select the type of measurement (Temperature/Salinity), to shift the scale of temperature ($^{\circ}\text{C}\leftrightarrow^{\circ}\text{F}$), or to set the gauge to zero.
- ⑥ ON/OFF Button
- ⑦ Display panel
- ⑧ Battery Cap: Open to change the battery.
- ⑨ A hole for hanger strap

LCD display Symbols

Display	Contents
°C / °F	Indicates the temperature of sample.
%	Indicates the salt concentration contained within the sample.
HOLD/CAL	It is lighted when the measured value is held /is used to "Auto Calibration"or "Auto Temp Exchange"
ERROR	Appears when measurement range (0.0%~5%) or measurement temperature range (0°C~70°C) is exceeded upon the measurement of salt concentration.
	When replacement of the battery (button type) is needed.

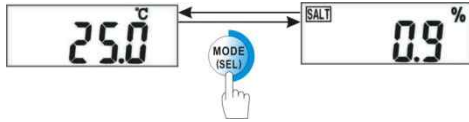
Product specification

Name	Digital Handheld Salt Tester
Measurement target	Aqueous solution
Model number	DMT-20
Salt measurement	Measurement method: Electric Conductivity measurement system Measurement range: 0.0% ~ 5.0% Measurement temperature range : 0°C ~ 70°C (32°F ~ 158°F)
Temperature measurement	Measurement range : 0°C ~ 100°C (32°F ~ 212°F) Measurement accuracy : $\pm 1^{\circ}\text{C}$ (temperature range: 0°C ~ 70°C) of reading
Resolution (@20°C)	Salt measurement: 0.1%
Power Supply	CR2032 Button Battery x 2 pcs
Battery life	About 6 month based on 3 times use per day
Size	30h x 30w x 195d mm
Weight	About 61g (including button battery)
Accessories	Sensor protection Cap 1Ea/Operation Manual (including warranty card) 1copy/ Supporting Spoon:1Ea /2% Standard Solution(40g):1Btl /Hanger Strap 1 Ea

Steps for Measuring

***Notice : Please do not forget to keep the Sensor Cap on for measuring.**

1. Rinse the sensor part in the running water. Clean the oily stains or any alien substances, using dishwashing liquid on the cleaning sponge.
2. Turn on the device and press 'MODE(SEL)' button to select the type of measurement (Temperature/Salinity).



3. After selection of the type, insert the tip of the sensor to measure the liquid.

Make quick shakes of the sensor tip about 5 times to remove the bubbles, because any bubble on the surface of the sensor in the liquid can be the cause of an error in measuring.

Once you find a stable measure, press 'HOLD(CAL)' button to read the figure.

4. Please do not forget to rinse the sensor in the running water and keep it dry, after each single use.



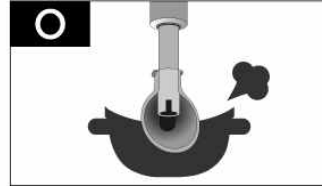
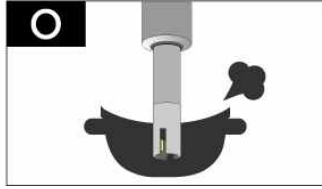
Examples of Measuring

Please do not forget to keep the Sensor Cap on for measuring.

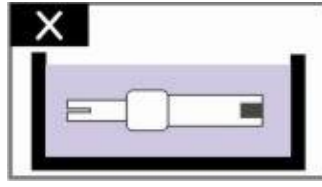
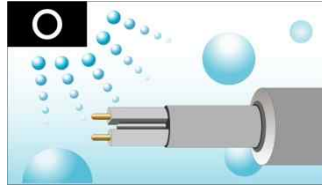
If the liquid for measuring is too hot or even boiling, it is advised to measure after cool it down using the attachable spoon.

Desirable temperature of the liquid for measuring is ranged from 10 to 40°C (32 to 100°F).

(You can remove the sensor cap to replace the attachable spoon.)



Rinse both the sensor and the sensor cap detached after single use, with dishwashing liquid on the cleaning sponge.



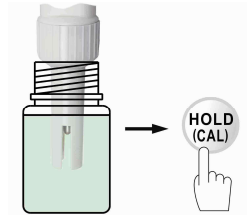
Directions for Resetting

- Reset, if you feel the errors in measuring.
- Measuring the resetting solution, if you do not get the result of 2%, you can reset the device.
- The room temperature between 15 and 30°C is desirable for resetting the device.
- Measuring the resetting solution, it is advised to deepen the sensor part well enough in the solution.
- To avoid the contamination of resetting solution and to achieve the accurate measuring results, it is advised to use the device in the resetting solution only after thorough rinsing with dishwashing liquid in the running water and dry with cotton swab.
- When the resetting solution is run out and contaminated, you can purchase the solution by a separate order.
- Resetting is advised to be made, only after zero-setting first
- Please do not forget to keep the resetting solution cap closed after use.

Steps for Resetting

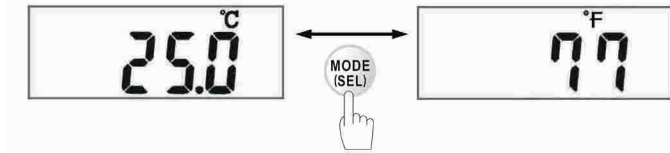
<2% Standard Solution-resetting>

1. Pls wait for 20 Seconds "Salt-Resetting" mode deepened in the resetting solution.
 2. Keep pressing 'HOLD(CAL)' Button for a couple of seconds until it blinks, and then you can release the button and wait, to see it automatically returns to 2% on 'Salt' mode.
- <Attention!> Please make sure if the sensor is deepened well enough in the solution.

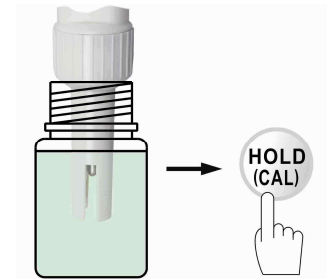


To Shift the Scale of Temperature (°C↔°F)

On 'Temperature' mode, press 'MODE(SEL)' button, to change the scale of temperature.



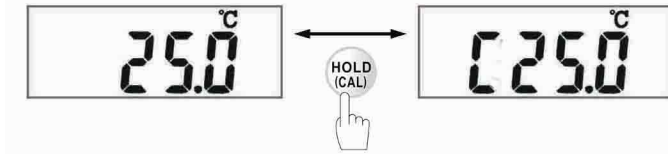
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To Adjust the Temperature

- You can reset the temperature, if you find the results are different from other precision thermometers.

1. Press 'HOLD(CAL)' button to shift it into the temperature-reset mode on 'Temperature' mode.



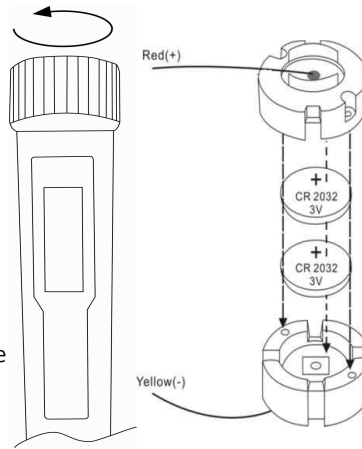
2. Press 'HOLD(CAL)' button to adjust the temp by -0.1°C , or press 'MODE(SEL)' button to adjust it by $+0.1^{\circ}\text{C}$.
3. Adjust the temperature only on $^{\circ}\text{C}$ mode, to see the automatic changes in $^{\circ}\text{F}$ accordingly.

How to Change the Battery

B Change the battery,
when indicator shows the battery is out.

1. Open the battery cap, to find the battery bracket.
2. Extract the battery bracket carefully and remove the old batteries.
3. Replace two 'CR2032' batteries as shown on the picture and to close the battery cap.

Attention! 1) Please make sure if the batteries are placed
on the right position of polarity.
2) To close the battery cap, be careful the battery cable
in order not to any problems.



Troubleshooting

Troubles	Expectable Causes	Measures
<ul style="list-style-type: none"> Power is out 	<ul style="list-style-type: none"> Polarity error 	<ul style="list-style-type: none"> Change the polarity of the batteries.
	<ul style="list-style-type: none"> Batteries out 	<ul style="list-style-type: none"> Change the batteries.
	<ul style="list-style-type: none"> Damage on the circuit caused by the leakage of batteries. 	<ul style="list-style-type: none"> Visit the service center.
<ul style="list-style-type: none"> Measuring errors Keep showing the errors even after resetting. 	<ul style="list-style-type: none"> Stains on the sensors Batteries out Contamination of the resetting 2.0% saline solution 	<ul style="list-style-type: none"> Remove the stains rinsing the sensor with dishwashing liquid and cotton swabs Change the batteries Use the clean and fresh resetting 2.0% saline solution
<ul style="list-style-type: none"> Other troubles 		<ul style="list-style-type: none"> Please make contact with your local service center, because disassembly in your disposition can cause the more serious problem.

Regarding A/S

1 Product warranty

- (1) This hydrometer comes with a warranty at the back of the user manual. The specific details of the warranty should be filled out at the store where you purchase the instrument. Please get familiar with the details before you file this manual well.
- (2) The warranty period lasts for 6 months from the date of purchase. Any failure occurring during the warranty period arising out of the instrument in itself shall be subject to free-of-charge repairs; however, any failure or damage resulting from user's mistakes or in connection with force majeure should be repaired at user's account even during the warranty period.
- (3) Any repair conducted after the warranty period expires shall be subject to a charge stipulated on our regulation on repair services, depending on the details of a repair service.

2 Request for repair and consultation

- (1) Please contact either the store where the instrument is purchased or our company (at 02-858-6870) with any problem you may have during the use of the instrument. Please do not dismantle or disassemble it.
- (2) Please have a consultation with the store of purchase or our company (at 02-858-6870) for any question on its use.

☞ Calibration Certificate ☞

Model: _____ **Series No.** _____
Accessories: _____ **Date:** _____

Calibration Certificate

This Certificate guarantees that the product has been inspected and tested in accordance with the published specifications. The instrument has been calibrated by using equipment, which already calibrated to standards traceable to international standards.

Returning Defective Products for Repair

Please keep your original invoice or receipt for requires servicing. Return the products to us, shipping charge prepaid.

<APPENDIX>

*** Calculation of salt content (g) using the salt concentration is as follows.**

(The measured value of this salt meter is based on 100g of measurement sample.)

Salt content of soup food

When the measured salt content for one vessel (around 200g) of bean-paste soup is 1.0%, the calculation method is as follows:

$$200(\text{g}) \times 0.01 = 2(\text{g})$$

∴ The salt content of bean-paste soup is about 2(g).

Salt content of solid material

When food is a solid material (bean-curd, cereal and so on), break it to bits and dilute it with water before measuring.

; Crush up 10g of hard-boiled bean-curd finely, and mix it fully with 90g of water.

When the measured salt content for total 100g of hard-boiled bean-curd solution is 1.0%, salt content for 10g of hard-boiled bean-curd is as follows:

$$(10(\text{g}) + 90(\text{g})) \times 0.01 = 1(\text{g})$$

∴ The salt content of hard-boiled bean-curd is about 1(g).

*** Cautions on measurement**

- (1) The temperature range for salt concentration that can be measured accurately is 0°C ~ 70°C. If the measured temperature exceeds the specified temperature range, error display appears on the LCD display. Since it may cause trouble, pull out the salt meter promptly from the food.
- (2) Keep the sensor over 1cm away from the side or bottom of the container when measuring. Be careful to avoid touching solid materials such as crab or shells. When it touches the container or solid material, the reading may be lower than the actual measurement.
- (3) With food that contains a high volume of different ion types such as calcium and magnesium, the salt concentration may appear in higher than it should : <Example> Vegetables and fruits such as pumpkins and apples.
- (4) When foods with high viscosity are measured, the salt concentration may appear lower than it actually is.
- (5) Refrain from measuring of food (cream, soup and so on) in which there is a lot of oil. Since food such as butter and margarine have high fat, they may generate an oil film on the sensor surface, and exact measurement cannot be done.
- (6) For things in which the salt concentration exceeds 5%, dilute with water and then measure.
- (7) For solid materials, break into bits and dilute with water, before measuring.
- (8) After measurement, wash the sensor with neutral detergent using a soft cloth and sponge. After rinsing fully with water, wipe off water from the sensor using a dry cloth or tissue and always keep dry when not in use.