

SM-8

Salt Analyzer

Operator's Manual



Newport Electronics, Inc.

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This product may be covered by one or more
of the following patents:

United States Patents Des. 336,895; 5,274,577

France Brevet No. 91 12756

Spain 2039150

United Kingdom Patent No. 2248954
and other international patents pending

From the technical library of:

Warranty

All Products from NEWPORT ELECTRONICS, INC. are warranted against defective material and workmanship for a period of one (1) year from the date of delivery.

If the unit should malfunction, it must be returned to the factory for evaluation. NEWPORT's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by Newport, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of NEWPORT's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

In addition to NEWPORT's standard warranty period, NEWPORT ELECTRONICS will extend the warranty period for one (1) additional year only if the warranty card enclosed with each instrument is returned to NEWPORT.

Newport is glad to offer suggestions on the use of its various products. Nevertheless, NEWPORT warrants only that the parts manufactured by it will be as specified and free of defects. NEWPORT MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive and the total liability of NEWPORT with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall NEWPORT be liable for consequential, incidental or special damages.

Every precaution for accuracy has been taken in the preparation of this manual; however, NEWPORT neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the products in accordance with the information contained in the manual.

SPECIAL CONDITIONS: Should this equipment be used in any nuclear installation or activity, purchaser will indemnify NEWPORT and hold NEWPORT harmless from any liability or damage whatsoever arising out of the use of the equipment in such a manner.

Return Requests

Direct all warranty and repair requests/inquiries to the NEWPORT Customer Service Department. BEFORE RETURNING ANY PRODUCTS(S) TO NEWPORT, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM NEWPORT'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit. NEWPORT's warranty does not apply to defects resulting from action of the buyer, mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification.

For technical or application assistance please call:

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TEL: 95-800-NEWPORT

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Unpacking

Remove the Packing List and verify that you have received all equipment, including the following (quantities in parentheses):.

- 1 soft carrying case
- 1 9V alkaline battery
- 1 wire brush
- 1 bottle of buffer solution (pH 7.00)
- 1 package of detergent powder (may be labeled "ALCONOX")
- 1 Operator's Manual

The carrying case contains the following:

- 1 small screwdriver
- 1 SM-8

If you have any questions about the shipment, please call the NEWPORT Customer Service Department.

When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.



General Description

The NEWPORT® SM-8 is a handheld salt analyzer designed for the food and beverage industry, which measures the percentage of salt over two ranges of concentration. Factory calibrated for % NaCl, the SM-8 describes the nonlinear relationship between the conductivity and the % NaCl. An alternate, switch selectable, "adjustable" mode allows the SM-8 to be calibrated to salts with similar characteristics of conductivity to percent concentration.

Parts of the Meter

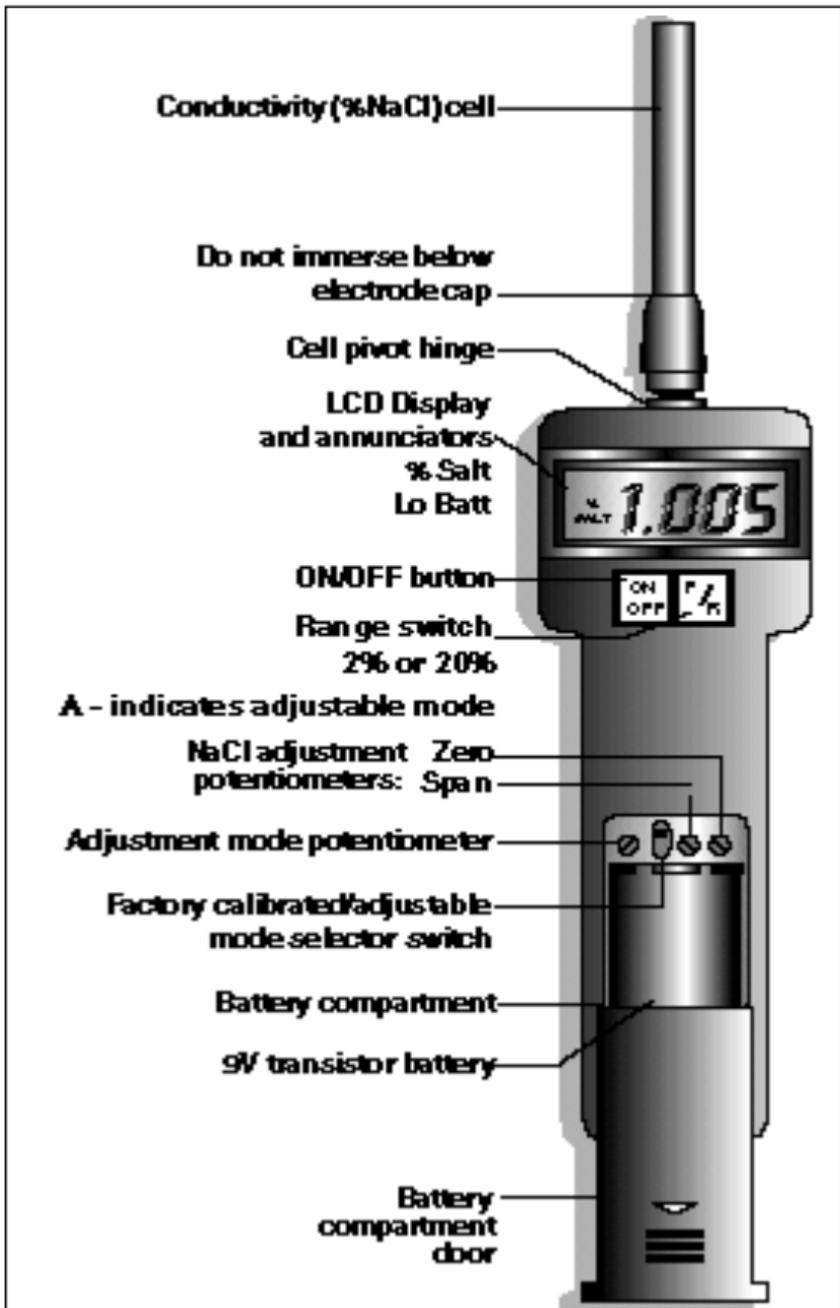


Figure 1. Parts of the Meter



Setting Up the Meter

Installing the Battery (Fig 2)

Carefully remove the meter from the carrying case making sure you don't lose the small screwdriver.

To install/change the battery, do the following:

1. Insert your thumb in the recessed area of the battery compartment door and pull it away from the display.
2. Snap the 9V alkaline battery into the battery clip.
3. Place the battery clip/battery assembly at the top of the battery compartment.
3. Replace the battery compartment door and snap into place.

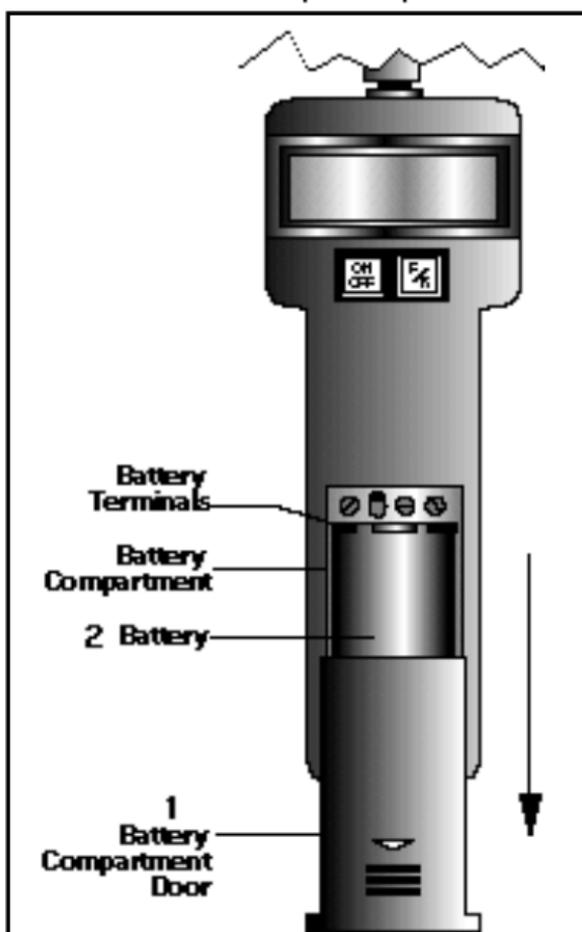


Figure 2. Installing the Battery



Operating Instructions

1. Energize by depressing the ON/OFF switch once.
2. Slide open the battery compartment door and select either the calibrated or adjustable mode by sliding the mode switch to the "C" or "A" position.
3. Immerse cell into the solution approximately $1/2$ its length.
4. The SM-8 measures in 2 ranges; 0 to 1.999 %NaCl and 0 to 19.99 %NaCl. For each range change desired, depress the F/R switch once.
5. Agitate electrode briefly and record the reading.
6. A 1 will appear in the indicator if the solution exceeds the measurement range.
7. After each use, clean and rinse the salt cell with the maintenance kit provided. (brush and detergent powder)



Operating Tips

1. The salt cell should be rinsed thoroughly after each test.
2. When possible, test samples of a lower salt value first.
3. If salt cell does not zero in air, it may indicate dried solids on the sensing portion of the cell (s. steel bands). Clean with the maintenance kit and solutions provided, remembering not to use abrasive materials that might scratch the sensing portion of the salt cell.
4. When possible, choose calibration solutions with values that are near the samples normally being measured.
5. If the instrument will be stored for long periods of time, remove the battery.





Calibrating the Meter

Your instrument has been pre-calibrated prior shipment. Calibrations should be performed periodically with known salt solutions.

Calibration Mode

1. Clean the salt cell thoroughly with the maintenance kit provided, then rinse by agitating in distilled water prior to calibration.
2. Wipe off and allow the cell to dry.
3. Once dry, % salt should read 0 in air.
4. Adjust the "Zero" pot to zero if the reading is incorrect.
5. Immerse the salt cell in a known NaCl solution, adjust the span pot to corresponding salt value.
6. Rinse the cell in tap water and repeat calibration steps 2,3,4 & 5 for the next range.

Adjustable Mode

1. Always start with an instrument that has been correctly calibrated in the "C" mode for both ranges.
2. Dry cell should read 0 in air.
3. Immerse the salt cell in a known NaCl solution obtained through titration or other in-house methods.
4. Adjust the "adj." pot to correspond with the known value.
5. Rinse cell thoroughly in tap water.



Specifications

Range: 0.000 to 1.999% NaCl;
0.00 to 19.99% NaCl

Accuracy: 0.000 to 1.999%NaCl,
 $\pm 0.03\%$
0.00 to 19.00% NaCl
 $\pm 0.3\%$

Temperature Compensation: 0 to 82°C

Accuracy: 0.0 to 50°C, $\pm 0.01\%$
50 to 82°C, $\pm 0.03\%$

Power: 9V Battery

