

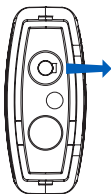
## Troubleshooting

- In calibration mode, the “--- Err” message is displayed if the reading is outside accepted range or buffer solution is not recognized.
- If the probe is not in buffer solution, “pH 14.00” or “pH 0.00” is displayed blinking.
- If measured temperature is outside accepted range, “0 °C” or “50 °C” is displayed blinking.

## Care & Maintenance

Please read the information below to ensure highest possible accuracy.

- Fresh buffers should be used for each calibration, once the sachets are open the buffer value can change over time.
- If the measurements are taken successively, rinse the probe thoroughly in purified water to eliminate cross-contamination.
- When not in use, add a few drops of storage solution to the protective cap to keep the junction hydrated. If storage solution is not available, pH 4.01 or pH 7.01 buffer can be used.
- For improved accuracy, a two-point calibration is recommended.
- When dirty, the junction can be pulled out to expose a fresh section. Pull out 3 mm (1/8”) of the cloth, making sure that the reference compartment remains covered. This procedure can be repeated approximately 9 times, renewing the tester’s life.



- If the electrode or junction is dirty, soak the tip in HI7061 General purpose cleaning solution for 30 minutes. Rinse with distilled water and follow cleaning procedure.

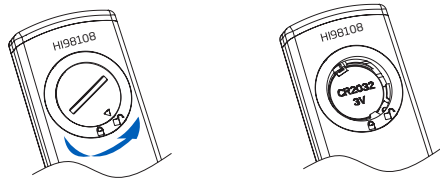
Film deposits and other impurities that accumulate with use must be removed periodically off the membrane or junction.

- **General:** Soak in HI7061 General cleaning solution for approximately 1 hour.
- **Protein:** Soak in HI7073 Protein cleaning solution for 15 minutes.
- **Inorganic:** Soak in HI7074 Inorganic cleaning solution for 15 minutes.
- **Oil & grease:** Rinse with HI7077 Oil and grease cleaning solution.

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

## Battery Replacement

Battery life percentage indicator is displayed at power on. If the battery level drops below 10%, the battery symbol starts blinking. If the battery is discharged, “dEAd bAtT” is displayed and then the tester turns off.



To change the CR2032 Lithium-ion battery, turn the battery cover located on the back of the tester counterclockwise to unlock. Remove the cover and replace the battery with positive (+) side facing out.

**Note:** Only use the battery type specified in the manual. Old batteries should be disposed in accordance with local regulations.

## Accessories

### pH Buffer Solution

HI70004P	pH 4.01 buffer solution, 20 mL sachet (25 pcs.)
HI70007P	pH 7.01 buffer solution, 20 mL sachet (25 pcs.)
HI70010P	pH 10.01 buffer solution, 20 mL sachet (25 pcs.)
HI77400P	pH 4.01 & 7.01 buffer solution, 20 mL sachet (10 pcs., 5 each)
HI770710P	pH 10.01 & 7.01 buffer solution, 20 mL sachet (10 pcs., 5 each)

### Electrode Cleaning Solution

HI7061M	General purpose cleaning solution, 230 mL
HI7073	Protein cleaning solution
HI7074	Inorganic cleaning solution
HI7077	Oil and Grease cleaning solution

### Electrode Storage Solution

HI70300M	Electrode storage solution, 230 mL
----------	------------------------------------

## 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 batteries, do not dispose of them with other household waste. Hand them 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, the place of purchase or go to [www.hannainst.com](http://www.hannainst.com).



## Recommendations for Users

Before using this product, make sure 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 tester’s performance. For yours and the tester’s safety do not use or store the tester in hazardous environments.

## Warranty

This tester 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, 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.**

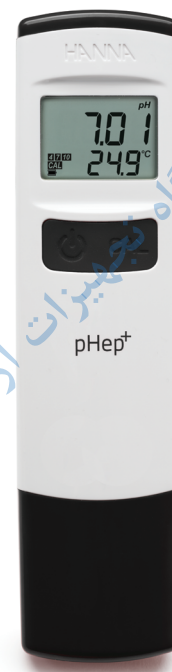
All rights are reserved. Reproduction in whole or in part is prohibited without the written consent of the copyright owner, Hanna Instruments Inc., Woonsocket, Rhode Island, 02895, USA.

## INSTRUCTION MANUAL

# pHep<sup>+</sup>

## HI98108

### Pocket-sized pH Tester



## Dear Customer,

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the tester. For more information about Hanna Instruments and our products, visit [www.hannainst.com](http://www.hannainst.com) or e-mail us at [sales@hannainst.com](mailto:sales@hannainst.com).

For technical support, contact your local Hanna Instruments Office or e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).

## Preliminary Examination

Remove the tester 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](mailto:tech@hannainst.com).

Each HI98108 pHep+ is delivered in a polypropylene rigid case with a sleeve and is supplied with:

- HI70004 pH 4.01 buffer solution, 20 mL sachet
- HI70007 pH 7.01 buffer solution, 20 mL sachet (2 pcs.)
- HI700601 General purpose cleaning solution, 20 mL sachet
- Protective cap
- CR2032 3V Lithium-ion battery
- Instrument quality certificate
- Instruction manual

**Note:** Save all packing material until you are sure that the tester works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

## General Description & Intended Use

HI98108 pHep+ is a compact and waterproof pH tester that can be used in laboratories and industrial applications.

It features a two buttons operation system and is easy to use.

The tester displays a stability tag that will disappear once the reading has stabilized and a low battery indicator to notify the user in the event that low battery power could adversely affect readings.

All readings are automatically compensated for temperature variations with a built-in temperature sensor.

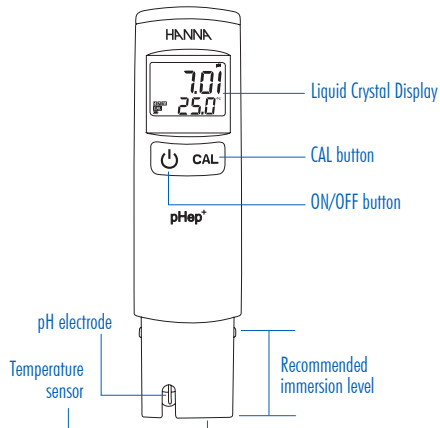
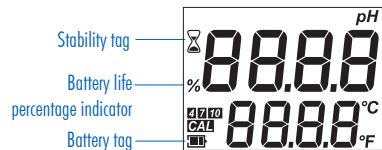
The 2 cm long renewable cloth junction extends the life of the electrode when compared with normal junction that can clog with use over time.

**Temperature Sensor:** The exposed temperature sensor facilitates faster and more accurate temperature measurement.

## Specifications

Range	0.00 to 14.00 pH 0.0 to 50.0 °C (32.0 to 122.0 °F)
Resolution	0.01 pH / 0.1 °C / 0.1 °F
Accuracy (@25 °C/77 °F)	±0.10 pH / ±0.5 °C / ±1.0 °F
Calibration	Automatic, one, two or three-points
Temperature compensation	Automatic, 0 to 50 °C
Battery type	CR2032 3V Lithium-ion (included)
Battery life	Approx. 800 hours of continuous use
Auto-off	8 minutes, 60 minutes or disabled
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.)

## Functional Description & LCD Display



## Preparation


- Remove the protective cap. Do not be alarmed if salt deposits are present. Rinse the probe with water and blot dry.
- If the glass and / or junction are dry soak the electrode (bottom 3 cm / 1.2 ") in storage solution for a minimum of 30 minutes. Rinse with water and blot dry.
- Calibrate the electrode before using. For best results is recommended to calibrate periodically.

## Storage

- To ensure a quick response, the glass tip and the junction should be kept moist.
- Refill the protective cap with a few drops of storage solution when not in use. Do not store the electrode in distilled or deionized water.

## Operation

### Turning the Tester ON / OFF

Press the ON/OFF  button. All LCD segments will be displayed for a few seconds followed by battery life percentage indicator and stability tag. The tester enters measurement mode.

To turn the tester off, from measurement mode, press ON/OFF  button. "OFF" will be displayed on the second LCD line and the tester will turn off.

### Calibration Mode

To enter calibration mode, press CAL button and the tester displays "CAL" message indicating that the instrument is ready for measurement.

## Setup

Setup menu allows the selection of temperature unit and auto-off time.

The default settings are: "°C" for temperature unit and "8 minutes" for auto-off time.

To change the default settings, when in measurement mode, remove the battery cover and press the Setup button in the battery compartment, on the side of the battery.



Press the ON/OFF  button to move through setup parameters. Press the CAL button to change the settings.

When in setup mode with "SEI" message displayed, use CAL button to switch between "°C" and "°F".

When in setup mode with "AOFF" displayed, use CAL button to switch between auto-off time settings: 8 minutes, 60 minutes or "----" (disabled).

Press ON/OFF  button to return to the measurement screen.

## Calibration & Measurement

It is recommended to calibrate the tester frequently, especially if high accuracy is required. More frequent calibrations may be required depending on the type of sample being tested.

The tester should be recalibrated: at least once a month or after testing aggressive samples.

**Note:** For improved accuracy, follow procedure below, paying attention to recommended sequential order of pH buffer solutions: pH 7.01. 4.01 and 10.01.

### Calibration

From measurement mode, press CAL button and "CAL" is displayed.

#### One-Point Calibration

1. Place the tip of the electrode in pH calibration solution.
2. The tester automatically recognizes pH 7.01, 4.01 and 10.01 buffer values and "E.C" message is displayed. When the reading is stable, the stability icon will disappear.
3. When calibrating with pH 7.01 buffer, after calibration point has been accepted, press CAL button to save the one-point calibration. "Stor" will be displayed when the calibration is saved. The tester will then return to measurement mode.
4. When calibrating with pH 4.01 or 10.01 buffer, the buffer value will be recognized automatically and displayed. The tester will ask to use pH 7.01 buffer. Press CAL to save current calibration. "Stor" will be displayed and the tester returns to measurement mode.

#### Two-Point Calibration


1. Follow the first 2 steps from One-Point Calibration, using pH 7.01 buffer.
2. After the first buffer is recognized, place the tip of the electrode in pH 4.01 or pH 10.01 buffer.
3. When the buffer is recognized, the stability tag will disappear. Press CAL button to save the calibration. "Stor" will be displayed when the calibration is saved. The tester will return to measurement mode.

#### Three-Point Calibration

1. Follow the first 2 steps from Two-Point Calibration using pH 7.01 and 4.01 buffers.
2. Place the tip of the electrode in pH 10.01 buffer. When the reading is stable, the stability tag will disappear. "Stor" will be displayed when the calibration is saved. The tester will return to measurement mode.

**Note:** Calibrated buffer will be displayed with "CAL" tag next to it.

#### Clear Calibration

To clear the user calibration and restore the tester to factory default, from calibration mode, press ON/OFF  button. The LCD will show "Clr", indicating user calibration has been cleared.

#### Measurement

- Place the electrode in the sample and stir gently. When the reading is stable, and the stability indicator has disappeared, the measured pH value will be displayed on the first LCD line and the temperature on the second LCD line.