*pen type*

# Salt meter

**Model : PSA-312**


Your purchase of this Salt meter . marks a step forward for you into the field of precision measurement. Although this Meter is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

# OPERATION MANUAL

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# 1. FEATURES

* All in one pen type Salt meter provides fast, accurate readings with digital reading.
* Salt measurement ( % ).
* Salt measurement : 0 ~ 7.0 %.
* Temperature measurement : 0 ~ 100 ℃
* Pt electrode for long life.
* Build in temperature sensor, ATC ( auto temperature compensation ).
* Temperature measurement, ℃, ℉.
* IP67, water proof and protection.
* LCD with two displays show Salt and Temp. value at same time.
* Data hold function for freezing the desired value.
* Auto power off to save the battery life.
* Records max. and min. value with recall.
* Microcomputer circuit, intelligent function, high accuracy.
* Compact size, light weight.
* Power supply by DC 1.5 V battery ( UM4/AAA ) x 4 PCs,
* Available for wide applications, such as ,beverage, food processing,laboratory, quality control,water conditions.

## 2. SPECIFICATIONS

| | |
|---|---|
| Display | LCD, size : 20 mm x 28 mm. |
| Measurement | * Salt (% )<br>* Temperature |
| Salt Probe Structure | Pt electrode for long life. |
| Data Hold | Freeze the display reading. |
| Memory Recall | Maximum & Minimum value. |
| Sampling Time | Approx. 0.8 second. |
| Circuit | Custom one-chip of microprocessor LSI circuit. |
| Power off | Auto shut off saves battery life or manual off by push button.<br>* *Power will off automatically after 10 min., if no button be pressed.* |
| Meter Operating Temperature | 0 to 50 ℃ ( 32 to 140 ℉ ). |
| Meter Operating Humidity | Less than 80% RH. |
| Power Supply | DC 1.5V battery ( UM-4/AAA ) x 4 PCs. |
| Power Consumption | Approx. 5.7 mA. |
| Dimension | 190 x 40 x 40 mm<br>( 7.5 x 1.6 x 1.6 inch ). |
| Weight | 171 g/0.38 LB. |
| Standard Accessories | Instruction Manual..... 1 PC<br>SALTPB-01..... 1 PC |
| Power off | Auto shut off saves battery life or manual off by push button.<br>* *Power will off automatically after 10 min., if no button be pressed.* |
| Optional Accessories | * Soft carrying case with sash ( 210 x 80 x 50 mm ), Model : CA-52A<br>* Hard carrying case ( 280 x 195 x 65 mm ), Model : CA-06 |

## *2-2 Electrical Specifications (23±5 ℃)*

### *A. SALT*

| | |
|---|---|
| Measurement Ranges | * Salt (% ) : 0 ~ 7.0 % Salt ( % weight )<br>* Temperature ( ℃,℉) : 0 ~ 100 ℃ |
| Resolution | Salt (% ): 0.1 % Solt |
| Accuracy<br>*( 23 ±5 ℃)* | *SALT:*<br>0 ~ 2.0% Salt : ( ± 0. 2 )<br>*3.1 ~ 7.0% Salt : ( ± 0. 4 )* |

* *Above specification tests under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.*

### *B. Temperature*

| **Function** | **Measuring Range** | **Resolution** | **Accuracy** |
|---|---|---|---|
| ℃ | 0 ℃ to 100 ℃ | 0.1 ℃ | 0.8 ℃ |
| ℉ | 32 ℉ to 212 ℉ | 0.1 ℉ | 1.5 ℉ |
| * @ 23±5℃ | | | |

* *Above specification tests under the environment RF Field Strength less than 3 V/M & frequency less than 30 MHz only.*

# 3. FRONT PANEL DESCRIPTION

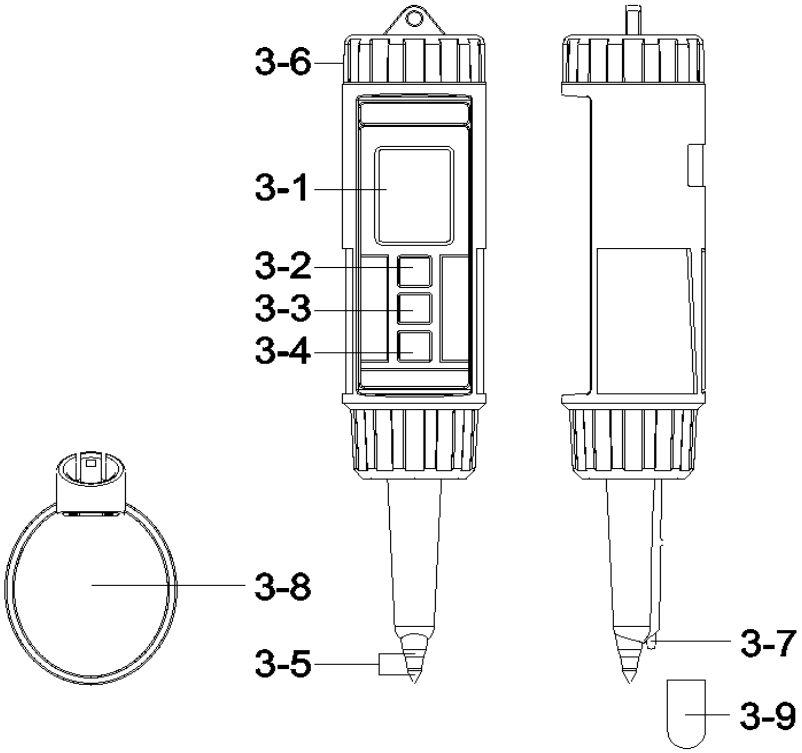


Fig. 1

3-1 LCD Display
3-2 Power Button
3-3 Hold Button
3-4 REC Button ( Unit Button )
3-5 Salt Sensor Electrode
3-6 Battery compartment/Cover
3-7 Temprature sensor
3-8 Test Spoon
3-9 Protective cap

# 4. MEASURING PROCEDURE

### *4-1 Salinity & Temprature Measurement*

1. Rinse the sensor electrode with deionized or distilled water before use to remove impurities that may adhere to the electrode.

2. Turn on the meter by pressing the " Power Button " ( 3-2, Fig. 1 ) momentarily.Press the " Power Button " ( 3-2, Fig. 1 ),momentarily again will turn off the meter.

3. Test spoon( 3-8, Fig. 1 ) Insert the electrode, as Fig. 2
   Use the test spoon to scoop the liquid to be tested, that the electrodes are must be completely submersed.

4. Un-use the test spoon to tested the liquid , that the electrodes are must be completely submersed, as Fig. 3
   and Slowly stir the solution with the electrode to remove air bubbles.

5. The meter test Results will be displays the salinity reading at the center of the LCD with the temperature reading shown on the lower LCD area in smaller digits.

Remark:

When food that contains a high volume of different ion type ,as calcium and magnesium, the salt concentration reading value,May be higher than the actual value.

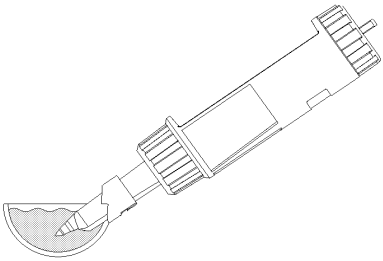

Fig. 2

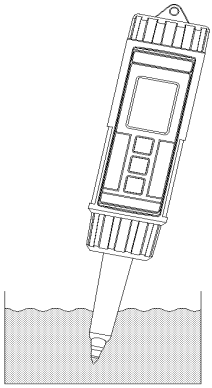

Fig. 3

### *4-2 Finishing a Measurement Session*

After a measurement :

1. Rinse the sensor electrode in deionized or distilled water and store dry.

2. Affix the protective cap over the electrode when storing.
   (use the "Protective cap (3-9 Fig1)" cove to "Salt Sensor Electrode(3-5 Fig )")

3. If the unit is to be left un-unused for long periods, remove and store the batteries separately.

### *4-3 Calculate salt content(g)*

Calculation formula: Salt content = total liquid × concentration

Example:

If the total liquid of a cup of solution 150g,
measure a concentration of 0.5%
Calculation :

150g × 0.5 / 100 = 0.75g

so the Salt content = 0.75 g

***Remark:***

<u>According to the recommendations of the World Health Organization, adult daily salt intake should be less than 5 grams, equivalent to sodium intake per day should be less than 2 grams.</u>

### *4-4 Data Hold*

1) During the measurement, press the " Hold Button " ( 3-3, Fig. 1 ) momentarily to hold the measured value. The LCD will show a " HOLD " symbol.
2) Press the " Hold Button " once again to release the data hold function.

### *4-5 Data Record ( Max., Min. reading )*

1) The data record function records the maximum and minimum readings. Press the " REC Button " ( 3-4, Fig. 1 ) momentarily to start the Data Record function, shows " REC " on the display.

2) With the " REC " symbol on the display.
   a) Press the " REC Button " ( 3-4, Fig. 1 ) momentarily, the " REC MAX " symbol along with the maximum value will appear on the display.

   b) Press the " REC Button " ( 3-4, Fig. 1 ) momentarily again, the " REC MIN " symbol along with the minimum value will appear on the display.
      * *When display shows " REC MAX " or " REC MIN ",press the " Hold Button " ( 3-3, Fig. 1 ) momentarily will delete the max. ( min. ) value, the display will show the " REC. " only and execute the memory function continuously.*

   c) To exit the memory record function, press the " REC " button for 2 seconds at least. The display will revert to the current reading, not show " REC " indicator.

### *4-6 Change Temp. unit ℃, ℉*

1) The temperature units can be selected to ℃ or ℉.

2) Pressing the " REC Button, Unit Button " ( 3-4, Fig. 1 ) continuously at least 2 seconds, then Temp. unit will change from ℃ to ℉ or ℉ to ℃.

3) After the temperature unit is selected, it will be memorized into the memory circuit . If power off and on again will present the existing selection Temp. unit.

### *4-7 Auto power off management*

The meter has built-in "Auto Power Shut-off " function in order to prolong battery life. The meter will switch off automatically if none of the buttons are pressed within 10 min..

## 5. CALIBRATION

The meter already made the calibration precisely during the production in the factory. When the user get the meter, the calibration are not necessary. However after use the meter for a long period, if necessary to make the calibration, please contact the distributor and should calibrated by the authorized technician people only.

## 6. REPLACEMENT OF BATTERY

1) When the LCD display show "  " , it is necessary to replace the battery. However, in-spec measurement may still be made for several hours after Low Battery Indicator appears before the instruments instrument become inaccurate.
2) To replace the battery, rotate and remove the " Battery Cover " ( 3-6, Fig. 1 ), take out the old batteries, install new batteries :
   **DC 1.5V battery ( UM-4/AAA ) x 4 PCs.**
3) **When install the batteries, should make attention the battery polarity.**
4) After install the batteries, reinstall the battery cover again.

## 7. OPTIONAL ACCESSORIES

| | |
|---|---|
| Hard carrying case.<br>Model : CA-06<br>280 x195 x 65 mm | Soft carrying case.<br>Model : CA-52A<br>210 x 80 x 50 mm |
| | |