## Error Messages

- During user calibration, if the reading is out of the accepted range, the meter will displayed "---- Err".
- pH 14.0 or 0.0 blinking means the limit of the measured value is out of range. Verify that the electrode is in solution.
- If the measured temperature is higher than 50.0 °C or lower than 0.0 °C, the 50.0 °C or 0.0 °C message is displayed blinking.
- If the buffer is not recognised "----Err" is displayed. Check the buffer, clean the electrode or press CAL button to exit calibration.

Care and Maintenance

To obtain the highest accuracy for measurements it is important to follow these tips:
- Calibration is only as good as the buffers being used. The pH buffers value change over time once the sachets are opened. Fresh buffer should be used for each calibration.
- The electrode should be rinsed with purified water each time before placing in buffer or sample to be tested.
- When the meter is not in use it is important to add several drops of storage solution to a sponge in the protective cap to keep the electrode hydrated. If storage solution is not available, then pH 4.01 or pH 7.01 buffer can be used.
- For improved accuracy it is recommended to calibrate in two buffers. It is important to use buffers that bracket the expected value of the sample to be tested. For example, if the expected value is pH 8, the meter should be calibrated using pH 7.01 and 10.01 buffers.
- In case of erroneous readings even after an accurate conditioning and calibration, the reference junction might be contaminated or clogged. Pull out 2 mm (1/8") of the cloth junction to renew the electrode reference (it is recommended to cut the cloth leaving always at least 2 mm - (1/8") over the reference compartment) and recalibrate the meter. The cloth junction can be pulled out approximately 12 times.
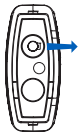
- If the electrode or junction is dirty soak the tip in HI7061 cleaning solution for 30 minutes, rinse thoroughly in distilled water and then follow cleaning procedure.
- Removal of films, dirt or deposits on the membrane/junction:
- General   Soak in Hanna Instruments HI7061 General Cleaning Solution for approximately 1 hour.
- Protein   Soak in Hanna Instruments HI7073 Protein Cleaning Solution for 15 minutes.
- Inorganic   Soak in Hanna Instruments HI7074 Inorganic Cleaning Solution for 15 minutes.
- Oil and grease   Rinse with Hanna Instruments HI7077 Oil and grease Cleaning Solution

IMPORTANT: After performing any of the cleaning procedures rinse the electrode thoroughly with distilled water, and soak the electrode in HI70300 Storage Solution for at least 1 hour before taking measurements.

Battery Replacement
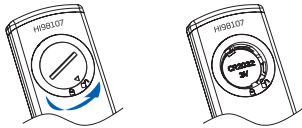
The meter features a low battery indicator. When the battery is running low (under 10%), the battery indicator will blink on the LCD. When the battery is discharged "dEAd bAtt" will be displayed on the LCD for 2 seconds and the meter will turn off. To change the CR2032 Li-ion battery, turn the battery cover located on the back of the meter counterclockwise to unlock. Remove cover and replace with new battery + side facing up.

Note: Batteries should only be replaced in a safe area using the battery type specified in this instruction manual. Old batteries should be disposed in accordance with local regulations.

Accessories

pH Buffer Solution

Code	Description
HI70004P	pH 4.01 buffer solution, 20 mL sachets (25 pcs.)
HI70007P	pH 7.01 buffer solution, 20 mL sachets (25 pcs.)
HI70010P	pH 10.01 buffer solution, 20 mL sachets (25 pcs.)
HI77400P	pH 4.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)
HI770710P	pH 10.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)

Electrode Cleaning Solution

Code	Description
HI7061M	General purpose cleaning solution, 230 mL bottle

Electrode Storage Solution

Code	Description
HI70300M	Electrode storage solution, 230 mL bottle

Certification

All Hanna Instruments conform to the **CE European Directives.**

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.
Disposal of waste batteries. This product contains battery, do not dispose of it with other household waste. Hand it over to the appropriate collection point for recycling. Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

Recommendations for Users

Before using this meter, make sure that it is entirely suitable for your specific application and for the environment in which it is used. Avoid touching the electrode area. Any variation introduced by the user to the supplied equipment may degrade the meter's performance. For your and the meter's safety do not use or store the meter in hazardous environments.

Warranty

HI98107 is warranted for a period of one year against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered.
If service is required, contact your local Hanna Instruments office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments office, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

Hanna Instruments reserves the right to modify the design, construction, or appearance of its products without advance notice.
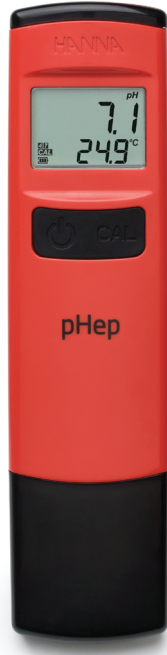
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INSTRUCTION MANUAL

pHep
HI98107
Pocket-sized pH Meter

Preliminary Examination

Remove the meter and accessories from the packing material and examine it carefully. If you require any further information, please contact Hanna Instruments technical support team at tech@hannainst.com.

Each meter is supplied with:

- Electrode cleaning solution sachet
- pH 4.01 buffer solution sachet
- pH 7.01 buffer solution sachet (2 pcs.)
- CR2032 battery
- Storage / Protection sleeve
- Quality certificate
- Instruction manual

Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packaging with the supplied accessories.
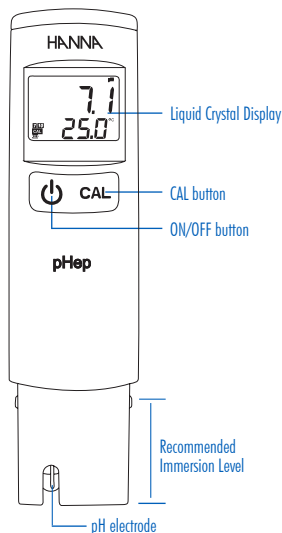
Preparation

The pH electrode is shipped dry. Before using the pH electrode, remove the protective cap and condition the electrode by soaking the tip (bottom 3 cm (1.18")) in HI70300 storage solution or in pH 7.01 buffer solution for several hours. Then follow the calibration procedure:

- Do not be alarmed if white crystals appear around the cap. This is normal with pH electrodes and they dissolve when rinsed with water.
- Turn the pH electrode on by pressing ON/OFF button.
- Remove the protective cap and immerse the tip of the electrode in the sample to be tested.
- Stir gently and wait for the stability tag to disappear.
- For best results, recalibrate periodically.
- After use, rinse the electrode with water and store it with a few drops of HI70300 storage solution or pH 4.01 or pH 7.01 buffer solution in the protective cap.
- Always put back the protective cap after each use.
- Do not use distilled or deionized water for storage purposes.
- Large differences in pH readings (±1.0 pH) could result from lack of calibration or dry electrode.

Note: The electrode tip should be rinsed with purified water (reverse osmosis, distilled, or deionized) before and after placing in any solution (buffer, storage or sample).

Operation

Liquid Crystal Display

CAL button

ON/OFF button

pHep

Recommended Immersion Level

pH electrode

Specifications

Range	0.0 to 14.0 pH 0.0 to 50.0 °C (32.0 to 122.0 °F)
Resolution	0.1 pH / 0.1 °C / 0.1 °F
Accuracy (@25 °C/77 °F)	±0.1 pH / ±0.5 °C / ±1.0 °F
Calibration	automatic, one or two-points (pH 4.01, 7.01, 10.01)
Temperature Compensation	automatic, 0 to 50 °C
Battery Type	CR2032 3V Li-ion (1 pc.)
Battery Life	approximately 800 hours of continuous use
Environment	0 to 50 °C (32 to 122 °F); RH 100% max
Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")
Weight (without battery)	65 g (2.3 oz.)

Operational Guide

To turn the meter ON

Press the ON/OFF button to turn the meter on. At start-up, all the LCD segments are displayed for 1 second, then the percent indication of the remaining battery life is displayed for another second. The meter then enters the normal measuring mode.

Note: Keeping the ON/OFF button pressed while turning the meter on will display all LCD segments as long as the button is pressed.

To enter calibration mode

Press the CAL button. "CAL" message is displayed.

To enter setup mode

While in measurement mode, remove the battery cover and press the button inside the battery compartment.

Meter Setup

While in measurement mode, remove the battery cover. Press the Setup button located on the side of the battery in the battery compartment. The meter will enter in setup mode. Press the ON/OFF button to move through setup parameters. Press the CAL button to change the settings.

Setup Button

The default settings are: "Set t" measure unit - °C, "AOFF" - 8 min. After the last setting, it will exit Setup.

To select the temperature unit (°C/°F)

To select the measurement unit when "Set t" is displayed press the CAL button to change between °C or °F.

To select the Auto-Off time

To select AOFF TIME unit when "AOFF" is displayed press the CAL button to change between 8 min, 60 min or --- (disabled).

To return to measurement mode

Press ON/OFF button to exit the menu.

pH Measurement and Calibration

- Make sure the meter has been calibrated before use.
- If the electrode is dry, soak it in HI70300 storage solution for 30 minutes to reactivate it.
- Submerge the electrode in the sample to be tested while stirring it gently. Wait until the Stability Indicator on the LCD disappears.

- The LCD displays the pH value (automatically compensated for temperature) on the primary LCD, while the secondary LCD displays the sample temperature.
- If measurements are taken in different samples successively, rinse the electrode tip thoroughly to eliminate cross-contamination. After cleaning, rinse the electrode tip with some deionized water and some of the sample to be measured.

pH calibration

- Enter calibration mode while in pH measurement mode.
- Place the electrode into the first calibration buffer. If performing a two-point calibration, use pH 7.01 buffer first.
- The meter will enter the calibration mode, displaying "pH 7.01 USE".

Single-point calibration

- Place the electrode in buffer pH 7.01, 4.01 or 10.01 buffer. The meter will automatically recognize the buffer value.
- If the buffer is recognized "REC" is displayed until the reading is stable and the calibration is accepted.
- If the buffer is not recognized, the pH electrode is not immersed in solution, or the reading is out of the accepted range "---- Err" is displayed.
- If using pH 7.01, after acceptance of the buffer press CAL button to exit. "Stor" message is displayed and meter returns to pH measurement mode.
- If using pH 4.01 or pH 10.01 buffer the "Stor" message is displayed and meter returns to pH measurement mode.
- The "CAL" tag will be shown in measurement mode with the calibrated buffer tag next to it.

Two-point calibration

Proceed with steps 1 through 3 under single-point calibration using pH 7.01 buffer first. Then follow steps below:

- The "pH 4.01 USE" message is then displayed.
- Place the electrode in the second calibration buffer (pH 4.01 or 10.01). When the second buffer is accepted, the LCD will display "Stor" for 1 second and the meter will return to the normal measurement mode.
- The "CAL" tag will be displayed in measurement mode with the calibrated buffers.
- If the buffer is not recognized or the slope is out of accepted range "---- Err" is displayed. Change the buffer, clean the electrode or press any key to exit calibration.

It is always recommended to carry out a two-point calibration for better accuracy.

Clear calibration

Press Cal button. Meter enters in calibration mode.

Press ON/OFF button and CLR is displayed. The meter will now be at default calibration.

The "CAL" tag will be cleared in measurement mode, indicating the missing calibration, until a new calibration will be performed.