

Foodcare HI981032 Cheese pH Tester



Battery Replacement



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 the battery with + 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.)
HI77400P	pH 4.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)

Electrode Cleaning Solution

Code	Description
HI700601P	General purpose cleaning solution, 20 mL sachets (25 pcs.)
HI700641P	Cleaning and disinfection solution for dairy products, 20 mL sachets (25 pcs.)
HI700642P	Cleaning solution for cheese deposits, 20 mL sachets (25 pcs.)

Electrode Storage Solution

Code	Description
HI70300L	Electrode storage solution, 500 mL bottle
HI70300M	Electrode storage solution, 230 mL bottle
HI9072	Electrode storage solution, 13 mL dropper

Auto-off



From measurement mode, press and hold the ON/OFF button. The meter will cycle through "OFF," "CAL," then current auto-off setting.

The default setting is 8 minutes ("d08"). Press ON/OFF button to change. "d60" is auto-off after 60 minutes, and "d--" disables the auto-off feature. Press and hold the button to exit the menu.

Clear Calibration



Place meter in calibration mode. Press and hold ON/OFF until "CLr" is displayed. The meter will now be at default calibration.

"Err" Message



In calibration mode, if the meter displays an "Err" message when in the correct fresh buffer solution then the probe should be cleaned. Place the probe in the HI700642 cleaning solution for 20 minutes. Rinse with purified water and place in storage solution for a minimum of 30 minutes before calibrating.

Battery Indicator



The meter features a low battery indicator. When the battery is running low, the tag will blink on screen. When the battery has been depleted, "Erb" will appear on screen and the meter will turn off.

Care and Maintenance

To obtain the highest accuracy for measurements it is important to follow these tips:

- Calibration is only as good as the buffer being used. The pH buffer values change over time once the sachets are opened. Fresh buffer should be used for each calibration.
- The probe 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 the protective cap to keep the probe hydrated. If storage solution is not available, 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 calibrate and measure samples at the same temperature. A dramatic change in temperature between buffer solutions and samples to be tested will give inaccurate readings.
- If fouled, clean the electrode by soaking in cleaning solution for 20 minutes, then rinse the tip and soak in storage solution at least 30 minutes before use. Recalibrate after each cleaning.

Warranty

The meter 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.

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. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. For yours and the meter's safety do not use or store the meter in hazardous environments.

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.

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Thank You

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using this instrument.

For technical support, contact your local Hanna Instruments Office or email us at tech@hannainst.com.

To find your local Hanna Instruments Office or for additional information on Hanna Instruments products, visit www.hannainst.com

Preliminary Examination

Remove the meter from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is evident, contact your local Hanna Instruments Office.

Each meter is supplied with:

- pH 4.01 buffer solution liquid sachet (2 pcs.)
- pH 7.01 buffer solution liquid sachet (2 pcs.)
- Cleaning solution for cheese deposits (2 pcs.)
- Electrode storage solution, 13 mL dropper
- Instruction manual
- Quality certificate

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.

Intended Use

This meter is designed to measure the pH by penetration in almost all types of cheeses and curds. pH is an essential measurement throughout the entire cheesemaking process. From the initial measurements of incoming milk to the final measurements of ripened cheese, pH is the most important parameter for cheese quality and safety control.

Acidification of milk begins with the addition of bacterial culture and rennet. The bacteria consume lactose and create lactic acid as a byproduct of fermentation. The lactic acid produced will cause the pH of the milk to go down. Once the milk reaches a particular pH, the rennet is added. The enzymes in rennet help to speed up curdling and create a firmer substance. For cheesemakers that dilute their rennet, the pH of the dilution water is also critical; water that is near pH 7 or higher can deactivate the rennet, causing problems with coagulation.

Once the curds are cut, stirred, and cooked, the liquid whey must be drained. The pH of whey at draining directly affects the composition and texture of the final cheese product. Whey that has a relatively high pH contributes to higher levels of calcium and phosphate and results in a stronger curd. Typical pH levels at draining can vary depending on the type of cheese; for example, Swiss cheese is drained between pH 6.3 and 6.5 while Cheddar cheese is drained between pH 6.0 and 6.2.

Probe Features

Low Temperature Glass Formulation

The glass tip uses a special low temperature (LT) glass formulation with a lower resistance of approximately 50 megaohms compared to general purpose (GP) with a resistance of about 100 megaohms. This is beneficial since many food products are stored at low temperatures.

Conical Glass Tip

The conical shaped tip design allows for penetration into whey and semi solids for the direct measurement of pH in all types of cheeses.

Open Junction Reference

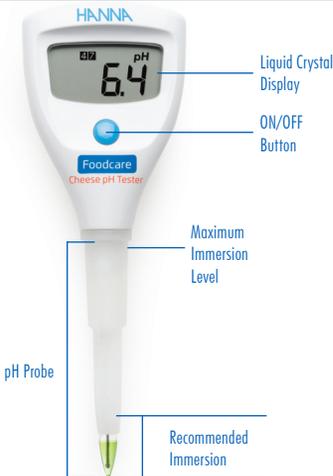
Suspended solids and proteins found in food products will clog a conventional ceramic reference junction. The open junction design consists of a solid gel interface (viscolene) between the sample and internal Ag/AgCl reference. This interface not only prevents silver from entering the sample, but also makes it impermeable to clogging, resulting in a stable liquid junction.

PVDF Body

Polyvinylidene fluoride (PVDF) is a food grade plastic that is resistant to most chemicals and solvents, including sodium hypochlorite. It has high abrasion resistance, mechanical strength, and resistance to ultraviolet. PVDF is also resistant to fungal growth.

Specifications

Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy	±0.2 pH @25 °C/77 °F
Calibration	Automatic, one or two-point
Electrode	Built-in probe for specific application
Battery Type	CR2032 Li-ion
Battery Life	Approximately 1000 hours of continuous use
Auto-off	8 minutes, 60 minutes or can be disabled
Environment	0 to 50 °C (32 to 122 °F); RH 95% max
Dimensions	50 x 129 x 21 mm (2 x 5.1 x 0.9")
Weight	40 g (1.4 oz.)



Meter Overview

Preparation:

The pH electrode is shipped with a protective cap containing storage solution. Before using the meter, **remove the protective cap** and condition the electrode by soaking the tip (bottom 4 cm (1.5")) in pH 7.01 buffer solution for several minutes. 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 meter on by pressing ON/OFF button.
- Remove the protective cap and immerse the tip of the electrode in the sample to be tested.

NEVER IMMERSER THE ELECTRODE OVER THE MAXIMUM IMMERSION LEVEL.

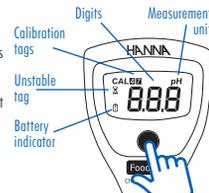
- For best results, recalibrate periodically.
- After use, rinse the electrode with water and store it with a few drops of storage solution in the protective cap.
- Reattach the protective cap after each use.

DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

Operation

Press the ON/OFF button to turn the meter on. All tags will be displayed.

The meter will go into measurement mode: current reading and calibrated buffers are displayed.



Meter Calibration

From measurement mode, press and hold the ON/OFF button until "CAL" is displayed.



When "7.01" blinks on the display, place the tip of the probe into a pH 7.01 or 4.01 buffer solution.

- A** For one or two-point calibration using pH 7.01 buffer go to procedure A
- B** For one-point calibration using pH 4.01 buffer go to procedure B

A One or Two-Point Calibration with pH 7.01

One-Point

If pH 7.01 buffer solution is used as the first point the buffer is recognized with the blinking stability indicator. When the reading is stable, the stability indicator will disappear and pH 7.01 will be calibrated. If pH 7.01 is the only calibration point, finish one-point procedure at right. If using pH 4.01 as a second point, continue two-point procedure at right.

Two-Point

Use pH 4.01 to perform a two-point calibration. The value is automatically recognized and displayed with the blinking stability indicator.

"Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tag will be displayed.

When the reading is stable, the stability indicator will disappear. "Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tags will be displayed.

B One-Point Calibration with pH 4.01

If pH 4.01 buffer solution is used as the first point the value of the buffer is recognized and displayed with the blinking stability indicator.

When the reading is stable, the stability indicator will disappear. "Sto" will be displayed when the calibration is saved.

Meter will exit to measurement mode and the calibration tag will be displayed.