

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

Probe Features

Low Temperature Glass Tip and Open Junction.

The glass tip uses a special low temperature (LT) glass formulation. This is beneficial since many food products are at low temperature. The open junction design consist of a solid gel interface between the sample and the internal reference wire. This makes it impermeable to clogging after measurements.



Conical Glass Tip

The conical shaped tip design allows for penetration into solids, semi-solids, and emulsions for the direct measurement of pH in samples such as milk and yogurt.

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	51 x 159 x 21 mm (2 x 6.3 x 0.9")
Weight	50 g (1.8 oz.)

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 milk deposits (2 pcs.)
- Electrode storage solution, 13 mL dropper
- Instruction manual
- Quality certificate

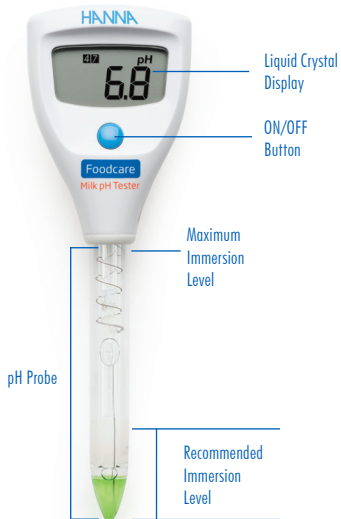
Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packaging with the supplied accessories.

Intended use

The measurement of pH in milk is important in testing for impurities, spoilage, and signs of mastitis infection. While there are a number of factors that affect the composition of milk, pH measurements can help producers understand what might be causing certain compositional changes. pH measurement is commonly performed at various points in a milk processing plant.

Milk with pH values higher than pH 6.7 potentially indicate that the milk may have come from cows with a mastitis infection. Mastitis is an ever-present challenge with dairy milking cows. When infected, the cow's immune system releases histamine and other compounds in response to the infection. There is a resulting increase in permeability of endothelial and epithelial cell layers, allowing blood components to pass through a paracellular pathway. Since blood plasma is slightly alkaline, the resulting pH of milk will be higher than normal. Typically milk producers can perform a somatic cell count to detect a mastitis infection, but a pH measurement offers a quick way to screen for infection.

Understanding the pH of raw milk can also help producers optimize their processing techniques. For example, in operations that use Ultra High Temperature (UHT) processing, even small variations from pH 6.7 can affect the time required for pasteurization and the stability of the milk after treatment.



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.

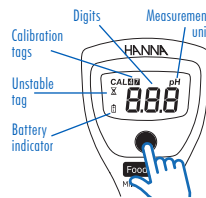
- Stir gently and wait for a stable reading.
- For best results, recalibrate periodically.
- After use, rinse the electrode with water and store it with a few drops of storage solution in the protective cap.
- Reattach the protective cap after each use.

DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

Operation

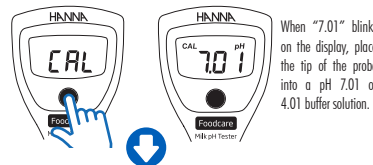
Press the ON/OFF button to turn the meter on. All tags will be displayed.

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



Meter Calibration

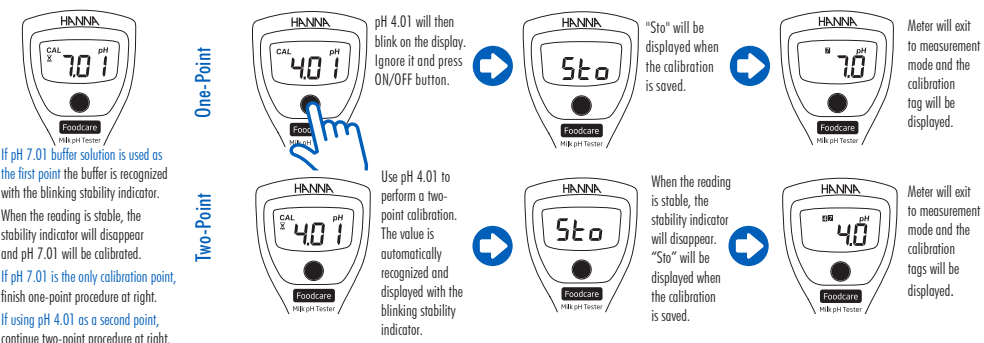
From measurement mode, press and hold the ON/OFF button until "CAL" is displayed.



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



B One-Point Calibration with pH 4.01

