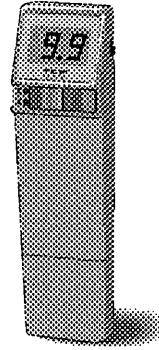
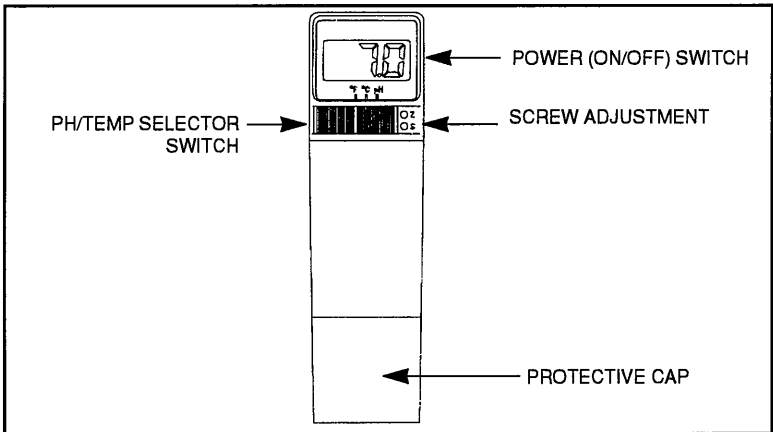


NEWPORT®

LITMUSTIK® HHpH1/HHpH1-KIT Pocket pH Tester



The HHpH1 pocket-size pH tester combines pH electrode, temperature sensor and readout into a single, compact unit. The electrode module contains a signal amplifier and a temperature sensor to let you take temperature-compensated readings. The electrode module is easily replaced, thus extending the life of this handy pocket tester. The electrode module detaches for easy replacement or battery removal. The unit can be immersed up to 4" without damage. The HHpH1 has two-point calibration for both temperature and pH scales.



Before First Use

You must condition the unit before its first use. To do this, remove the protective cap and immerse the electrode in tap water for 30 minutes to hydrate the electrode and dissolve any crystals formed. **CAUTION: NEVER IMMERSE THE TESTER ABOVE THE YELLOW PLUG-IN ELECTRODE.**

pH is factory calibrated. However, because pH calibration should be performed on a regular basis, we advise you to verify calibration using a known pH standard solution. If the reading is inaccurate, perform pH calibration (see pH Calibration section).

11785ML-02 Rev. B

JAP1094KPC5B

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pH Calibration

pH calibration is required to maintain instrument accuracy. Calibration should be performed on a regular basis; however, frequency of calibration is application dependent.

1. Turn on the power switch at the right side of the unit and set the selector switch to the pH position. Remove the end cap and the place tester in a container of pH 7.0 buffer solution. Stir gently and wait a few seconds.
2. After the reading has stabilized, adjust (S) trimmer with a small screwdriver to a reading of 7.0.
3. Rinse the electrode with distilled or deionized water. Shake the unit with a gentle snap motion to remove excess water from the probe.
4. Place the tester in a container of pH 4.0 or 10.0 buffer solution and adjust (Z) trimmer for a reading of 4.0 or 10.0.
5. Rinse the electrode with distilled or deionized water. Shake the unit with a gentle snap motion to remove excess water from the probe.
6. Repeat above steps as required.

Temperature Calibration

1. Remove the end cap and the place tester in a container of ice water. Allow 8 minutes for the reading to completely stabilize. Gently stir the ice water.
2. Set the range switch to degrees F and adjust (Z) trimmer for a reading of 32.
3. Place the tester in a container of water at a known higher temperature within the meter's specified temperature range. Allow a minimum of 8 minutes for the reading to completely stabilize. Adjust (S) trimmer for a reading of the known temperature on the display.
4. Repeat above steps as required.

Operating Procedure

After calibration, sample measurements can be performed.

1. Dip the tester in solution up to 1 inch level. Under no circumstances immerse above the top of the yellow electrode.
2. Stir gently and wait a few seconds.
3. When not in use, switch off the tester. To ensure optimum operation, the electrode should be kept moist. If the soaker pad in the bottom of the protective cap is dry, pour pH 4.0 or pH 7.0 buffer solution into the cap to remoisten the pad. Should the pad be missing, simply add pH 4.0 or pH 7.0 buffer solution to the cap and replace.

Maintenance is Easy!

Rinsing the electrode with distilled or deionized water between samples and after use will prevent cross contamination and help extend useful life. When using aggressive solutions, or solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately afterwards with deionized water to remove any residue. This helps eliminate any possible contamination of the electrode.

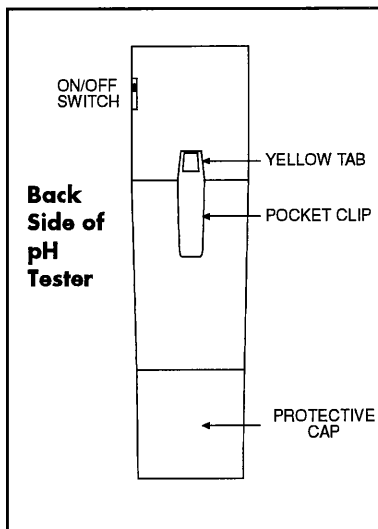
Maintaining the protective cap soaker pad by moistening with pH 4.0 or pH 7.0 buffer solution will help maximize electrode life. When the electrode will no longer calibrate or the pH reading stays at a fixed value, replace the electrode module. pH electrode life is typically 6 months to 1 year depending on the application.

Replacing the Electrode Module

To replace the electrode module:

1. Press the yellow tab on the back of the unit above the pocket clip and gently pull the electrode module off the electronic assembly.
2. Slide the new electrode module onto the electronic assembly until the yellow tab locks into place.

Every time you replace the electrode module, you must perform pH calibration. Temperature is factory calibrated; therefore temperature calibration should not be necessary.



Changing Batteries

Remove yellow plug-in electrode while pressing yellow tab above pocket clip. Replace old batteries with fresh ones, noting polarity as shown in the battery compartment. Note: No battery connector wires to break!

Specifications

pH

Range: 0.0 to 14.0 pH

Resolution: ± 0.1 pH

Accuracy: ± 0.1 pH ATC

GENERAL

Display: 2 1/2 digit 0.5" high LCD

Battery: Three 1.35 V (included)

Battery Life: 200 hr continuous

Dimensions: 6" H x 1.7" W x 0.9" D
(162 x 43 x 23 mm)

Weight: 4 oz (113 gr)

TEMPERATURE

Range: 32 to 158°F (0 to 70°C)

Resolution: $\pm 1^\circ\text{C}$ or F

Accuracy: $\pm 1^\circ\text{C} + 1$ digit

REPLACEMENT PARTS

HHpH1-R: Electrode Module

PH-BATT-12: 1.35 V Batteries,
12-pack

PH-BATT-1: 1.35 V Battery
(3 required)

PHA-4: Buffer solution, pH 4.0

PHA-7: Buffer solution, pH 7.0

PHA-10: Buffer solution, pH 10.0

PHA-4710/N: 2 each of PH4, PH7, and
PH10 buffer capsules.

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 OUR 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 purchaser, mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification.

FOR **WARRANTY RETURNS**, please have the following information available BEFORE contacting NEWPORT:

1. P.O. number under which the product was PURCHASED.
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY REPAIRS**, consult NEWPORT for current repair charges. Have the following information available BEFORE contacting NEWPORT:

1. P.O. number to cover the COST of the repair
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

For technical or application assistance please call:

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